APPENDIX Q

COST ESTIMATES

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TABLE OF CONTENTS

	Page
Q-1 Introduction	Q.1
Q-2 Assumptions for Capital Costs	Q.1
Conveyance Systems	Q.1
Water Treatment Plants	Q.2
New Groundwater Wells	Q.2
New Reservoirs	Q.3
Other Costs	Q.3
Q-3 Assumptions for Annual Costs	Q.4
Q-4 Cost Estimates for Strategies	Q.6

List of Tables

Q-1	Pipeline Costs (Does Not Include ROW)	Q.6
Q-2	Pump Station Costs for Transmission Systems	Q.7
Q-3	Costs for Ground Storage Tanks	Q.8
Q-3A	Costs for Elevated Storage Tanks	Q.8
Q-4	Discharge Structures	Q.9
Q-5	Conventional Water Treatment Plant Costs	Q.9
Q-5A	Additional Cost for Reverse Osmosis Treatment	Q.10
Q-5B	Groundwater Nitrate Treatment	Q.10
Q-6	Cost Elements for Water Wells	Q.10
Q-7	Cost Elements for Reservoir Sites	Q.11
Q-8	Pipeline Easement Costs	Q.11
Q-9	Factors for Interest during Construction	Q.11
Q-10	Supply and Costs by User Group for Basic Conservation Package	
Q-11	Supply and Costs by User Group for Expanded Conservation Package	
Q-12	Supply and Costs by User Group for Non-Municipal Water Conservation Package	
Q-13	Cost Estimates for Supplemental Wells to Maintain Current Groundwater Production Capacity	
Q-14	New WTPs	
Q-15	WTP expansions	
Q-16	Toledo Bend to SRA Upper Basin, DWU, NTMWD, and TRWD	

List of Tables, Continued

Q-17 Toledo Bend to SRA Upper Basin, NTMWD, and TRWD
Q-18 Gulf of Mexico Water with Desalination
Q-19 Cost of Marvin Nichols IA Reservoir and Transmission System
Q-20 Cost of Marvin Nichols IA Reservoir and Transmission System - North Texas MWD, Tarrant Regional WD, and Upper Trinity RWD
Q-21 Wright Patman to Dallas Water Utilities - Purchase 100,000 Acre-Feet per Year from Texarkana
Q-22 Wright Patman to North Texas Municipal Water District - Purchase 100,000 Acre-Feet per Year from Texarkana
Q-23 Wright Patman to Tarrant Regional Water District - Purchase 100,000 Acre-Feet per Year from Texarkana
Q-24 Wright Patman to Dallas Water Utilities - Develop 112,100 Acre-Feet per Year from Lake Wright Patman
Q-25 Wright Patman to Dallas Water Utilities - Develop 180,000 Acre-Feet per Year from Lake Wright Patman
Q-26 Wright Patman to North Texas Municipal Water District - Develop 180,000 Acre-Feet per Year from Lake Wright Patman
Q-27 Wright Patman to Tarrant Regional Water District - Develop 180,000 Acre-Feet per Year from Lake Wright Patman
Q-28 Wright Patman to DWU, NTMWD, and TRWD - Develop 390,000 Acre-Feet per Year from Lake Wright Patman
Q-29 Lake Texoma Already Authorized with Blending - WTP at Leonard
Q-30 NTMWD Substantial Additional Lake Texoma Supply with Desalination
Q-31 Additional Lake Texoma Supply with Blending
Q-32 Substantial Additional Lake Texoma Supply with Desalination
Q-33 Lake Livingston to Dallas Water Utilities
Q-34 Lake Livingston to North Texas Municipal Water District
Q-35 Lake Livingston to Tarrant Regional Water District
Q-36 Tawakoni Replacement
Q-37 Dallas Main Stem Pump Station
Q-38 Roberts County Water Supply Project - Ogallala Groundwater to Lake Ray Roberts
Q-39 Roberts County Water Supply Project - Ogallala Groundwater to Lake Ray Lavon near Princeton, Texas
Q-40 Roberts County Water Supply Project - Ogallala Groundwater to Eagle Mountain Lake via Lake Bridgeport
Q-41 TRWD & DWU Integrated Pipeline
Q-42 DWU Oklahoma Water - From Hugo to Lake Lewisville
Q-43 NTMWD Oklahoma Water - From Hugo to Lake Chapman
Q-44 TRWD Oklahoma Water - From Hugo to Eagle Mountain
Q-45 UTRWD and Irving Oklahoma Water - From Hugo to Lake Chapman to Lavon
Q-46 Oklahoma Water for NTMWD, TRWD, and UTRWD
Q-47 Cost of Lower Bois d'Arc Creek Reservoir Site
Q-48 Cost of George Parkhouse North Reservoir for Dallas Water Utilities

List of Tables, Continued

Q-49 Cost of George Parkhouse North Reservoir for North Texas Municipal Water District
Q-50 TRWD Wetlands Reuse
Q-51 Cost of Neches River Run-of-the-River Diversions Project for Dallas Water Utilities
Q-52 Cost of George Parkhouse South Reservoir for North Texas Municipal Water District
Q-53 Cost of George Parkhouse South Reservoir for Dallas
Q-54 Groundwater from the Carrizo-Wilcox from Brazos County for Dallas Water Utilities
Q-55 Groundwater from the Carrizo-Wilcox from Brazos County for North Texas MWD
Q-56 Carrizo-Wilcox Groundwater from the Brazos County Area
Q-56 DWU Lake of the Pines - Pump from Lake of the Pines to Lake Fork to TBR and gravity flow to East Side WTP
Q-58 NTMWD Lake of the Pines - From Lake of the Pines to New WTP at Farmersville
Q-59 TRWD Lake of the Pines- From Lake of the Pines to Rolling Hills WTP
Q-60 Dallas Water Utilities - Lake Ray Hubbard Indirect Reuse Project
Q-61 Dallas Water Utilities - Lake Lewisville Indirect Reuse Project
Q-62 Tarrant Regional Water District Lake Tehuacana
Q-63 Lake Ralph Hall and Reuse for UTRWD
Q-64 DWU Lake Columbia (formerly Lake Eastex)
Q-65 Dallas Direct Reuse Projects
Q-66 Lake Texoma Supply with Blending in Elm Fork
Q-67 DWU Water Treatment Plant Construction and Expansion
Q-68 Lake Chapman Pump Station Expansion, NTMWD and Irving
Q-69 North Texas Municipal Water District Interim Purchase from DWU
Q-70 North Texas Municipal Water District Water District Lake Texoma (Interim GTUA)
Q-71 Lake Texoma Pump Station Expansion, NTMWD and GTUA
Q-72 NTMWD Treatment & Treated Water Distribution Improvements
Q-73 Fannin County Water Supply Project
Q-74 Ellis County Water Supply Project
Q-75 Trinity River Authority Las Colinas Reuse (Dallas County Irrigation)
Q-76 Trinity River Authority Dallas County Reuse for Steam Electric Power
Q-77 Trinity River Authority Ellis County Reuse for Steam Electric Power
Q-78 Trinity River Authority Freestone County Reuse for Steam Electric Power
Q-79 Trinity River Authority Kaufman County Reuse for Steam Electric Power
Q-80 Trinity River Authority - Tarrant County Water Supply Project Expansions
Q-81 Trinity River Authority Reuse from Denton Creek Wastewater Treatment Plant
Q-82 Freestone County S. E. Power by TRA from Tarrant Regional Water District
Q-83 Upper Trinity Regional Water District Direct Reuse
Q-84 UTRWD Water Treatment Plant and Treated Water Distribution System Water Management Strategies
Q-85 Upper Trinity Regional Water District Alternative Strategy Costs

List of Tables, Continued

Q-86	Grayson County Water Supply Project
Q-87	GTUA Collin-Grayson Municipal Alliance East-West Water Line
Q-88	GTUA Collin-Grayson Municipal Alliance Water Transmission System - Phase 2
Q-89	Athens MWA New Wells
Q-90	Athens MWA Reuse
Q-91	Obtain Water from Forest Grove Reservoir and Transport All to Lake Athens
Q-92	Athens MWA Forest Grove to WTP
Q-93	Athens MWA Cedar Creek to WTP
Q-94	Purchase water from Lake Palestine for Athens MWA
Q-95	Purchase Water from DWU for Athens MWA
Q-96	Corsicana WTP at Navarro Mills Lake
Q-97	Corsicana WTP at Lake Halbert
Q-98	GTUA Reuse for Steam Electric Power
Q-99	Cooke County Water Supply Project
Q-100	Muenster: Pipeline from Gainesville to Muenster
Q-101	Gainesville Direct Reuse
Q-102	City of Fort Worth Parallel Pipeline to Eagle Mountain Lake with Raw Water Pump Station Expansion
Q-103	City of Fort Worth Pipeline to New Southwest Water Treatment Plant
Q-104	Fort Worth Future Direct Reuse*
Q-105	Fort Worth Direct Reuse - Alliance Corridor
Q-106	Fort Worth Direct Reuse - Village Creek*
Q-107	Walnut Creek SUD (Parallel) Pipeline to Rhome
Q-108	Walnut Creek - Pipeline from Bridgeport with 12 MGD WTP
Q-109	Walnut Creek SUD - Azle pipeline to Rhome
Q-110	Walnut Creek SUD Intake and Pipeline from Eagle Mountain Lake to New WTP
Q-111	Walnut Creek SUD Pipeline from Eagle Mountain Lake to Boyd and Rhome
Q-112	Dallas Supply to Ellis County Customers - Rockett SUD, Red Oak, and Waxahachie
Q-113	Waxahachie Additional TRA/Waxahachie Indirect Reuse
Q-114	Weatherford Increase Pump Station Capacity by 7 MGD
Q-115	Celina to NTMWD
Q-116	Blue Ridge to NTMWD
Q-117	Frisco Direct Reuse
Q-118	Prosper Additional NTMWD
Q-119	Weston to NTMWD
Q-120	Collin County Mining - Additional NTMWD
Q-121	Collin County SEP - Additional NTMWD
Q-122	Navarro County SEP from Corsicana
Q-123	Navarro County SEP from Corsicana

List of Tables, Continued

Q-124 Muenster Water Treatment Plant
Q-125 Cooke County Irrigation - Overdraft Trinity Aquifer with Existing Wells
Q-126 Cooke County Mining - Overdraft Trinity Aquifer with New Wells
Q-127 Gainesville - Overdraft Trinity aquifer with Existing Wells
Q-128 Addison Aquifer Storage and Recovery
Q-129 Pipeline from DWU to Carrollton, Lewisville, and The Colony
Q-130 Combine WSC pipeline to Seagoville
Q-131 Grand Prairie - Pipeline from Mansfield
Q-132 Grand Prairie - Pipeline from Midlothian
Q-133 Grand Prairie - Pipeline from Arlington
Q-134 Princeton Pump Station Improvements
Q-135 Irving Indirect Reuse
Q-136 Irving Direct Reuse
Q-137 Irving - Oklahoma to Lake Lewisville
Q-138 Irving Alternatives
Q-139 Lake Hugo to Irving through Chapman
Q-140 Ovilla - Additional water from Dallas
Q-141 Sardis-Lone Elm WSC - Water from Rockett SUD
Q-142 Lancaster New DWU Delivery Point
Q-143 Dallas County Irrigation - Pipeline for Reuse
Q-144 Dallas County Mining Pipeline
Q-145 Dallas County SEP Direct Reuse
Q-146 Hackberry Additional NTMWD
Q-147 Denton County Other - Woodbine Wells
Q-148 Denton County Other - Trinity Wells
Q-149 Pilot Point (Denton County) - Trinity Wells
Q-150 Northlake, Roanoke, and Trophy Club to Fort Worth
Q-151 Southlake to Fort Worth
Q-152 The Colony Aquifer Storage and Recovery
Q-153 Denton County Mining - Woodbine Wells
Q-154 Denton County Manufacturing - Trinity Wells
Q-155 Denton County SEP - Trinity Wells
Q-156 Denton County Irrigation - Trinity Wells
Q-157 Buena Vista-Bethel SUD - Overdraft Trinity with Existing Wells
Q-158 Buena Vista-Bethel SUD Purchase Water from Rockett SUD
Q-159 Buena Vista - Bethel SUD Parallel Pipeline from Waxahachie
Q-160 Community Water Company Additional Water from Ennis
Q-161 Ennis Indirect Reuse

List of Tables, Continued

Q-162 Ennis Raise Bardwell
Q-163 Ferris Water from Rockett SUD
Q-164 Glenn Heights Additional Water from Dallas
Q-165 Mountain Peak SUD - Cost of Overdrafting
Q-166 Mountain Peak SUD Additional Water from Midlothian
Q-167 Mountain Peak SUD Water from Rockett SUD
Q-168 Mountain Peak SUD - Trinity Wells
Q-169 Oak Leaf Additional Water from Glenn Heights
Q-170 Palmer Purchase Water from Rockett SUD
Q-171 Ellis County SEP Water from Waxahachie
Q-172 Rice WSC Additional Water from Ennis
Q-173 Sardis-Lone Elm WSC - Cost of Overdrafting
Q-174 Ellis County Other - Trinity Wells
Q-175 Ellis County Other - Woodbine Wells
Q-176 Ellis County Irrigation - Woodbine Wells
Q-177 Ellis County Manufacturing Additional Water from Waxahachie
Q-178 Ellis County Manufacturing Additional Water from Midlothian
Q-179 Ellis County Manufacturing Additional Water from Ennis
Q-180 Ellis County Steam Electric Power Additional Water from Midlothian
Q-181 Ladonia from UTRWD - Ralph Hall
Q-182 Fannin County SEP - Lake Texoma
Q-183 Fairfield New Wells in Carrizo-Wilcox Aquifer
Q-184 Fairfield Connect to TRWD (Richland-Chambers)
Q-185 Teague New wells in Carrizo-Wilcox Aquifer
Q-186 Wortham Purchase Water from TRWD
Q-187 Wortham Purchase Water from Corsicana
Q-188 Freestone County SEP Water from TRA (TRWD)
Q-189 Freestone County SEP TRA Reuse
Q-190 Denison Infrastructure Improvements
Q-191 Southmayd New or Purchased Wells in Woodbine Aquifer
Q-192 Grayson County Manufacturing Purchase water from Howe
Q-193 Bryson Purchase Water from Graham
Q-194 Bryson Connect to Jacksboro
Q-195 Jack County Other Transmission System
Q-196 Henderson County SEP - Transmission Facilities from Cedar Creek Lake
Q-197 Crandall Pipeline to Seagoville (DWU)
Q-198 Kaufman County Irrigation Pipeline to NTMWD (reuse)
Q-199 Kaufman County SEP Pipeline for Forney/Garland
Q-200 Kaufman County SEP Pipeline for water from Forney (NTMWD)

List of Tables, Continued

Q-201 Kaufman County SEP - TRA Reuse
Q-202 Ables Springs Connection to NTMWD Tawakoni WTP
Q-203 College Mound Upsize Existing Line from Terrell
Q-204 Forney Pump Station - Increase Capacity
Q-205 Terrell New Water Line
Q-206 Terrell New Line off of NTMWD Delivery Line
Q-207 Terrell New Line off of NTMWD Delivery Line
Q-208 Terrell New Line off of NTMWD Delivery Line
Q-209 Terrell Ground Storage Tank and Pump Station Expansions
Q-210 Terrell Second NTMWD Delivery Point
Q-211 Terrell New Line to Serve Wholesale Customers
Q-212 Kaufman Connect to NTMWD (Alternative WMS)
Q-213 East Parker County - Pipeline from Weatherford to Annetta, Annetta South, and Willow Park
Q-214 Aledo Purchase Water from Fort Worth (Wholesale System)
Q-215 West Parker County - Pipeline from BRA to Parker County SUD
Q-216 Springtown Pipeline to Walnut Creek SUD (TRWD)
Q-217 Parker County SEP Additional Water from Weatherford
Q-218 Blackland WSC Purchase Water from NTMWD
Q-219 RCH WSC Purchase Water from NTMWD
Q-220 Bethesda Parallel Pipeline to Fort Worth
Q-221 Burleson Purchase Water from Fort Worth
Q-222 Crowley Purchase Water from Fort Worth
Q-223 Kennedale - New well in Trinity Aquifer
Q-224 Kennedale Purchase Additional Water from Fort Worth
Q-225 Kennedale Pipeline to Arlington
Q-226 Lakeside New well in Trinity Aquifer
Q-227 Lakeside Pipeline to Azle
Q-228 Watauga (North Richland Hills) to Fort Worth
Q-229 Pantego Pipeline to Fort Worth
Q-230 Pantego Pipeline to Arlington
Q-231 Pelican Bay Pipeline to Azle
Q-232 Tarrant County SEP Direct Reuse
Q-233 Tarrant County Irrigation TRWD reuse
Q-234 Alvord Pipeline to Chico
Q-235 Aurora Pipeline to Rhome
Q-236 Bridgeport Pump Station - Increase Capacity
Q-237 Bridgeport Parallel Pipeline to TRWD
Q-238 Chico Pipeline to Bridgeport
Q-239 Decatur Parallel Pipeline to Bridgeport

List of Tables, Continued

Q-240 New Fairview Pipeline to Rhome
Q-241 Newark Pipeline to Rhome
Q-242 Wise County SEP Pipeline for Bridgeport reuse
Q-243 Wise County SEP Pipeline for Decatur reuse
Q-244 Blooming Grove New Well in Trinity Aquifer
Q-245 Navarro Mills WSC New Well in Woodbine Aquifer
Q-246 MEN WSC New Well in Other Aquifer (Alternative WMS)
Q-247 Chatfield WSC New Well in Other Aquifer (Alternative WMS)
Q-248 M E N WSC - Upsize Lake Halbert Connection
Q-249 Chatfield WSC New WTP on Cedar Creek Reservoir (Alternative WMS)
Q-250 M E N WSC New WTP on Cedar Creek Reservoir (Alternative WMS)
Q-251 Chatfield WSC New WTP on Richland-Chambers Reservoir (Alternative WMS)
Q-252 M E N WSC New WTP on Richland-Chambers Reservoir (Alternative WMS)
Q-253 Athens WTP Expansion
Q-254 Melissa - Treated water Connection to NTWMD
Q-255 Springtown - New Well in Trinity Aquifer
Q-256 Payne Springs - New Well in Carrizo-Wilcox Aquifer
Q-257 Lake Worth - New Well in Trinity Aquifer
Q-258 Little Elm - New Well in Woodbine Aquifer

Q-1 Introduction

The evaluation of water management strategies requires developing cost estimates. Guidance for cost estimates may be found in the TWDB's "General Guidelines for Regional Water Plan Development (2007-2012)", Section 4.1.2. Costs are to be reported in September 2008 dollars.

Cost estimates are based on standard unit costs for installed pipe, pump stations and standard treatment facilities developed from experience with similar projects throughout the State of Texas. All unit costs include the contractors' mobilization, overhead and profit. The unit costs **do not** include engineering, contingency, financial and legal services, costs for land and rights-of-way, permits, environmental and archeological studies, or mitigation. These costs are included in estimates outside of the unit costs.

The cost estimates have two components:

- Initial capital costs, including engineering and construction costs
- Average annual costs, including annual operation and maintenance costs and debt service.

Q-2 Assumptions for Capital Costs

Conveyance Systems

Standard pipeline costs used for these cost estimates are shown in Table Q-1. Pump station costs are based on required Horsepower capacity and are listed in Table Q-2. The power capacity is to be determined from the hydraulic analyses conducted from a planning level hydraulic grade line evaluation (or detailed analysis if available). Pipelines and pump stations are to be sized for peak pumping capacity.

- Pump efficiency is assumed to be 75 percent.
- Peaking factor of 2 times the average demand for strategies when the water is pumped directly to a water treatment plant. (or historical peaking factor, if available)
- Peaking factor of 1.2 to 1.5 is to be used if there are additional water sources and/or the water is transported to a terminal storage facility.
- Ground storage is to be provided at each booster pump station along the transmission line unless there is a more detailed design.
- Ground storage tanks should provide sufficient storage for 2.5 to 4 hours of pumping at

peak capacity. Costs for ground storage are shown in Table Q-3. Covered storage tanks are used for all strategies transporting treated water.

- Costs for elevated storage tanks are shown in Table Q-3A.
- When a pipeline discharges into a reservoir or river, use project-specific discharge structure costs if available. If no project-specific information is available, the costs in Table Q-4 may be used to estimate discharge structure costs.

Water Treatment Plants

Water treatment plants are to be sized for peak day capacity (assume peaking factor of 2 if no specific data is available). Costs estimated for new conventional surface water treatment facilities and expansions of existing facilities are listed in Table Q-5. Conventional treatment does not include advanced technologies, such as ozone or UV treatment. All treatment plants are to be sized for finished water capacity.

- For reverse osmosis plants for surface water, increase construction costs shown on Table Q-5 by the amount shown on Table Q-5A for the appropriate size plant that will be used for RO. If groundwater is the raw water source, use only the costs in Table Q-5A. These costs were based on actual cost estimates of similar facilities.
- The amount of reject water generated by reverse osmosis treatment is dependent upon the incoming quality of the raw water. Final treatment goals should be between 600 and 800 mg/l of TDS. (This provides a safety margin in meeting secondary treatment standards.) For reverse osmosis treatment of brackish water (1,000 – 3,000 mg/l of TDS), assume that 20 percent of the raw water treated with membranes is discharged as reject water, unless project-specific data is available. For brackish water with TDS concentrations between 3,000 and 10,000 mg/l, assume 30% reject water. Desalination of seawater or very high TDS water will have a higher percent of reject water (50 to 60%). Minimal losses are assumed for conventional treatment facilities.
- Costs for ion exchange facilities are shown on Table Q-5B. For these facilities it is assumed that 2 to 3 percent of the raw water would be discharged as reject water.

New Groundwater Wells

The costs for new water wells can be calculated using the formulas in Table Q-6. Costs include well pumps and motors. It is assumed that the cost of irrigation wells is approximately 60% of the cost for municipal and industrial wells. Well depth will be estimated by county and aquifer.

For expansion of existing well fields for municipal water providers, an additional $160,000 per well for connection to the existing distribution system is assumed.

Connection costs and conveyance systems for new well fields will be determined on a case-by-case basis.

New Reservoirs

Site-specific cost estimates will be made for reservoir sites. The elements required for reservoir sites are included in Table Q-7. Lake intake structures for new reservoirs will be determined on a case-by-case basis. Generally, costs for construction of such facilities prior to filling of the reservoir will be less than shown on Table Q-2 because they can be constructed on dry ground.

Other Costs

- Engineering, contingency, construction management, financial and legal costs are to be estimated at 30 percent of construction cost for pipelines and 35 percent of construction costs for pump stations, treatment facilities and reservoir projects as required by TWDB Exhibit B.
- Permitting and mitigation for transmission and treatment projects are to be estimated at 1 percent of the total construction costs. For reservoirs, mitigation and permitting costs are assumed equal to twice the land purchase cost for the conservation pool, unless site specific data are available.
- Right-of-way costs for transmission lines are estimated per linear foot of ROW using the unit costs in Table Q-8. If a small pipeline follows existing right-of-ways (such as highways), no additional right-of-way cost is assumed. Large pipelines will require ROW costs regardless of routing.
- The costs for property acquisition for reservoirs are to be based on previous cost estimates, if available. If no site specific data is available, land costs will be based on the median rural land cost published by the Texas A&M Real Estate Center website for 2007 or a minimum of $2,000 per acre, whichever is higher.
- Costs for power supply to pump stations, water treatment plants, and well sites have not been included in the unit costs. If a detailed study including power supply costs is available for a particular project, the costs will be included accordingly. The costs for power supply can be highly variable and depend on the location of the project and available power supply in the area. Power supply costs may or may not be a significant cost element of a project.

Interest during construction is the total of interest accrued at the end of the construction period using a 6 percent annual interest rate on total borrowed funds, less a 4 percent rate of return on investment of unspent funds. This is calculated assuming that the total estimated project cost (excluding interest during construction) would be drawn down

at a constant rate per month during the construction period. Factors were determined for different lengths of time for project construction. These factors were used in cost estimating and are presented in Table Q-9.

Q-3 Assumptions for Annual Costs

Annual costs are to be estimated using the following assumptions:

- Debt service for all transmission and treatment facilities is to be annualized over 30 years, but not longer than the life of the project. Debt service for reservoirs is to be annualized over 30 years. State participation projects can be annualized over 35 years. (Note: uniform amortization periods should be used when evaluating similar projects for an entity.) The 30-year amortization period for all projects deviates from the Regional Planning Guidelines, however Region C felt it necessary to use this uniform amortization period for all projects. Reasons for this are that it allows projects costs to be compared on the same basis and in actuality most water suppliers are financing most projects for 30 years. In addition, the *2006 Region C Water Plan* used 30 year debt service terms for all projects.
- Annual interest rate for debt service is 6 percent.
- Water purchase costs are to be based on wholesale rates reported by the selling entity when possible. In lieu of known rates, a typical regional cost for treated water and raw water will be used.
- Operation and Maintenance costs are to be calculated based on the construction cost of the capital improvement. Engineering, permitting, etc. should not be included as a basis for this calculation. However, a 20% allowance for construction contingencies should be included for all O&M calculations. Per the "General Guidelines for Regional Water Plan Development (2007-2012)", O&M should be calculated at:
    - 1 percent of the construction costs for pipelines
    - 1.5 percent for dams
    - 2.5 percent of the construction costs for pump stations, storage tanks, meters and SCADA systems
    - Assume O&M costs for treatment facilities are included in the treatment cost
- Surface water treatment costs are estimated at $0.70 per 1,000 gallons for conventional plants and $1.24 per 1,000 gallons of finished water for surface water plants with reverse osmosis. Assume cost for treatment of groundwater by reverse osmosis is $0.65 per 1,000 gallons. If only a portion of the water will be treated with RO, apply costs proportionately. Treatment for nitrates is estimated at $0.40 per 1,000 gallons. Treatment for groundwater (assuming chlorination only) is estimated at $0.30 per 1,000 gallons. These costs include chemicals, labor and electricity and should be applied to amount of finished water receiving the treatment.

- Reject water disposal for treatment of brackish water is to be estimated on a case-by-case basis depending on disposal method. If no method is defined, assume a cost of $0.35 per 1,000 gallons of reject water. [This value represents a moderate cost estimate. If the water were returned to a brackish surface water source, the costs could be lower. If evaporation beds or deep well injection were used, the costs could be much higher.]
- Pumping costs are to be estimated using an electricity rate of $0.09 per Kilowatt Hour. If local data is available, this can be used.

Q-4 Cost Estimates for Strategies

Tables Q-10 through Q-320 include cost estimates for individual strategies.

Table Q-1
Pipeline Costs (Do Not Include ROW)

Diameter	Base Installed Cost	Rural Cost with Appurtenances	Urban Cost with Appurtenances	Assumed ROW Width	Assumed Temporary Easement Width
(Inches)	($/Foot)	($/Foot)	($/Foot)	(Feet)	(Feet)
6	24	26	39	15	50
8	31	34	52	15	50
10	39	43	65	20	60
12	47	52	77	20	60
14	55	60	90	20	60
16	62	69	103	20	60
18	70	77	116	20	60
20	82	90	135	20	60
24	105	116	174	20	60
30	132	145	215	20	60
36	167	184	276	20	60
42	196	215	323	30	70
48	244	269	374	30	70
54	288	317	435	30	70
60	332	366	495	30	70
66	401	441	591	30	70
72	469	516	697	30	70
78	538	591	799	40	80
84	616	677	914	40	80
90	704	774	1,045	40	80
96	782	860	1,161	40	80
102	870	957	1,290	40	80
108	977	1,075	1,451	40	80
114	1,075	1,183	1,596	50	100
120	1,212	1,333	1,801	50	100
132	1,466	1,613	2,177	50	100
144	1,730	1,903	2,569	50	100

Notes: a Costs are based on PVC class 150 pipe for the smaller long, rural pipelines.
b Appurtenances assumed to be 10% of installed pipe costs.
c For urban pipelines, costs were increased by 35% for cost with appurtenances. For pipes 42"and smaller, additional costs were added.
d Adjust costs for obstacles (rock, forested areas) and easy conditions (soft soil in flat country).

Table Q-2
Pump Station Costs for Transmission Systems

	Booster PS	Lake PS with Intake
Horsepower	**Costs**	**Costs**
5	$516,000	
10	$538,000	
20	$564,000	
25	$591,000	
50	$645,000	
100	$742,000	
200	$1,118,000	$1,484,000
300	$1,441,000	$1,914,000
400	$1,795,000	$2,387,000
500	$2,032,000	$2,698,000
600	$2,150,000	$2,860,000
700	$2,268,000	$3,021,000
800	$2,516,000	$3,343,000
900	$2,634,000	$3,505,000
1,000	$2,870,000	$3,817,000
2,000	$4,182,000	$5,562,000
3,000	$5,020,000	$6,677,000
4,000	$6,095,000	$8,107,000
5,000	$6,988,000	$9,293,000
6,000	$8,063,000	$10,723,000
7,000	$8,923,000	$11,867,000
8,000	$9,890,000	$13,154,000
9,000	$10,965,000	$14,583,000
10,000	$12,255,000	$16,299,000
20,000	$20,425,000	$27,165,000
30,000	$26,875,000	$35,744,000
40,000	$33,325,000	$44,322,000
50,000	$38,700,000	$51,471,000
60,000	$44,075,000	$58,620,000
70,000	$49,450,000	$65,769,000

Note:
1. Lake PS with intake costs include intake and pump station.
2. Adjust pump station costs upward if the pump station is designed to move large quantities of water at a low head (i.e. low horsepower). See Rusty Gibson for appropriate factor.
3. Assumed multiple pump setup for all pump stations.

Table Q-3
Costs for Ground Storage Tanks

Size (MG)	With Roof	Without Roof
0.05	$125,000	$106,000
0.1	$183,000	$156,000
0.5	$438,000	$333,000
1	$634,000	$469,000
1.5	$796,000	$591,000
2	$957,000	$714,000
2.5	$1,086,000	$821,000
3	$1,215,000	$928,000
3.5	$1,355,000	$1,023,000
4	$1,505,000	$1,118,000
5	$1,720,000	$1,303,000
6	$2,075,000	$1,505,000
7	$2,446,000	$1,740,000
8	$2,822,000	$2,069,000
10	$3,746,000	$2,752,000
12	$4,671,000	$3,419,000
14	$5,595,000	$4,085,000

Note: Costs assume steel tanks smaller than 1 MG, concrete tanks 1 MG and larger.

Table Q-3A
Costs for Elevated Storage Tanks

Size (MG)	Cost
0.5	$1,333,000
0.75	$1,537,000
1.0	$1,742,000
1.5	$2,301,000
2.0	$2,870,000
2.5	$3,376,000

Table Q-4
Discharge Structures

Capacity (MGD)	Cost
0.5	$32,000
1	$33,000
2	$37,000
5	$43,000
10	$54,000
60	$140,000
80	$160,000
120	$240,000

Table Q-5
Conventional Water Treatment Plant Costs

Plant Capacity (MGD)	New Conventional Plants	Conventional Plant Expansions
1	$5,800,000	$2,900,000
3	$10,600,000	$7,400,000
7	$17,500,000	$12,900,000
10	$22,400,000	$16,000,000
15	$29,100,000	$20,900,000
20	$35,400,000	$26,100,000
30	$47,600,000	$35,700,000
40	$60,000,000	$45,500,000
50	$72,600,000	$54,400,000
60	$84,900,000	$63,500,000
70	$96,600,000	$72,200,000
80	$107,900,000	$81,400,000
90	$118,500,000	$90,500,000
100	$130,200,000	$100,200,000

Note: Plant is sized for finished peak day capacity.

Table Q-5A
Additional Cost for Reverse Osmosis Treatment

Plant Capacity (MGD)	Reverse Osmosis Facilities Cost
0.5	$1,300,000
1	$1,600,000
3	$3,200,000
7	$7,200,000
10	$9,800,000
15	$14,200,000
20	$18,300,000
30	$25,500,000
40	$31,400,000
50	$36,600,000
60	$40,700,000

Note: Plant is sized for finished water capacity.

Table Q-5B
Groundwater Nitrate Treatment

Treatment Capacity (MGD)	Ion Exchange Plant Cost
0.25	$800,000
1.0	$1,700,000
3.0	$3,900,000

Note: Plant is sized for finished water capacity.

Table Q-6
Cost Elements for Water Wells

Well Diameter (inches)	Typical Production Range (gpm)	Estimated Cost (A=1 for PWS/Industrial and 0.6 for Irrigation)
6	50-100	($80,000 + $125 x depth in feet) x A
8	100-250	($80,000 + $175 x depth in feet) x A
10	250-400	($85,000 + $200 x depth in feet) x A
12	400-500	($85,000 + $250 x depth in feet) x A
15	500-600	($90,000 + $300 x depth in feet) x A

Table Q-7
Cost Elements for Reservoir Sites

Capital Costs	Studies and Permitting
Embankment	Environmental and archeological studies
Spillway	Permitting
Outlet works	Terrestrial mitigation tracts
Site work	Engineering and contingencies
Land	Construction management
Administrative facilities	
Supplemental pumping facilities	
Flood protection	

Table Q-8
Pipeline Easement Costs

Pipeline Diameter (inches)	Cost per Linear Foot			
	Rural County	Suburban County	Urban County	Highly Urbanized Area
6 to 8	$3.00	$9.00	$21.00	Evaluate on a case-by-case basis
10 to 36	$5.00	$12.00	$28.00	
42 to 72	$7.00	$17.00	$41.00	
78 to 108	$9.00	$23.00	$55.00	
114 to 144	$12.00	$29.00	$69.00	

Note: Suburban County is defined as a county immediately bordering the Dallas/Fort Worth Metroplex.

Table Q-9
Factors for Interest during Construction

Construction Period	Factor
6 months	0.02167
12 months	0.04167
18 months	0.06167
24 months	0.08167
36 month construction	0.12167

Table Q-10
Supply and Costs by User Group for Basic Conservation Package

Water User Group Name	Capital Costs						Total Annual Cost per Acre-Foot						Value of Total Supply from Basic Conservation (Acre-Feet)						Total Annual Cost					
	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060
ABLES SPRINGS WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	9	33	52	69	91	118	$0	$0	$0	$0	$0	$0
ADDISON	$0	$0	$0	$0	$0	$0	$220	$153	$121	$101	$87	$76	189	340	465	587	707	826	$41,500	$52,079	$56,335	$59,301	$61,368	$62,700
ALEDO	$0	$5,000	$0	$0	$0	$0	$80	$323	$258	$221	$199	$182	5	54	108	166	193	212	$436	$17,418	$27,820	$36,768	$38,417	$38,417
ALLEN	$0	$8,711	$0	$0	$0	$0	$4	$146	$104	$90	$81	$73	192	1,115	1,672	1,914	2,145	2,376	$759	$163,259	$173,259	$173,125	$173,125	$173,125
ALVORD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	2	7	10	12	14	17	$0	$0	$0	$0	$0	$0
ANNA	$0	$0	$0	$0	$0	$0	$0	$261	$204	$169	$138	$104	24	141	261	397	574	1,061	$0	$36,833	$53,167	$67,000	$79,000	$110,000
ANNETTA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	3	11	16	19	23	27	$0	$0	$0	$0	$0	$0
ANNETTA SOUTH	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	1	4	6	8	9	10	$0	$0	$0	$0	$0	$0
ARGYLE	$0	$0	$0	$0	$0	$0	$307	$182	$145	$125	$109	$97	34	135	238	305	386	475	$10,486	$24,601	$34,460	$38,117	$42,158	$46,167
ARGYLE WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$212	$189	$169	14	38	50	78	88	98	$0	$0	$0	$16,644	$16,644	$16,644
ARLINGTON	$0	$0	$0	$0	$0	$0	$189	$110	$87	$76	$68	$61	2,123	3,969	5,273	6,290	7,031	7,798	$400,523	$437,500	$458,333	$476,721	$476,721	$476,721
ATHENS	$0	$25,605	$0	$0	$0	$0	$20	$278	$191	$165	$144	$125	21	170	290	383	505	662	$436	$47,234	$55,397	$63,054	$72,947	$82,612
AUBREY	$0	$0	$0	$0	$0	$0	$0	$308	$0	$0	$0	$0	6	48	61	88	126	181	$0	$14,910	$0	$0	$0	$0
AURORA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	3	9	13	15	18	22	$0	$0	$0	$0	$0	$0
AZLE	$5,000	$0	$0	$0	$0	$0	$751	$5	$3	$0	$0	$0	98	83	145	209	279	350	$73,536	$436	$436	$0	$0	$0
BALCH SPRINGS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	28	95	132	149	164	180	$0	$0	$0	$0	$0	$0
BARDWELL	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	1	6	8	11	13	16	$0	$0	$0	$0	$0	$0
BARTONVILLE	$0	$0	$0	$0	$0	$0	$497	$231	$196	$174	$157	$143	9	54	71	80	88	97	$4,361	$12,528	$13,889	$13,889	$13,889	$13,889
BARTONVILLE WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$194	3	10	15	18	20	33	$0	$0	$0	$0	$0	$6,332
BEDFORD	$0	$0	$0	$0	$0	$0	$365	$213	$166	$145	$128	$114	274	481	628	734	841	953	$100,001	$102,395	$104,407	$106,098	$107,519	$108,713
BELLS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	2	11	17	22	26	30	$0	$0	$0	$0	$0	$0
BENBROOK	$5,000	$0	$0	$0	$0	$0	$388	$222	$175	$146	$125	$109	172	328	445	602	800	1,045	$66,603	$72,686	$77,936	$88,000	$100,250	$113,750
BETHEL-ASH WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	3	11	17	21	25	30	$0	$0	$0	$0	$0	$0
BETHESDA WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	30	95	120	150	186	231	$0	$0	$0	$0	$0	$0
BLACKLAND WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	7	28	43	55	69	87	$0	$0	$0	$0	$0	$0
BLOOMING GROVE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$269	$240	$216	2	5	6	10	11	12	$0	$0	$0	$2,691	$2,691	$2,691
BLUE MOUND	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	4	12	16	17	18	19	$0	$0	$0	$0	$0	$0
BLUE RIDGE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	5	23	47	80	125	150	$0	$0	$0	$0	$0	$0
BOLIVAR WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	19	70	162	356	601	862	$0	$0	$0	$0	$0	$0
BONHAM	$0	$0	$0	$0	$0	$0	$0	$339	$256	$214	$174	$145	16	99	162	259	401	555	$0	$33,574	$41,500	$55,500	$70,000	$80,500
BOYD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	3	10	16	20	25	27	$0	$0	$0	$0	$0	$0
BRANDON-IRENE WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	2	2	3	3	3	$0	$0	$0	$0	$0	$0
BRIDGEPORT	$0	$0	$0	$0	$0	$0	$0	$277	$214	$183	$160	$141	11	83	150	205	270	360	$0	$23,014	$32,169	$37,524	$43,033	$50,684
BRYSON	$0	$0	$0	$0	$0	$0	$588	$321	$255	$229	$207	$189	3	5	7	7	8	9	$1,626	$1,677	$1,710	$1,710	$1,710	$1,710
BUENA VISTA - BETHEL SUD	$0	$0	$0	$0	$0	$0	$341	$118	$99	$86	$76	$71	108	352	475	616	778	963	$36,891	$41,436	$46,772	$52,833	$59,459	$68,008
BURLESON	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	13	34	50	64	82	104	$0	$0	$0	$0	$0	$0
CADDO BASIN SUD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	11	39	55	70	87	106	$0	$0	$0	$0	$0	$0
CARROLLTON	$10,000	$0	$0	$0	$0	$0	$268	$157	$125	$110	$98	$89	753	1,307	1,690	1,952	2,205	2,459	$202,122	$205,872	$211,497	$214,150	$216,813	$218,500
CASH SUD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	1	4	6	8	11	13	$0	$0	$0	$0	$0	$0
CEDAR HILL	$31,256	$0	$0	$0	$0	$0	$262	$126	$98	$88	$80	$74	371	948	1,304	1,501	1,645	1,789	$97,108	$119,453	$128,085	$131,622	$131,622	$131,622
CELINA	$5,000	$0	$0	$0	$0	$0	$422	$223	$151	$108	$86	$75	37	314	780	1,570	2,696	3,449	$15,575	$69,910	$117,683	$169,084	$232,128	$260,148
CHATFIELD WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	6	30	49	65	83	105	$0	$0	$0	$0	$0	$0
CHICO	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	2	8	12	16	21	27	$0	$0	$0	$0	$0	$0
COCKRELL HILL	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	6	21	28	31	33	36	$0	$0	$0	$0	$0	$0
COLLEGE MOUND WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	13	55	86	108	136	172	$0	$0	$0	$0	$0	$0
COLLEYVILLE	$0	$24,497	$0	$0	$0	$0	$289	$145	$103	$92	$84	$77	220	477	649	725	799	874	$63,469	$69,136	$67,000	$67,000	$67,000	$67,000
COLLINSVILLE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	4	15	24	32	40	49	$0	$0	$0	$0	$0	$0
COMBINE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	4	15	23	28	34	43	$0	$0	$0	$0	$0	$0
COMBINE WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	8	30	46	60	77	100	$0	$0	$0	$0	$0	$0
COMMUNITY WATER COMPANY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	3	13	21	27	34	43	$0	$0	$0	$0	$0	$0
COMMUNITY WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	7	25	27	29	31	33	$0	$0	$0	$0	$0	$0
COPPELL	$7,192	$0	$0	$0	$0	$0	$268	$159	$130	$114	$103	$93	360	609	748	847	942	1,039	$96,353	$96,637	$96,878	$96,456	$96,631	$96,778
COPPER CANYON	$0	$0	$0	$0	$0	$0	$393	$227	$180	$157	$140	$125	10	20	30	40	51	63	$3,817	$4,633	$5,450	$6,267	$7,083	$7,900
CORINTH	$0	$0	$0	$0	$0	$0	$374	$222	$175	$150	$132	$117	142	271	366	445	531	615	$53,241	$60,167	$64,000	$67,000	$70,000	$72,250
CORSICANA	$0	$0	$0	$31,760	$0	$0	$10	$3	$2	$193	$149	$129	45	137	194	423	567	665	$436	$436	$436	$81,520	$84,373	$85,545
CRANDALL	$0	$19,942	$0	$0	$0	$0	$200	$325	$225	$200	$180	$162	9	60	103	140	189	253	$1,739	$19,651	$23,115	$27,961	$33,914	$40,966
CRESSON	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	1	3	4	5	7	9	$0	$0	$0	$0	$0	$0
CROSS ROADS	$0	$0	$0	$0	$0	$0	$277	$192	$159	$137	$121	$109	16	55	67	77	88	98	$4,361	$10,622	$10,622	$10,622	$10,622	$10,622
CROWLEY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	20	67	109	160	207	239	$0	$0	$0	$0	$0	$0
CULLEOKA WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	18	74	102	126	154	185	$0	$0	$0	$0	$0	$0
DALLAS	$0	$0	$0	$0	$0	$0	$307	$179	$148	$130	$116	$105	10,808	19,933	25,343	30,684	37,818	48,848	$3,313,395	$3,560,726	$3,753,433	$4,002,082	$4,403,054	$5,111,462
DALLAS COUNTY WCID #6	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
DALWORTHINGTON GARDENS	$0	$0	$0	$0	$0	$0	$0	$230	$177	$153	$135	$120	5	33	44	53	61	69	$0	$7,492	$7,821	$8,036	$8,178	$8,268
DANVILLE WSC	$0	$0	$0	$0	$0	$0	$0	$258	$219	$196	$174	$156	11	68	99	133	172	219	$0	$17,469	$21,674	$25,986	$30,069	$34,185
DAWSON	$0	$0	$0	$0	$0	$0	$0	$0	$0	$259	$227	$202	2	5	7	13	15	19	$0	$0	$0	$3,289	$3,517	$3,798
DE SOTO	$0	$0	$0	$0	$0	$0	$677	$361	$283	$243	$213	$192	310	663	934	1,181	1,473	1,669	$209,905	$239,229	$264,171	$287,450	$313,656	$320,835
DECATUR	$0	$5,000	$0	$0	$0	$0	$34	$296	$222	$187	$162	$144	13	88	158	234	341	445	$436	$26,001	$34,926	$43,570	$55,190	$64,165
DENISON	$0	$0	$25,961	$0	$0	$0	$53	$16	$183	$144	$129	$116	43	145	382	496	566	641	$2,263	$2,263	$70,000	$71,500	$73,000	$74,500
DENTON	$0	$10,000	$0	$0	$0	$0	$5	$177	$126	$103	$88	$75	186	1,514	2,651	3,904	5,428	8,290	$872	$268,347	$333,333	$402,917	$477,218	$623,362

Water User Group Name	Capital Costs						Total Annual Cost per Acre-Foot						Value of Total Supply from Basic Conservation (Acre-Feet)						Total Annual Cost					
	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060
DENTON COUNTY FWSD No.1A	$0	$0	$0	$0	$0	$0	$293	$177	$145	$127	$113	$99	30	78	127	184	251	330	$8,695	$13,758	$18,519	$23,419	$28,265	$32,727
DOUBLE OAK	$0	$0	$0	$0	$0	$0	$409	$245	$194	$171	$153	$139	21	34	43	49	55	61	$8,444	$8,444	$8,444	$8,444	$8,444	$8,444
DUNCANVILLE	$0	$0	$0	$0	$0	$0	$481	$213	$190	$178	$169	$160	358	810	910	968	1,020	1,081	$172,523	$172,523	$172,523	$172,523	$172,523	$172,523
EAST CEDAR CREEK FWSD	$0	$0	$0	$0	$0	$0	$567	$294	$227	$201	$181	$164	48	103	156	189	227	267	$27,427	$30,249	$35,347	$38,159	$40,970	$43,782
EAST FORK SUD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	24	66	84	98	113	130	$0	$0	$0	$0	$0	$0
ECTOR	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	1	4	5	6	6	7	$0	$0	$0	$0	$0	$0
EDGECLIFF	$0	$0	$0	$0	$0	$0	$0	$326	$250	$222	$202	$183	4	22	29	32	36	39	$0	$7,219	$7,219	$7,219	$7,219	$7,219
ENNIS	$27,821	$0	$0	$0	$0	$0	$775	$379	$302	$264	$232	$202	150	377	559	775	1,065	1,462	$116,591	$143,214	$169,164	$204,488	$246,944	$295,578
EULESS	$0	$48,804	$0	$0	$0	$0	$408	$217	$151	$135	$123	$113	264	597	865	977	1,080	1,182	$107,701	$129,775	$130,620	$131,938	$132,983	$133,498
EUSTACE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	2	5	7	7	8	8	$0	$0	$0	$0	$0	$0
EVERMAN	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	9	30	40	42	45	47	$0	$0	$0	$0	$0	$0
FAIRFIELD	$0	$0	$0	$5,000	$0	$0	$65	$18	$12	$252	$219	$194	7	24	37	73	95	116	$436	$436	$436	$18,408	$20,786	$22,569
FAIRVIEW	$0	$5,000	$0	$0	$0	$0	$15	$181	$127	$108	$97	$88	29	179	312	468	523	578	$436	$32,503	$39,736	$50,667	$50,667	$50,667
FARMERS BRANCH	$5,502	$0	$0	$0	$0	$0	$426	$224	$188	$166	$149	$135	369	747	940	1,114	1,293	1,480	$157,125	$167,334	$176,617	$184,579	$192,250	$199,222
FARMERSVILLE	$0	$0	$0	$0	$0	$0	$0	$330	$266	$222	$192	$160	6	59	103	176	290	437	$0	$19,333	$27,500	$39,167	$55,500	$70,000
FATE	$0	$0	$0	$0	$0	$0	$0	$196	$155	$132	$115	$102	21	164	253	349	443	531	$0	$32,183	$39,311	$45,987	$50,826	$54,051
FERRIS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	4	14	20	25	31	37	$0	$0	$0	$0	$0	$0
FILES VALLEY WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	2	6	9	10	12	14	$0	$0	$0	$0	$0	$0
FLO COMMUNITY WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	1	2	2	2	2	$0	$0	$0	$0	$0	$0
FLOWER MOUND	$42,253	$0	$0	$0	$0	$0	$194	$92	$63	$57	$51	$47	620	1,399	2,254	2,528	2,795	3,063	$120,351	$129,239	$143,000	$143,000	$143,000	$143,000
FOREST HILL	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	14	56	81	94	109	121	$0	$0	$0	$0	$0	$0
FORNEY	$0	$0	$0	$0	$0	$0	$0	$281	$216	$182	$158	$140	28	214	324	426	529	639	$0	$60,167	$70,000	$77,500	$83,500	$89,205
FORNEY LAKE WSC	$0	$0	$0	$0	$0	$0	$0	$272	$218	$186	$163	$143	17	80	124	176	246	342	$0	$21,715	$27,075	$32,878	$40,056	$49,027
FORT WORTH	$0	$0	$0	$0	$0	$0	$152	$93	$75	$66	$59	$53	4,872	10,202	15,717	22,042	30,118	40,789	$742,597	$950,587	$1,181,683	$1,454,650	$1,773,210	$2,161,533
FRISCO	$0	$38,971	$0	$0	$0	$0	$11	$163	$89	$79	$73	$69	310	3,277	7,657	10,222	12,374	13,114	$3,398	$535,006	$678,643	$808,862	$898,917	$898,917
FROST	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	1	3	4	4	4	4	$0	$0	$0	$0	$0	$0
GAINESVILLE	$0	$0	$0	$0	$0	$0	$0	$0	$241	$208	$180	$155	27	95	225	288	359	441	$0	$0	$54,100	$59,933	$64,600	$68,500
GARLAND	$0	$81,051	$0	$0	$0	$0	$21	$153	$105	$95	$87	$80	340	2,259	3,305	3,667	4,002	4,353	$7,066	$344,604	$346,119	$346,583	$346,583	$346,583
GASTONIA-SCURRY SUD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	12	46	68	88	114	147	$0	$0	$0	$0	$0	$0
GLENN HEIGHTS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	21	71	107	132	158	186	$0	$0	$0	$0	$0	$0
GRAND PRAIRIE	$10,000	$0	$0	$0	$0	$0	$494	$234	$199	$178	$162	$151	1,212	2,886	3,878	4,753	5,725	6,128	$598,232	$675,939	$770,032	$845,983	$926,782	$926,782
GRAPEVINE	$0	$45,647	$0	$0	$0	$0	$233	$131	$88	$78	$71	$65	453	939	1,437	1,597	1,756	1,919	$105,332	$122,730	$125,733	$125,000	$125,000	$125,000
GUN BARREL CITY	$0	$0	$0	$0	$0	$0	$0	$278	$217	$189	$167	$147	11	72	105	136	174	224	$0	$19,881	$22,752	$25,698	$29,035	$32,923
GUNTER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	3	16	28	39	51	62	$0	$0	$0	$0	$0	$0
HACKBERRY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	2	9	14	17	19	20	$0	$0	$0	$0	$0	$0
HALTOM CITY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	56	221	303	340	371	401	$0	$0	$0	$0	$0	$0
HASLET	$0	$5,000	$0	$0	$0	$0	$77	$209	$164	$137	$120	$106	6	60	131	154	176	198	$436	$12,603	$21,519	$21,083	$21,083	$21,083
HEATH	$0	$0	$0	$0	$0	$0	$0	$237	$183	$155	$134	$118	16	114	180	254	348	469	$0	$27,111	$33,011	$39,302	$46,722	$55,425
HEBRON	$0	$0	$0	$0	$0	$0	$0	$320	$237	$207	$184	$165	0	5	6	7	8	9	$0	$1,500	$1,500	$1,500	$1,500	$1,500
HICKORY CREEK	$0	$0	$0	$0	$0	$0	$477	$275	$224	$199	$180	$164	24	57	80	110	122	133	$11,575	$15,522	$17,972	$21,895	$21,895	$21,895
HICKORY CREEK SUD	$0	$0	$0	$0	$0	$0	$568	$308	$247	$225	$204	$187	1	3	4	5	6	7	$732	$855	$957	$1,047	$1,140	$1,245
HIGH POINT WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	4	21	33	42	53	68	$0	$0	$0	$0	$0	$0
HIGHLAND PARK	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	22	61	86	102	117	132	$0	$0	$0	$0	$0	$0
HIGHLAND VILLAGE	$0	$0	$5,000	$0	$0	$0	$14	$4	$200	$158	$142	$129	31	98	253	321	356	391	$436	$436	$50,746	$50,667	$50,667	$50,667
HONEY GROVE	$0	$5,000	$0	$0	$0	$0	$139	$1,022	$489	$404	$347	$302	3	30	67	85	105	127	$436	$31,142	$32,769	$34,366	$36,399	$38,433
HOWE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	5	22	39	54	66	78	$0	$0	$0	$0	$0	$0
HUDSON OAKS	$0	$5,000	$0	$0	$0	$0	$118	$348	$269	$225	$200	$181	4	23	36	48	61	76	$436	$7,960	$9,547	$10,681	$12,167	$13,653
HURST	$0	$33,764	$0	$0	$0	$0	$52	$228	$158	$143	$130	$119	56	393	546	605	665	727	$2,944	$89,444	$86,500	$86,500	$86,500	$86,500
HUTCHINS	$0	$0	$0	$0	$0	$0	$398	$232	$185	$161	$143	$124	23	48	75	111	163	298	$8,989	$11,167	$13,889	$17,972	$23,417	$36,833
IRVING	$10,000	$0	$0	$0	$0	$0	$204	$121	$96	$82	$71	$63	1,574	2,856	3,767	4,580	5,378	6,167	$321,713	$344,312	$361,379	$373,397	$383,131	$390,481
ITALY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	4	13	19	23	27	32	$0	$0	$0	$0	$0	$0
JACKSBORO	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	6	19	26	28	30	33	$0	$0	$0	$0	$0	$0
JOHNSON COUNTY SUD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	7	23	30	39	50	63	$0	$0	$0	$0	$0	$0
JOSEPHINE	$0	$0	$0	$0	$0	$0	$0	$249	$194	$166	$145	$129	2	15	22	31	41	52	$0	$3,648	$4,326	$5,145	$5,926	$6,776
JUSTIN	$19,324	$0	$0	$0	$0	$0	$451	$264	$200	$171	$154	$140	23	69	130	235	313	375	$10,156	$18,270	$25,900	$40,142	$48,083	$52,627
KAUFMAN	$0	$22,543	$0	$0	$0	$0	$144	$333	$5	$0	$0	$0	14	103	81	100	120	155	$1,965	$34,197	$436	$0	$0	$0
KELLER	$0	$0	$0	$0	$0	$0	$318	$339	$220	$202	$186	$172	268	592	1,009	1,101	1,196	1,290	$85,191	$200,610	$222,033	$222,033	$222,033	$222,033
KEMP	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	2	9	14	15	16	17	$0	$0	$0	$0	$0	$0
KENNEDALE	$0	$0	$0	$0	$0	$0	$516	$281	$227	$200	$181	$164	37	89	122	147	169	190	$19,333	$24,952	$27,766	$29,423	$30,540	$31,294
KERENS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	4	10	14	16	17	19	$0	$0	$0	$0	$0	$0
KIOWA HOMEOWNERS WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	6	20	28	31	34	38	$0	$0	$0	$0	$0	$0
KRUGERVILLE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	3	10	14	20	28	42	$0	$0	$0	$0	$0	$0
KRUM	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	9	25	34	41	49	59	$0	$0	$0	$0	$0	$0
LADONIA	$0	$0	$0	$0	$0	$0	$0	$200	$159	$137	$120	$106	2	23	36	46	59	80	$0	$4,633	$5,722	$6,267	$7,083	$8,444
LAKE DALLAS	$0	$0	$0	$0	$0	$0	$540	$299	$240	$213	$193	$175	40	84	114	128	142	156	$21,789	$25,055	$27,318	$27,318	$27,318	$27,318
LAKE WORTH	$0	$0	$0	$0	$0	$0	$1,387	$686	$536	$465	$409	$369	29	62	84	102	121	138	$40,692	$42,776	$45,066	$47,356	$49,646	$50,791
LAKESIDE	$0	$0	$0	$18,728	$0	$0	$555	$175	$31	$601	$322	$274	3	9	14	50	96	117	$1,633	$1,633	$436	$29,775	$30,828	$32,073
LANCASTER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	62	281	378	411	442	474	$0	$0	$0	$0	$0	$0
LAVON WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	10	96	149	197	262	363	$0	$0	$0	$0	$0	$0
LEONARD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	3	12	22	37	58	77	$0	$0	$0	$0	$0	$0
LEWISVILLE	$61,985	$0	$0	$0	$0	$0	$246	$136	$109	$95	$85	$76	721	1,422	1,868	2,308	2,878	3,569	$177,540	$192,907	$203,374	$220,003	$243,753	$270,644
LINCOLN PARK	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	1	5	7	9	10	13	$0	$0	$0	$0	$0	$0

Water User Group Name	Capital Costs						Total Annual Cost per Acre-Foot						Value of Total Supply from Basic Conservation (Acre-Feet)						Total Annual Cost					
	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060
LINDSAY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	2	5	7	8	8	9	$0	$0	$0	$0	$0	$0
LITTLE ELM	$5,000	$0	$0	$0	$0	$0	$373	$207	$163	$140	$127	$116	179	371	540	684	753	823	$66,603	$76,623	$87,823	$95,649	$95,649	$95,649
LOG CABIN	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	1	6	8	9	9	10	$0	$0	$0	$0	$0	$0
LOWRY CROSSING	$0	$0	$0	$0	$0	$0	$0	$312	$247	$217	$195	$176	4	22	33	39	43	48	$0	$6,904	$8,199	$8,444	$8,444	$8,444
LUCAS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	14	56	83	116	175	254	$0	$0	$0	$0	$0	$0
LUELLA WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	5	18	27	33	36	43	$0	$0	$0	$0	$0	$0
M E N WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	6	18	26	30	34	39	$0	$0	$0	$0	$0	$0
MABANK	$0	$5,000	$0	$0	$0	$0	$73	$547	$239	$209	$185	$164	6	69	169	206	253	313	$436	$37,767	$40,499	$43,077	$46,802	$51,422
MACBEE SUD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	2	3	3	4	6	$0	$0	$0	$0	$0	$0
MALAKOFF	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	3	11	15	17	20	22	$0	$0	$0	$0	$0	$0
MANSFIELD	$28,819	$0	$0	$0	$0	$0	$215	$107	$81	$69	$61	$55	507	1,232	1,872	2,499	3,085	3,733	$109,224	$131,882	$152,364	$173,016	$188,409	$203,800
MARILEE SUD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	9	42	65	84	111	143	$0	$0	$0	$0	$0	$0
MAYPEARL	$0	$0	$0	$0	$0	$0	$0	$311	$243	$217	$196	$178	2	12	18	20	22	24	$0	$3,681	$4,361	$4,361	$4,361	$4,361
MCKINNEY	$0	$53,573	$0	$0	$0	$0	$15	$207	$116	$103	$95	$89	303	3,347	7,621	10,503	12,257	13,108	$4,671	$691,692	$886,546	$1,084,326	$1,163,787	$1,163,787
MCLENDON-CHISHOLM	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	4	11	15	18	22	27	$0	$0	$0	$0	$0	$0
MELISSA	$0	$0	$0	$0	$5,000	$0	$36	$3	$2	$0	$150	$127	12	146	255	401	916	1,151	$436	$436	$436	$0	$137,500	$146,305
MESQUITE	$0	$62,452	$0	$0	$0	$0	$25	$137	$93	$83	$75	$69	221	1,609	2,478	2,821	3,113	3,402	$5,445	$220,448	$230,004	$233,168	$233,445	$233,501
MIDLOTHIAN	$23,236	$0	$0	$0	$0	$0	$617	$285	$235	$206	$182	$164	156	591	905	1,198	1,527	1,890	$96,518	$168,270	$212,204	$246,478	$277,961	$309,443
MILFORD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	1	4	5	5	6	6	$0	$0	$0	$0	$0	$0
MILLIGAN WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	3	10	12	13	13	14	$0	$0	$0	$0	$0	$0
MINERAL WELLS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	10	19	25	27	29	32	$0	$0	$0	$0	$0	$0
MOUNTAIN PEAK SUD	$0	$0	$0	$0	$0	$0	$495	$285	$228	$203	$180	$160	37	73	96	125	170	231	$18,492	$20,719	$21,958	$25,306	$30,545	$36,906
MT ZION WSC	$0	$0	$0	$0	$0	$0	$0	$274	$212	$184	$163	$146	3	18	23	27	30	34	$0	$4,906	$4,906	$4,906	$4,906	$4,906
MUENSTER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$252	$221	$197	3	9	13	23	27	32	$0	$0	$0	$5,722	$5,994	$6,267
MURPHY	$0	$0	$0	$0	$0	$0	$0	$185	$150	$129	$114	$102	42	367	452	524	595	667	$0	$67,750	$67,750	$67,750	$67,750	$67,750
MUSTANG SUD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	16	64	101	202	315	434	$0	$0	$0	$0	$0	$0
NAVARRO MILLS WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	5	18	27	33	41	49	$0	$0	$0	$0	$0	$0
NEVADA	$0	$0	$0	$0	$0	$0	$0	$208	$165	$138	$119	$100	2	21	31	73	139	392	$0	$4,361	$5,178	$10,078	$16,611	$39,167
NEW FAIRVIEW	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	4	13	20	26	32	40	$0	$0	$0	$0	$0	$0
NEW HOPE	$0	$0	$0	$0	$0	$0	$0	$226	$173	$147	$128	$113	2	16	33	57	98	244	$0	$3,544	$5,722	$8,444	$12,528	$27,500
NEWARK	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	2	9	15	22	32	47	$0	$0	$0	$0	$0	$0
NORTH COLLIN WSC	$0	$0	$0	$0	$0	$0	$0	$268	$226	$204	$183	$165	12	67	95	123	157	196	$0	$17,999	$21,533	$25,153	$28,737	$32,195
NORTH HUNT WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	1	2	3	3	4	4	$0	$0	$0	$0	$0	$0
NORTH RICHLAND HILLS	$0	$54,029	$0	$0	$0	$0	$46	$197	$133	$117	$106	$97	103	744	1,131	1,315	1,485	1,652	$4,710	$146,589	$150,048	$154,108	$157,439	$159,689
NORTHLAKE	$0	$0	$0	$0	$0	$0	$0	$0	$279	$239	$204	$181	3	29	57	125	207	276	$0	$0	$15,939	$29,971	$42,349	$50,096
OAK GROVE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	2	6	9	12	15	19	$0	$0	$0	$0	$0	$0
OAK LEAF	$0	$0	$0	$0	$0	$0	$445	$252	$201	$177	$159	$144	10	20	29	37	47	58	$4,367	$5,107	$5,837	$6,582	$7,415	$8,336
OAK POINT	$0	$5,000	$0	$0	$0	$0	$50	$338	$270	$235	$210	$189	9	77	140	177	219	267	$436	$26,079	$37,700	$41,550	$45,864	$50,421
OVILLA	$0	$0	$0	$0	$0	$0	$389	$216	$176	$154	$136	$122	28	78	130	187	219	260	$10,758	$16,802	$22,845	$28,685	$29,950	$31,807
PALMER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	4	11	16	18	20	23	$0	$0	$0	$0	$0	$0
PANTEGO	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	4	13	18	21	23	25	$0	$0	$0	$0	$0	$0
PARADISE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	2	4	6	7	10	12	$0	$0	$0	$0	$0	$0
PARKER	$0	$0	$0	$0	$0	$0	$0	$183	$142	$115	$88	$71	12	162	292	555	929	1,433	$0	$29,600	$41,500	$64,000	$82,000	$102,000
PAYNE SPRINGS	$0	$0	$0	$0	$0	$0	$477	$274	$218	$193	$174	$157	5	9	11	14	16	20	$2,190	$2,343	$2,493	$2,646	$2,835	$3,065
PECAN HILL	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	1	5	7	9	11	13	$0	$0	$0	$0	$0	$0
PELICAN BAY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	3	10	14	17	20	24	$0	$0	$0	$0	$0	$0
PILOT POINT	$0	$0	$0	$0	$0	$0	$0	$339	$263	$0	$0	$0	9	58	122	90	103	117	$0	$19,516	$32,167	$0	$0	$0
PLANO	$0	$0	$0	$0	$0	$0	$0	$105	$80	$69	$60	$54	506	2,954	3,892	4,578	5,246	5,916	$0	$309,250	$312,500	$314,167	$315,833	$316,667
PONDER	$0	$0	$0	$0	$0	$0	$0	$297	$248	$205	$181	$163	3	47	111	202	262	297	$0	$13,889	$27,500	$41,500	$47,333	$48,500
POST OAK BEND CITY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	2	6	12	20	35	61	$0	$0	$0	$0	$0	$0
POTTSBORO	$0	$5,000	$0	$0	$0	$0	$70	$346	$278	$242	$216	$194	6	45	77	112	151	181	$436	$15,575	$21,519	$27,028	$32,583	$35,167
PRINCETON	$0	$0	$0	$0	$0	$0	$0	$276	$215	$170	$129	$96	12	119	215	413	777	1,300	$0	$32,997	$46,167	$70,000	$100,000	$125,000
PROSPER	$0	$0	$0	$0	$0	$0	$0	$211	$151	$118	$89	$78	22	241	514	848	1,344	1,609	$0	$50,833	$77,500	$100,000	$120,000	$125,000
R-C-H WSC	$0	$0	$0	$0	$0	$0	$0	$318	$257	$229	$206	$187	7	46	58	67	74	82	$0	$14,651	$14,978	$15,250	$15,250	$15,250
RED OAK	$0	$0	$0	$0	$0	$0	$0	$280	$222	$189	$165	$145	27	190	288	354	424	503	$0	$53,167	$64,000	$67,000	$70,000	$73,000
RENO	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	4	13	17	19	21	22	$0	$0	$0	$0	$0	$0
RHOME	$0	$0	$0	$0	$0	$0	$279	$174	$141	$121	$107	$96	17	43	85	137	199	270	$4,691	$7,464	$11,983	$16,611	$21,239	$25,867
RICE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$222	$192	$169	2	7	10	20	26	34	$0	$0	$0	$4,334	$4,955	$5,717
RICE WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	13	48	74	95	119	150	$0	$0	$0	$0	$0	$0
RICHARDSON	$0	$10,000	$0	$0	$0	$0	$4	$140	$105	$91	$80	$71	196	1,400	1,861	2,151	2,433	2,728	$872	$195,872	$195,872	$195,000	$195,000	$195,000
RICHLAND HILLS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	11	39	56	65	73	79	$0	$0	$0	$0	$0	$0
RIVER OAKS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	10	34	45	49	52	55	$0	$0	$0	$0	$0	$0
ROANOKE	$0	$0	$0	$0	$0	$0	$0	$249	$191	$161	$138	$119	16	111	182	261	396	538	$0	$27,687	$34,873	$42,060	$54,602	$64,296
ROCKETT SUD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	64	235	371	466	533	569	$0	$0	$0	$0	$0	$0
ROCKWALL	$0	$0	$0	$0	$0	$0	$0	$155	$115	$93	$81	$73	88	739	1,135	1,537	1,793	2,008	$0	$114,647	$130,000	$143,595	$146,067	$146,067
ROWLETT	$0	$0	$0	$0	$0	$0	$0	$182	$136	$116	$102	$91	115	664	956	1,189	1,410	1,641	$0	$120,856	$130,178	$137,714	$143,811	$148,747
ROYSE CITY	$0	$0	$0	$0	$0	$0	$0	$247	$190	$152	$128	$107	31	215	357	532	733	979	$0	$53,167	$67,669	$80,776	$93,469	$105,000
RUNAWAY BAY	$0	$0	$0	$0	$0	$0	$0	$311	$242	$210	$187	$167	3	16	25	32	41	50	$0	$4,960	$5,986	$6,811	$7,628	$8,444
SACHSE	$0	$19,826	$0	$0	$0	$0	$36	$222	$153	$138	$125	$115	48	275	429	476	524	572	$1,728	$61,195	$65,500	$65,500	$65,500	$65,500
SAGINAW	$0	$0	$0	$0	$0	$0	$0	$301	$235	$201	$178	$160	35	191	271	331	388	443	$0	$57,374	$63,567	$66,744	$69,060	$70,749
SAINT PAUL	$0	$0	$0	$0	$0	$0	$0	$292	$238	$209	$187	$169	2	24	58	106	140	163	$0	$7,083	$13,889	$22,056	$26,139	$27,500
SANCTUARY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	2	10	16	20	25	29	$0	$0	$0	$0	$0	$0

Water User Group Name	Capital Costs						Total Annual Cost per Acre-Foot						Value of Total Supply from Basic Conservation (Acre-Feet)						Total Annual Cost					
	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060
SANGER	$0	$0	$0	$0	$0	$0	$517	$279	$224	$197	$178	$162	41	122	206	274	339	386	$21,375	$33,917	$46,043	$54,100	$60,162	$62,500
SANSOM PARK VILLAGE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	6	22	30	33	35	38	$0	$0	$0	$0	$0	$0
SARDIS-LONE ELM WSC	$0	$0	$0	$0	$0	$0	$419	$241	$192	$171	$154	$140	77	173	265	298	330	363	$32,251	$41,584	$50,917	$50,917	$50,917	$50,917
SAVOY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	1	4	5	6	6	7	$0	$0	$0	$0	$0	$0
SCURRY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	2	4	6	8	9	11	$0	$0	$0	$0	$0	$0
SEAGOVILLE	$0	$0	$0	$0	$0	$0	$566	$0	$0	$0	$0	$0	61	73	112	144	174	201	$34,540	$0	$0	$0	$0	$0
SEVEN POINTS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	2	8	12	15	18	23	$0	$0	$0	$0	$0	$0
SHADY SHORES	$0	$0	$0	$0	$0	$0	$0	$328	$0	$0	$0	$0	5	28	27	29	31	33	$0	$9,065	$0	$0	$0	$0
SHERMAN	$0	$0	$0	$33,049	$0	$0	$43	$13	$0	$273	$190	$165	67	217	333	880	1,411	1,850	$2,881	$2,881	$0	$240,553	$267,507	$305,185
SOUTH GRAYSON WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	6	22	31	39	48	60	$0	$0	$0	$0	$0	$0
SOUTHLAKE	$0	$0	$0	$0	$0	$0	$265	$160	$126	$107	$93	$82	253	434	556	679	821	963	$67,029	$69,454	$70,161	$72,886	$76,282	$79,000
SOUTHMAYD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	2	8	13	21	33	43	$0	$0	$0	$0	$0	$0
SOUTHWEST FANNIN COUNTY SUD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	15	44	62	72	82	93	$0	$0	$0	$0	$0	$0
SPRINGTOWN	$19,443	$0	$0	$0	$0	$0	$554	$288	$221	$196	$181	$167	20	48	71	93	117	144	$10,890	$13,862	$15,575	$18,111	$21,083	$24,056
SUNNYVALE	$0	$0	$0	$0	$0	$0	$0	$200	$157	$133	$114	$101	14	97	157	224	303	348	$0	$19,333	$24,778	$29,833	$34,500	$35,200
TALTY	$0	$0	$0	$0	$0	$0	$0	$177	$140	$118	$102	$88	5	60	104	160	238	345	$0	$10,709	$14,586	$18,881	$24,201	$30,326
TEAGUE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	6	22	32	38	45	52	$0	$0	$0	$0	$0	$0
TERRELL	$0	$21,683	$0	$0	$0	$0	$66	$176	$112	$91	$78	$69	28	535	1,024	1,490	1,875	2,332	$1,890	$94,398	$115,000	$135,000	$147,000	$160,000
THE COLONY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	77	299	416	462	505	540	$0	$0	$0	$0	$0	$0
TIOGA	$0	$18,528	$0	$0	$0	$0	$760	$353	$232	$203	$186	$172	2	26	48	60	72	81	$1,615	$9,324	$11,116	$12,167	$13,356	$13,950
TOM BEAN	$5,000	$0	$0	$0	$0	$0	$1,216	$417	$356	$311	$278	$259	22	67	81	93	108	117	$27,075	$27,889	$28,702	$29,079	$29,893	$30,299
TOOL	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	4	15	21	26	31	38	$0	$0	$0	$0	$0	$0
TRENTON	$0	$0	$0	$0	$0	$0	$0	$1,246	$462	$326	$249	$207	2	22	69	115	181	255	$0	$27,891	$31,708	$37,433	$45,066	$52,699
TRINIDAD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	2	6	8	9	10	11	$0	$0	$0	$0	$0	$0
TROPHY CLUB	$0	$0	$0	$0	$0	$0	$0	$208	$161	$136	$118	$104	20	123	174	219	270	325	$0	$25,614	$27,992	$29,822	$31,796	$33,770
TWO WAY SUD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	9	34	51	65	80	96	$0	$0	$0	$0	$0	$0
UNIVERSITY PARK	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	45	131	184	213	241	270	$0	$0	$0	$0	$0	$0
VALLEY VIEW	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	3	16	31	46	83	110	$0	$0	$0	$0	$0	$0
VAN ALSTYNE	$0	$0	$0	$0	$0	$0	$0	$296	$234	$201	$178	$161	5	70	152	218	265	305	$0	$20,694	$35,667	$43,833	$47,333	$48,967
VENUS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
VIRGINIA HILL WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	4	14	20	21	22	24	$0	$0	$0	$0	$0	$0
WALNUT CREEK SUD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	40	159	307	406	454	498	$0	$0	$0	$0	$0	$0
WATAUGA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	36	122	165	178	189	200	$0	$0	$0	$0	$0	$0
WAXAHACHIE	$0	$0	$0	$0	$0	$0	$0	$414	$267	$225	$192	$166	56	433	769	1,090	1,528	2,134	$0	$179,256	$205,274	$245,254	$293,409	$355,052
WEATHERFORD	$5,000	$0	$0	$0	$0	$0	$418	$225	$176	$151	$133	$115	173	370	527	670	832	1,027	$72,471	$83,186	$92,575	$100,931	$110,353	$118,499
WEST CEDAR CREEK MUD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	25	113	179	232	298	383	$0	$0	$0	$0	$0	$0
WEST WISE RURAL SUD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	5	18	27	32	38	45	$0	$0	$0	$0	$0	$0
WESTON	$0	$0	$0	$0	$0	$0	$0	$289	$210	$170	$133	$99	5	39	92	299	584	1,108	$0	$11,167	$19,333	$50,833	$77,500	$110,000
WESTOVER HILLS	$0	$18,461	$0	$0	$0	$0	$1,035	$314	$151	$111	$100	$91	2	12	17	19	21	24	$1,609	$3,748	$2,574	$2,139	$2,139	$2,139
WESTWORTH VILLAGE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	6	17	23	27	30	35	$0	$0	$0	$0	$0	$0
WHITE SETTLEMENT	$27,254	$0	$0	$0	$0	$0	$268	$34	$4	$0	$0	$0	349	70	99	115	134	154	$93,459	$2,376	$436	$0	$0	$0
WHITESBORO	$0	$5,000	$0	$0	$0	$0	$61	$374	$289	$251	$225	$204	7	42	61	78	100	147	$436	$15,575	$17,655	$19,597	$22,569	$30,000
WHITEWRIGHT	$0	$0	$0	$0	$0	$0	$0	$303	$242	$213	$191	$172	3	30	52	72	95	121	$0	$9,065	$12,615	$15,345	$18,076	$20,806
WILLOW PARK	$0	$0	$0	$0	$0	$0	$0	$320	$0	$0	$0	$0	8	51	56	74	88	100	$0	$16,260	$0	$0	$0	$0
WILMER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	5	19	29	44	88	147	$0	$0	$0	$0	$0	$0
WOODBINE WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	8	28	39	46	52	59	$0	$0	$0	$0	$0	$0
WORTHAM	$0	$0	$0	$0	$0	$0	$1,934	$731	$593	$511	$452	$401	14	38	49	58	68	78	$26,937	$27,891	$28,845	$29,799	$30,563	$31,326
WYLIE	$0	$5,000	$0	$0	$0	$0	$5	$419	$253	$222	$207	$193	89	567	1,075	1,391	1,496	1,601	$436	$237,469	$272,100	$309,443	$309,443	$309,443
COLLIN COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	11	36	42	41	39	37	$0	$0	$0	$0	$0	$0
COOKE COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	13	47	65	70	74	78	$0	$0	$0	$0	$0	$0
DALLAS COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	1	5	5	5	4	3	$0	$0	$0	$0	$0	$0
DENTON COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	113	378	543	661	788	929	$0	$0	$0	$0	$0	$0
ELLIS COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	17	54	73	81	87	94	$0	$0	$0	$0	$0	$0
FANNIN COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	16	53	70	74	75	76	$0	$0	$0	$0	$0	$0
FREESTONE COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	14	47	64	69	73	77	$0	$0	$0	$0	$0	$0
GRAYSON COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	37	123	165	168	164	155	$0	$0	$0	$0	$0	$0
HENDERSON COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	2	7	9	10	11	12	$0	$0	$0	$0	$0	$0
JACK COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	7	23	33	39	44	50	$0	$0	$0	$0	$0	$0
KAUFMAN COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	25	68	91	99	105	112	$0	$0	$0	$0	$0	$0
NAVARRO COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	2	8	11	12	13	14	$0	$0	$0	$0	$0	$0
PARKER COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	44	166	233	254	253	251	$0	$0	$0	$0	$0	$0
ROCKWALL COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	4	9	13	14	15	17	$0	$0	$0	$0	$0	$0
TARRANT COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	53	173	183	194	204	215	$0	$0	$0	$0	$0	$0
WISE COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	49	166	216	232	245	259	$0	$0	$0	$0	$0	$0
Total	$354,084	$673,086	$30,961	$88,537	$5,000	$0	$30,110	$34,817	$25,524	$24,194	$21,195	$19,074	34,315	90,410	134,913	172,423	213,256	260,299	$8,411,506	$14,403,484	$16,289,806	$18,461,967	$20,393,786	$22,378,450

Table Q-11
Supply and Costs by User Group for Expanded Conservation Package

Water User Group Name	Capital Costs						Total Annual Cost per Acre-Foot						Value of Total Supply from Expanded Conservation (Acre-Feet)						Total Annual Cost					
	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060
ABLES SPRINGS WSC	$0	$5,000	$0	$0	$0	$0	$357	$295	$287	$280	$272	$266	5	7	9	11	13	16	$1,638	$2,068	$2,510	$3,000	$3,607	$4,359
ADDISON	$0	$0	$0	$0	$0	$0	$0	$184	$184	$184	$184	$184	0	11	13	13	15	15	$0	$2,005	$2,406	$2,439	$2,673	$2,673
ALEDO	$0	$5,000	$0	$0	$0	$0	$222	$282	$270	$270	$272	$273	5	14	24	33	35	35	$1,113	$4,020	$6,397	$8,845	$9,513	$9,562
ALLEN	$0	$8,711	$0	$0	$0	$0	$103	$181	$196	$224	$225	$225	206	344	418	433	434	434	$21,259	$62,113	$82,123	$96,945	$97,629	$97,663
ALVORD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
ANNA	$0	$5,000	$0	$0	$0	$0	$292	$408	$409	$427	$424	$413	9	24	38	51	66	108	$2,686	$9,647	$15,351	$21,671	$28,058	$44,620
ANNETTA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
ANNETTA SOUTH	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
ARGYLE	$0	$0	$0	$0	$0	$0	$0	$0	$158	$158	$158	$158	0	0	1	2	2	2	$0	$0	$174	$267	$267	$267
ARGYLE WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$674	$542	$542	0	0	0	5	6	6	$0	$0	$0	$3,511	$3,511	$3,511
ARLINGTON	$0	$0	$0	$0	$0	$0	$0	$756	$488	$481	$482	$483	0	267	516	619	627	628	$0	$201,494	$251,777	$297,539	$302,421	$303,248
ATHENS	$0	$5,000	$0	$0	$0	$0	$149	$313	$345	$382	$379	$383	25	39	55	69	84	99	$3,738	$12,169	$18,854	$26,461	$31,667	$38,056
AUBREY	$0	$5,000	$0	$0	$0	$0	$558	$656	$353	$359	$347	$338	2	6	7	9	13	17	$1,143	$4,108	$2,625	$3,378	$4,389	$5,749
AURORA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
AZLE	$0	$5,000	$0	$0	$0	$0	$271	$206	$218	$218	$215	$214	17	22	29	38	47	55	$4,674	$4,635	$6,304	$8,201	$10,106	$11,776
BALCH SPRINGS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
BARDWELL	$0	$5,000	$0	$0	$0	$0	$899	$778	$706	$648	$599	$557	1	1	1	1	1	2	$645	$705	$763	$822	$889	$963
BARTONVILLE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
BARTONVILLE WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$656	0	0	0	0	0	2	$0	$0	$0	$0	$0	$1,308
BEDFORD	$0	$0	$0	$0	$0	$0	$0	$584	$409	$416	$421	$422	0	48	72	73	74	75	$0	$28,186	$29,324	$30,220	$31,067	$31,721
BELLS	$0	$5,000	$0	$0	$0	$0	$593	$495	$450	$431	$416	$406	1	2	2	3	3	4	$786	$961	$1,123	$1,248	$1,361	$1,436
BENBROOK	$0	$5,000	$0	$0	$0	$0	$151	$236	$239	$239	$240	$240	61	95	103	123	146	172	$9,270	$22,348	$24,672	$29,346	$34,955	$41,330
BETHEL-ASH WSC	$0	$5,000	$0	$0	$0	$0	$814	$766	$739	$712	$688	$656	1	1	2	2	2	2	$942	$1,054	$1,165	$1,279	$1,417	$1,592
BETHESDA WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
BLACKLAND WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
BLOOMING GROVE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$853	$715	$716	0	0	0	1	1	1	$0	$0	$0	$484	$484	$484
BLUE MOUND	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
BLUE RIDGE	$0	$5,000	$0	$0	$0	$0	$407	$304	$266	$248	$238	$235	2	5	8	13	19	21	$936	$1,436	$2,186	$3,186	$4,436	$4,936
BOLIVAR WSC	$0	$5,000	$0	$0	$0	$0	$293	$258	$216	$209	$206	$205	10	14	27	55	88	119	$3,032	$3,552	$5,887	$11,617	$18,148	$24,395
BONHAM	$0	$0	$0	$0	$0	$0	$0	$1,269	$641	$593	$612	$600	0	4	13	23	30	39	$0	$5,198	$8,567	$13,455	$18,314	$23,341
BOYD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
BRANDON-IRENE WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
BRIDGEPORT	$0	$5,000	$0	$0	$0	$0	$149	$260	$276	$304	$307	$305	13	23	38	47	55	65	$1,911	$6,090	$10,363	$14,286	$16,796	$19,917
BRYSON	$0	$0	$0	$0	$0	$0	$1,031	$1,024	$1,029	$1,044	$1,048	$1,048	0	0	0	0	0	0	$73	$363	$363	$363	$363	$363
BUENA VISTA - BETHEL SUD	$0	$5,000	$0	$0	$0	$0	$197	$253	$256	$256	$254	$251	9	15	19	24	29	35	$1,732	$3,682	$4,872	$6,178	$7,455	$8,810
BURLESON	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
CADDO BASIN SUD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
CARROLLTON	$0	$10,000	$0	$0	$0	$0	$146	$215	$217	$219	$220	$220	295	425	437	442	447	452	$43,039	$91,321	$94,570	$96,821	$98,395	$99,577
CASH SUD	$0	$5,000	$0	$0	$0	$0	$899	$726	$637	$574	$519	$474	1	1	1	1	2	2	$595	$651	$699	$751	$812	$884
CEDAR HILL	$0	$0	$0	$0	$0	$0	$480	$563	$573	$582	$583	$583	9	49	58	61	61	61	$4,315	$27,491	$33,082	$35,285	$35,600	$35,600
CELINA	$0	$0	$0	$0	$0	$0	$507	$177	$293	$334	$343	$359	0	3	11	23	37	48	$25	$469	$3,172	$7,556	$12,626	$17,273
CHATFIELD WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
CHICO	$0	$5,000	$0	$0	$0	$0	$736	$695	$646	$596	$552	$513	1	1	1	2	2	2	$761	$811	$886	$986	$1,111	$1,261
COCKRELL HILL	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
COLLEGE MOUND WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
COLLEYVILLE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	2	2	2	2	2	$0	$0	$0	$0	$0	$0
COLLINSVILLE	$0	$5,000	$0	$0	$0	$0	$333	$296	$275	$265	$255	$247	3	4	5	6	7	8	$945	$1,145	$1,345	$1,545	$1,745	$1,945
COMBINE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
COMBINE WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
COMMUNITY WATER COMPANY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
COMMUNITY WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
COPPELL	$0	$7,192	$0	$0	$0	$0	$95	$146	$146	$145	$146	$146	155	200	208	216	216	216	$14,695	$29,118	$30,277	$31,398	$31,453	$31,479
COPPER CANYON	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
CORINTH	$0	$5,000	$0	$0	$0	$0	$118	$179	$198	$212	$212	$212	68	97	108	120	128	136	$8,041	$17,337	$21,448	$25,348	$27,105	$28,786
CORSICANA	$0	$5,000	$0	$0	$0	$0	$163	$165	$167	$325	$297	$293	44	46	47	70	80	86	$7,219	$7,521	$7,835	$22,585	$23,791	$25,139
CRANDALL	$0	$5,000	$0	$0	$0	$0	$238	$350	$330	$328	$308	$301	6	12	16	20	26	32	$1,529	$4,225	$5,288	$6,501	$7,906	$9,668
CRESSON	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
CROSS ROADS	$0	$5,000	$0	$0	$0	$0	$307	$355	$371	$371	$371	$371	3	9	9	9	9	9	$956	$3,081	$3,323	$3,323	$3,323	$3,323
CROWLEY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
CULLEOKA WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0

Water User Group Name	Capital Costs						Total Annual Cost per Acre-Foot						Value of Total Supply from Expanded Conservation (Acre-Feet)						Total Annual Cost					
	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060
DALLAS	$0	$0	$0	$0	$0	$0	$616	$761	$488	$433	$438	$445	270	1,003	2,345	3,450	3,710	4,140	$166,450	$763,444	$1,144,835	$1,493,788	$1,624,960	$1,843,936
DALLAS COUNTY WCID #6	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
DALWORTHINGTON GARDENS	$0	$0	$0	$0	$0	$0	$0	$297	$286	$312	$310	$308	0	4	5	5	5	5	$0	$1,111	$1,430	$1,663	$1,676	$1,684
DANVILLE WSC	$0	$0	$0	$0	$0	$0	$0	$989	$643	$636	$661	$685	0	4	9	11	12	13	$0	$4,359	$5,569	$6,683	$7,870	$9,177
DAWSON	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,251	$1,134	$1,094	0	0	0	0	1	1	$0	$0	$0	$605	$702	$726
DE SOTO	$0	$0	$0	$0	$0	$0	$414	$456	$467	$485	$489	$489	12	58	75	88	98	104	$5,155	$26,571	$34,968	$42,813	$47,912	$50,654
DECATUR	$0	$5,000	$0	$0	$0	$0	$172	$326	$352	$371	$373	$381	12	20	32	45	58	68	$2,137	$6,494	$11,154	$16,657	$21,514	$25,955
DENISON	$0	$0	$0	$0	$0	$0	$0	$0	$775	$653	$661	$664	0	0	27	38	39	40	$0	$0	$20,564	$25,030	$25,952	$26,739
DENTON	$0	$10,000	$0	$0	$0	$0	$150	$340	$326	$340	$341	$341	208	378	641	896	1,114	1,486	$31,053	$128,210	$209,206	$304,848	$380,278	$507,244
DENTON COUNTY FWSD No.1A	$0	$5,000	$0	$0	$0	$0	$91	$78	$120	$119	$118	$117	17	56	48	61	76	90	$1,572	$4,362	$5,792	$7,307	$8,931	$10,567
DOUBLE OAK	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
DUNCANVILLE	$0	$0	$0	$0	$0	$0	$455	$560	$540	$544	$548	$549	8	31	32	32	32	32	$3,828	$17,301	$17,535	$17,535	$17,535	$17,535
EAST CEDAR CREEK FWSD	$0	$5,000	$0	$0	$0	$0	$361	$623	$611	$622	$622	$622	12	17	20	21	23	24	$4,407	$10,463	$12,011	$13,159	$14,187	$15,215
EAST FORK SUD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
ECTOR	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
EDGECLIFF	$0	$0	$0	$0	$0	$0	$0	$608	$481	$469	$476	$477	0	2	3	3	3	3	$0	$1,213	$1,239	$1,262	$1,262	$1,262
ENNIS	$0	$5,000	$0	$0	$0	$0	$227	$350	$363	$370	$373	$373	35	53	74	102	129	164	$7,826	$18,411	$26,876	$37,693	$48,082	$61,356
EULESS	$0	$0	$0	$0	$0	$0	$0	$732	$498	$524	$527	$529	0	43	78	86	87	87	$0	$31,710	$39,044	$44,922	$45,784	$46,225
EUSTACE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
EVERMAN	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
FAIRFIELD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,197	$1,040	$1,047	0	0	0	3	4	4	$0	$0	$0	$3,293	$3,777	$4,165
FAIRVIEW	$0	$5,000	$0	$0	$0	$0	$58	$101	$94	$94	$96	$96	48	73	97	128	130	130	$2,761	$7,383	$9,179	$12,076	$12,487	$12,504
FARMERS BRANCH	$0	$5,502	$0	$0	$0	$0	$91	$151	$159	$165	$166	$166	127	163	204	239	252	264	$11,601	$24,633	$32,430	$39,584	$41,889	$43,952
FARMERSVILLE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
FATE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
FERRIS	$0	$5,000	$0	$0	$0	$0	$420	$409	$400	$392	$382	$371	3	3	3	4	4	5	$1,094	$1,186	$1,286	$1,411	$1,561	$1,686
FILES VALLEY WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
FLO COMMUNITY WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
FLOWER MOUND	$0	$10,000	$0	$0	$0	$0	$100	$127	$114	$116	$116	$116	240	399	568	595	598	598	$23,880	$50,765	$64,855	$69,339	$69,614	$69,614
FOREST HILL	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
FORNEY	$0	$0	$0	$0	$0	$0	$0	$596	$524	$515	$513	$522	0	16	24	28	32	34	$0	$9,347	$12,325	$14,480	$16,248	$17,943
FORNEY LAKE WSC	$0	$0	$0	$0	$0	$0	$0	$519	$434	$404	$401	$412	0	7	10	14	17	21	$0	$3,494	$4,403	$5,544	$6,972	$8,776
FORT WORTH	$0	$0	$0	$0	$0	$0	$0	$808	$537	$519	$522	$527	0	553	1,287	1,880	2,285	2,760	$0	$446,696	$691,865	$975,442	$1,193,513	$1,455,634
FRISCO	$0	$6,743	$0	$0	$0	$0	$65	$136	$135	$139	$140	$142	428	785	1,087	1,366	1,564	1,580	$27,756	$106,896	$147,237	$189,488	$218,709	$223,634
FROST	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
GAINESVILLE	$0	$0	$0	$0	$0	$0	$0	$0	$776	$633	$646	$655	0	0	13	19	20	22	$0	$0	$10,412	$11,720	$12,955	$14,262
GARLAND	$0	$10,000	$0	$0	$0	$0	$141	$289	$268	$276	$278	$279	418	554	681	726	723	722	$59,043	$160,307	$182,722	$200,747	$201,205	$201,248
GASTONIA-SCURRY SUD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
GLENN HEIGHTS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
GRAND PRAIRIE	$0	$0	$0	$0	$0	$0	$537	$612	$581	$581	$582	$579	31	144	182	207	231	238	$16,451	$88,320	$105,896	$120,210	$134,440	$137,622
GRAPEVINE	$0	$8,412	$0	$0	$0	$0	$75	$161	$161	$172	$173	$173	180	254	316	334	333	333	$13,571	$40,905	$50,821	$57,336	$57,585	$57,585
GUN BARREL CITY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
GUNTER	$0	$5,000	$0	$0	$0	$0	$617	$502	$460	$440	$426	$418	2	3	4	5	6	6	$936	$1,311	$1,686	$2,061	$2,436	$2,686
HACKBERRY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
HALTOM CITY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
HASLET	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
HEATH	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	1	2	2	2	$0	$0	$0	$0	$0	$0
HEBRON	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
HICKORY CREEK	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
HICKORY CREEK SUD	$0	$5,000	$0	$0	$0	$0	$1,772	$1,440	$1,520	$1,497	$1,391	$1,281	0	0	0	1	1	1	$521	$628	$734	$765	$773	$782
HIGH POINT WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
HIGHLAND PARK	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
HIGHLAND VILLAGE	$0	$5,000	$0	$0	$0	$0	$89	$90	$170	$169	$170	$170	47	52	75	81	80	80	$4,223	$4,653	$12,802	$13,615	$13,640	$13,643
HONEY GROVE	$0	$0	$0	$0	$0	$0	$0	$1,381	$1,032	$957	$952	$967	0	1	2	3	3	4	$0	$1,223	$1,848	$2,540	$2,949	$3,463
HOWE	$0	$5,000	$0	$0	$0	$0	$294	$264	$246	$236	$233	$229	4	6	8	11	12	14	$1,186	$1,561	$2,061	$2,561	$2,879	$3,131
HUDSON OAKS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
HURST	$0	$0	$0	$0	$0	$0	$0	$613	$467	$488	$492	$493	0	34	57	65	64	64	$0	$20,571	$26,490	$31,620	$31,620	$31,620
HUTCHINS	$0	$0	$0	$0	$0	$0	$983	$219	$955	$922	$917	$860	0	8	3	5	7	11	$344	$1,811	$3,035	$4,624	$5,959	$9,294
IRVING	$0	$10,000	$0	$0	$0	$0	$136	$209	$222	$233	$233	$234	605	922	1,115	1,256	1,301	1,335	$82,412	$192,823	$248,011	$292,522	$303,716	$312,034
ITALY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
JACKSBORO	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
JOHNSON COUNTY SUD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
JOSEPHINE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0

Water User Group Name	Capital Costs						Total Annual Cost per Acre-Foot						Value of Total Supply from Expanded Conservation (Acre-Feet)						Total Annual Cost					
	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060
JUSTIN	$0	$5,000	$0	$0	$0	$0	$270	$306	$296	$286	$284	$283	6	13	20	34	44	49	$1,521	$3,880	$6,017	$9,782	$12,457	$13,869
KAUFMAN	$0	$5,000	$0	$0	$0	$0	$211	$213	$204	$203	$202	$199	12	16	18	20	23	27	$2,500	$3,327	$3,691	$4,124	$4,557	$5,407
KELLER	$0	$0	$0	$0	$0	$0	$0	$426	$364	$367	$367	$368	0	42	61	66	66	66	$0	$18,053	$22,176	$24,328	$24,427	$24,427
KEMP	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
KENNEDALE	$0	$0	$0	$0	$0	$0	$745	$748	$773	$730	$712	$714	1	6	8	11	13	13	$764	$4,186	$6,284	$8,355	$8,942	$9,241
KERENS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
KIOWA HOMEOWNERS WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
KRUGERVILLE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
KRUM	$0	$5,000	$0	$0	$0	$0	$269	$255	$252	$250	$243	$237	6	6	7	7	8	9	$1,486	$1,586	$1,686	$1,811	$1,986	$2,186
LADONIA	$0	$5,000	$0	$0	$0	$0	$220	$227	$234	$249	$242	$238	3	8	10	11	13	15	$636	$1,729	$2,368	$2,828	$3,099	$3,629
LAKE DALLAS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
LAKE WORTH	$0	$0	$0	$0	$0	$0	$790	$767	$867	$913	$919	$922	1	3	5	6	7	7	$551	$2,501	$4,201	$5,842	$6,369	$6,760
LAKESIDE	$0	$5,000	$0	$0	$0	$0	$153	$143	$134	$193	$178	$171	5	6	6	10	11	13	$749	$799	$850	$1,848	$2,034	$2,231
LANCASTER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
LAVON WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
LEONARD	$0	$5,000	$0	$0	$0	$0	$362	$350	$317	$284	$264	$255	3	3	4	6	9	12	$973	$1,061	$1,311	$1,811	$2,436	$2,936
LEWISVILLE	$0	$10,000	$0	$0	$0	$0	$196	$313	$325	$338	$338	$339	190	276	351	419	472	537	$37,125	$86,439	$114,057	$141,355	$159,881	$181,729
LINCOLN PARK	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
LINDSAY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
LITTLE ELM	$0	$5,000	$0	$0	$0	$0	$196	$271	$275	$280	$283	$283	44	74	92	105	106	106	$8,712	$20,200	$25,258	$29,378	$29,928	$29,967
LOG CABIN	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
LOWRY CROSSING	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
LUCAS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
LUELLA WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
M E N WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
MABANK	$0	$0	$0	$0	$0	$0	$0	$822	$714	$714	$718	$704	0	2	3	4	4	5	$0	$1,865	$2,228	$2,591	$3,051	$3,535
MACBEE SUD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
MALAKOFF	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
MANSFIELD	$0	$0	$0	$0	$0	$0	$316	$355	$323	$305	$303	$301	17	89	140	192	222	251	$5,283	$31,674	$45,270	$58,575	$67,258	$75,462
MARILEE SUD	$0	$5,000	$0	$0	$0	$0	$297	$274	$264	$258	$250	$245	5	7	10	12	15	19	$1,511	$2,036	$2,599	$3,106	$3,804	$4,576
MAYPEARL	$0	$0	$0	$0	$0	$0	$0	$563	$480	$492	$499	$500	0	1	1	1	1	1	$0	$484	$581	$605	$605	$605
MCKINNEY	$0	$10,000	$0	$0	$0	$0	$94	$172	$163	$163	$164	$165	356	762	1,120	1,430	1,569	1,579	$33,372	$131,264	$182,025	$233,223	$257,673	$260,288
MCLENDON-CHISHOLM	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
MELISSA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$909	$835	0	0	0	0	51	67	$0	$0	$0	$0	$46,480	$55,973
MESQUITE	$0	$0	$0	$0	$0	$0	$0	$967	$541	$474	$468	$467	0	76	173	228	234	234	$0	$73,573	$93,637	$108,133	$109,250	$109,400
MIDLOTHIAN	$0	$5,000	$0	$0	$0	$0	$132	$129	$136	$141	$141	$141	37	74	125	176	210	244	$4,905	$9,562	$17,096	$24,768	$29,669	$34,363
MILFORD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
MILLIGAN WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
MINERAL WELLS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
MOUNTAIN PEAK SUD	$0	$5,000	$0	$0	$0	$0	$301	$424	$436	$441	$433	$415	9	13	14	16	20	26	$2,695	$5,325	$6,026	$7,121	$8,539	$10,621
MT ZION WSC	$0	$0	$0	$0	$0	$0	$0	$358	$290	$293	$296	$297	0	2	2	2	2	2	$0	$605	$605	$605	$605	$605
MUENSTER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$768	$697	$717	0	0	0	2	2	3	$0	$0	$0	$1,642	$1,678	$1,810
MURPHY	$0	$0	$0	$0	$0	$0	$0	$256	$238	$244	$244	$244	0	44	55	56	56	56	$0	$11,264	$13,051	$13,526	$13,526	$13,526
MUSTANG SUD	$0	$5,000	$0	$0	$0	$0	$309	$270	$260	$248	$242	$240	7	11	14	27	39	51	$2,081	$2,910	$3,690	$6,561	$9,436	$12,186
NAVARRO MILLS WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
NEVADA	$0	$0	$0	$0	$0	$0	$0	$439	$404	$434	$443	$437	0	1	2	3	6	13	$0	$533	$702	$1,404	$2,446	$5,763
NEW FAIRVIEW	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
NEW HOPE	$0	$0	$0	$0	$0	$0	$0	$356	$318	$334	$328	$337	0	1	2	4	6	12	$0	$460	$775	$1,235	$1,816	$3,971
NEWARK	$0	$5,000	$0	$0	$0	$0	$531	$430	$385	$343	$312	$287	1	2	3	4	5	7	$720	$879	$1,021	$1,261	$1,550	$1,990
NORTH COLLIN WSC	$0	$0	$0	$0	$0	$0	$0	$1,221	$759	$748	$786	$813	0	4	7	9	10	11	$0	$4,528	$5,497	$6,465	$7,531	$8,620
NORTH HUNT WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
NORTH RICHLAND HILLS	$0	$0	$0	$0	$0	$0	$0	$474	$361	$364	$368	$370	0	71	101	106	109	111	$0	$33,585	$36,612	$38,622	$39,954	$40,874
NORTHLAKE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
OAK GROVE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
OAK LEAF	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
OAK POINT	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	1	2	2	2	$0	$0	$0	$0	$0	$0
OVILLA	$0	$0	$0	$0	$0	$0	$405	$413	$425	$425	$400	$392	1	6	8	10	12	14	$318	$2,354	$3,387	$4,336	$4,904	$5,354
PALMER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
PANTEGO	$0	$5,000	$0	$0	$0	$0	$153	$155	$157	$157	$160	$160	7	7	6	6	6	6	$1,015	$1,015	$1,015	$1,015	$1,015	$1,015
PARADISE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
PARKER	$0	$0	$0	$0	$0	$0	$0	$190	$175	$177	$177	$176	0	23	39	61	91	126	$0	$4,334	$6,804	$10,848	$16,103	$22,229
PAYNE SPRINGS	$0	$5,000	$0	$0	$0	$0	$362	$435	$428	$413	$422	$403	2	3	3	3	3	4	$715	$1,212	$1,249	$1,262	$1,374	$1,418
PECAN HILL	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0

Water User Group Name	Capital Costs						Total Annual Cost per Acre-Foot						Value of Total Supply from Expanded Conservation (Acre-Feet)						Total Annual Cost					
	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060
PELICAN BAY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
PILOT POINT	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
PLANO	$0	$0	$0	$0	$0	$0	$0	$358	$272	$273	$274	$274	0	354	473	475	478	480	$0	$126,520	$128,700	$129,838	$130,806	$131,388
PONDER	$0	$5,000	$0	$0	$0	$0	$350	$352	$331	$337	$347	$353	2	11	24	38	45	47	$773	$3,892	$7,862	$12,961	$15,680	$16,538
POST OAK BEND CITY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
POTTSBORO	$0	$5,000	$0	$0	$0	$0	$202	$287	$273	$269	$260	$257	6	14	20	25	32	35	$1,186	$3,914	$5,382	$6,754	$8,198	$9,029
PRINCETON	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
PROSPER	$0	$5,000	$0	$0	$0	$0	$87	$125	$122	$121	$121	$123	28	103	187	271	379	411	$2,436	$12,894	$22,794	$32,864	$45,904	$50,592
R-C-H WSC	$0	$0	$0	$0	$0	$0	$0	$508	$430	$451	$459	$460	0	4	5	5	4	4	$0	$1,816	$1,937	$2,034	$2,058	$2,058
RED OAK	$0	$0	$0	$0	$0	$0	$0	$550	$428	$440	$447	$451	0	16	26	28	29	31	$0	$8,572	$11,066	$12,277	$13,148	$13,996
RENO	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
RHOME	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
RICE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
RICE WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
RICHARDSON	$0	$10,000	$0	$0	$0	$0	$68	$138	$128	$129	$130	$130	390	611	670	663	658	658	$26,592	$84,185	$85,444	$85,444	$85,444	$85,444
RICHLAND HILLS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
RIVER OAKS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
ROANOKE	$0	$0	$0	$0	$0	$0	$0	$484	$455	$500	$507	$513	0	13	26	35	45	56	$0	$6,320	$11,651	$17,579	$22,817	$28,495
ROCKETT SUD	$0	$5,000	$0	$0	$0	$0	$289	$293	$296	$297	$299	$299	32	41	51	59	64	64	$9,350	$12,051	$15,122	$17,644	$19,014	$19,174
ROCKWALL	$0	$0	$0	$0	$0	$0	$0	$349	$295	$298	$297	$297	0	81	125	146	154	155	$0	$28,379	$36,903	$43,610	$45,789	$46,007
ROWLETT	$0	$0	$0	$0	$0	$0	$0	$476	$407	$409	$415	$417	0	57	76	84	89	93	$0	$27,169	$31,091	$34,167	$36,685	$38,719
ROYSE CITY	$0	$0	$0	$0	$0	$0	$0	$614	$601	$633	$641	$642	0	14	25	35	43	52	$0	$8,837	$14,866	$21,932	$27,462	$33,413
RUNAWAY BAY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
SACHSE	$0	$0	$0	$0	$0	$0	$0	$420	$371	$383	$385	$385	0	23	32	34	34	34	$0	$9,625	$11,867	$13,013	$13,066	$13,066
SAGINAW	$0	$0	$0	$0	$0	$0	$0	$661	$560	$600	$609	$614	0	14	21	23	25	25	$0	$9,452	$11,890	$14,047	$14,923	$15,576
SAINT PAUL	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
SANCTUARY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
SANGER	$0	$0	$0	$0	$0	$0	$0	$176	$176	$175	$171	$171	0	1	2	2	3	3	$0	$174	$267	$301	$535	$535
SANSOM PARK VILLAGE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
SARDIS-LONE ELM WSC	$0	$5,000	$0	$0	$0	$0	$201	$284	$291	$303	$305	$305	23	39	48	48	48	48	$4,632	$10,996	$13,949	$14,606	$14,637	$14,637
SAVOY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
SCURRY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
SEAGOVILLE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
SEVEN POINTS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
SHADY SHORES	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
SHERMAN	$0	$0	$0	$0	$0	$0	$0	$0	$0	$617	$546	$553	0	0	0	78	102	119	$0	$0	$0	$48,180	$55,603	$65,593
SOUTH GRAYSON WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
SOUTHLAKE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	2	2	2	2	2	$0	$0	$0	$0	$0	$0
SOUTHMAYD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
SOUTHWEST FANNIN COUNTY SUD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
SPRINGTOWN	$0	$5,000	$0	$0	$0	$0	$442	$409	$392	$378	$369	$360	3	4	4	5	6	7	$1,186	$1,436	$1,686	$1,936	$2,186	$2,436
SUNNYVALE	$0	$0	$0	$0	$0	$0	$0	$251	$217	$207	$201	$201	0	11	17	21	26	27	$0	$2,736	$3,584	$4,431	$5,182	$5,424
TALTY	$0	$0	$0	$0	$0	$0	$0	$200	$181	$178	$181	$182	0	6	9	12	16	20	$0	$1,187	$1,719	$2,204	$2,882	$3,705
TEAGUE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
TERRELL	$0	$0	$0	$0	$0	$0	$0	$905	$624	$583	$579	$581	0	20	61	102	125	143	$0	$18,426	$38,108	$59,737	$72,196	$82,923
THE COLONY	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
TIOGA	$0	$5,000	$0	$0	$0	$0	$484	$496	$482	$494	$498	$502	1	4	7	8	9	9	$711	$2,173	$3,206	$3,938	$4,386	$4,647
TOM BEAN	$0	$5,000	$0	$0	$0	$0	$330	$358	$353	$351	$347	$338	2	4	4	5	5	6	$808	$1,342	$1,513	$1,684	$1,855	$1,905
TOOL	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
TRENTON	$0	$5,000	$0	$0	$0	$0	$442	$512	$447	$423	$413	$404	2	3	5	8	13	17	$686	$1,610	$2,393	$3,567	$5,205	$6,819
TRINIDAD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
TROPHY CLUB	$0	$0	$0	$0	$0	$0	$0	$456	$322	$278	$271	$271	0	9	17	24	26	28	$0	$4,330	$5,534	$6,635	$7,119	$7,605
TWO WAY SUD	$0	$5,000	$0	$0	$0	$0	$358	$314	$308	$302	$298	$294	5	7	8	10	11	13	$1,706	$2,116	$2,499	$2,891	$3,281	$3,672
UNIVERSITY PARK	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
VALLEY VIEW	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
VAN ALSTYNE	$0	$5,000	$0	$0	$0	$0	$355	$449	$443	$464	$455	$460	3	12	26	35	41	43	$1,186	$5,611	$11,361	$16,295	$18,584	$19,672
VENUS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
VIRGINIA HILL WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
WALNUT CREEK SUD	$0	$5,000	$0	$0	$0	$0	$309	$307	$307	$308	$308	$308	19	27	42	52	55	57	$5,772	$8,349	$12,967	$15,936	$16,811	$17,436
WATAUGA	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
WAXAHACHIE	$0	$0	$0	$0	$0	$0	$0	$875	$548	$499	$505	$508	0	19	46	73	91	116	$0	$16,958	$25,264	$36,202	$46,162	$59,076
WEATHERFORD	$0	$5,000	$0	$0	$0	$0	$215	$357	$384	$404	$406	$406	50	75	100	123	138	154	$10,773	$26,810	$38,312	$49,535	$55,817	$62,634
WEST CEDAR CREEK MUD	$0	$5,000	$0	$0	$0	$0	$354	$302	$289	$289	$287	$284	13	20	26	31	38	46	$4,711	$6,078	$7,458	$8,941	$10,767	$13,047

Water User Group Name	Capital Costs						Total Annual Cost per Acre-Foot						Value of Total Supply from Expanded Conservation (Acre-Feet)						Total Annual Cost					
	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060
WEST WISE RURAL SUD	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
WESTON	$0	$5,000	$0	$0	$0	$0	$310	$296	$221	$201	$200	$199	3	11	25	72	128	219	$936	$3,276	$5,503	$14,395	$25,579	$43,622
WESTOVER HILLS	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
WESTWORTH VILLAGE	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
WHITE SETTLEMENT	$0	$0	$0	$0	$0	$0	$917	$0	$0	$0	$0	$0	2	1	0	0	0	0	$1,550	$0	$0	$0	$0	$0
WHITESBORO	$0	$0	$0	$0	$0	$0	$0	$867	$778	$803	$805	$734	0	3	5	6	7	10	$0	$2,665	$3,821	$5,016	$5,721	$7,286
WHITEWRIGHT	$0	$5,000	$0	$0	$0	$0	$572	$721	$689	$688	$681	$673	2	4	5	7	8	9	$941	$2,696	$3,724	$4,507	$5,243	$5,978
WILLOW PARK	$0	$5,000	$0	$0	$0	$0	$361	$549	$305	$314	$311	$308	4	8	8	9	10	11	$1,477	$4,301	$2,505	$2,936	$3,236	$3,436
WILMER	$0	$5,000	$0	$0	$0	$0	$622	$579	$564	$525	$479	$460	2	3	3	4	8	13	$1,386	$1,536	$1,736	$2,311	$3,936	$5,936
WOODBINE WSC	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
WORTHAM	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
WYLIE	$0	$5,000	$0	$0	$0	$0	$181	$323	$303	$303	$306	$306	58	106	138	165	166	166	$10,436	$34,333	$41,877	$49,793	$50,786	$50,786
COLLIN COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
COOKE COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
DALLAS COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
DENTON COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
ELLIS COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
FANNIN COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
FREESTONE COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
GRAYSON COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
HENDERSON COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
JACK COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
KAUFMAN COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
NAVARRO COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
PARKER COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
ROCKWALL COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
TARRANT COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
WISE COUNTY-OTHER	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	0	0	0	0	0	0	$0	$0	$0	$0	$0	$0
Total	$0	$436,559	$0	$0	$0	$0	$32,132	$56,442	$52,088	$57,090	$56,899	$56,985	5,021	10,839	16,207	20,297	22,462	24,617	$802,775	$3,703,155	$5,057,382	$6,440,294	$7,238,053	$8,129,441

Table Q-12
Supply and Costs by User Group for Non-Municipal Water Conservation Package

Water User Group Name	Total Annual Cost per Acre-Foot						Value of Total Supply from Non-Municipal Conservation (Acre-Feet)						Total Annual Cost					
	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060
COLLIN COUNTY-IRRIGATION	$278	$278	$278	$278	$278	$278	6	99	190	238	283	328	$1,665	$27,476	$52,871	$66,192	$78,682	$91,171
COOKE COUNTY-IRRIGATION	$278	$278	$278	$278	$278	$278	0	6	11	15	18	22	$91	$1,550	$3,097	$4,062	$5,038	$5,982
DALLAS COUNTY-IRRIGATION	$278	$278	$278	$278	$278	$278	26	429	825	1,032	1,227	1,422	$7,221	$119,143	$229,260	$287,026	$341,181	$395,337
ELLIS COUNTY-IRRIGATION	$278	$278	$278	$278	$278	$278	1	15	29	37	44	51	$257	$4,248	$8,173	$10,233	$12,163	$14,094
KAUFMAN COUNTY-IRRIGATION	$278	$278	$278	$278	$278	$278	4	72	140	177	212	247	$1,210	$20,094	$38,910	$49,126	$58,878	$68,550
ROCKWALL COUNTY-IRRIGATION	$278	$278	$278	$278	$278	$278	2	37	71	89	106	123	$626	$10,321	$19,860	$24,864	$29,555	$34,246
TARRANT COUNTY-IRRIGATION	$278	$278	$278	$278	$278	$278	17	274	527	660	785	910	$4,618	$76,199	$146,626	$183,571	$218,207	$252,843
WISE COUNTY-IRRIGATION	$278	$278	$278	$278	$278	$278	0	5	10	13	15	18	$90	$1,477	$2,842	$3,558	$4,230	$4,901
COLLIN COUNTY-MANUFACTURING	$0	$278	$278	$278	$278	$278	0	6	72	108	119	130	$0	$1,724	$20,146	$30,054	$33,158	$36,117
COOKE COUNTY-MANUFACTURING	$0	$278	$278	$278	$278	$278	0	1	7	10	11	12	$0	$166	$1,916	$2,802	$3,026	$3,253
DALLAS COUNTY-MANUFACTURING	$0	$278	$278	$278	$278	$278	0	68	781	1,135	1,212	1,258	$0	$18,898	$217,106	$315,398	$336,954	$349,837
DENTON COUNTY-MANUFACTURING	$0	$278	$278	$278	$278	$278	0	2	29	44	49	53	$0	$689	$8,095	$12,172	$13,539	$14,808
GRAYSON COUNTY-MANUFACTURING	$0	$278	$278	$278	$278	$278	0	15	175	255	272	291	$0	$4,250	$48,770	$70,799	$75,715	$81,009
HENDERSON COUNTY-MANUFACTURING	$0	$278	$278	$278	$278	$278	0	0	3	4	5	5	$0	$66	$768	$1,156	$1,314	$1,493
KAUFMAN COUNTY-MANUFACTURING	$0	$278	$278	$278	$278	$278	0	1	15	22	23	25	$0	$371	$4,225	$6,076	$6,493	$6,944
NAVARRO COUNTY-MANUFACTURING	$0	$278	$278	$278	$278	$278	0	1	16	23	25	27	$0	$377	$4,361	$6,421	$6,988	$7,545
PARKER COUNTY-MANUFACTURING	$0	$278	$278	$278	$278	$278	0	1	6	9	9	10	$0	$141	$1,637	$2,414	$2,630	$2,844
ROCKWALL COUNTY-MANUFACTURING	$0	$278	$278	$278	$278	$278	0	0	1	1	1	1	$0	$13	$150	$224	$249	$274
TARRANT COUNTY-MANUFACTURING	$0	$278	$278	$278	$278	$278	0	35	413	630	711	784	$0	$9,687	$114,859	$175,022	$197,604	$217,841
WISE COUNTY-MANUFACTURING	$0	$278	$278	$278	$278	$278	0	1	12	18	19	21	$0	$284	$3,315	$4,917	$5,376	$5,833
TOTAL							57	1,069	3,334	4,518	5,147	5,737	$15,778	$297,174	$926,987	$1,256,087	$1,430,980	$1,594,922

Table Q-13

Cost Estimates for Supplemental Wells to Maintain Current Groundwater Production Capacity

Water User Group	County	Aquifer	# Wells in 2008	Installation Schedule						Construction Costs (incl eng/contingencies/permitting)					
				2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060
Anna	Collin	Woodbine	1	1						$612,000					
Anna	Collin	Trinity (Paluxy)	1			1						$769,000			
Blue Ridge	Collin	Woodbine	2	1		1				$764,000		$764,000			
Celina	Collin	Trinity (Paluxy)	2	1					1	$513,000					$513,000
Celina	Collin	Trinity (Travis Peak)	1		1						$829,000				
Celina	Collin	Trinity (Twin Mountains	1				1						$983,000		
Collin County Irrigation	Collin	Trinity	2		1		1				$304,000		$304,000		
Collin County Livestock	Collin	Other	1		1						$304,000				
Collin County Manufacturing	Collin	Woodbine	1	1						$506,000					
Collin County Steam Electric Power	Collin	Woodbine	1	1						$506,000					
Collin County-Other	Collin	Trinity & Woodbine	1	1						$595,000					
Marilee SUD	Collin	Trinity (Twin Mountains	3	1		1		1		$869,000		$869,000		$869,000	
Marilee SUD	Collin	Trinity (Antlers)	2		1		1				$850,000		$850,000		
Melissa	Collin	Woodbine	2	1			1			$665,000			$665,000		
Prosper	Collin	Woodbine	6	1	1	1	1	1	1	$763,861	$763,861	$763,861	$763,861	$763,861	$763,861
South Grayson WSC	Collin	Trinity	4	1		1	1		1	$769,000		$769,000	$769,000		$769,000
South Grayson WSC	Collin	Woodbine	5	1	1	1	1	1		$764,000	$764,000	$764,000	$764,000	$764,000	
Weston	Collin	Woodbine	2	1		1				$584,000		$584,000			
Cooke County Irrigation	Cooke	Trinity	8	2	1	1	2	1	1	$419,000	$210,000	$210,000	$419,000	$210,000	$210,000
Cooke County Livestock	Cooke	Trinity	22	4	4	3	4	4	3	$839,000	$839,000	$629,000	$839,000	$839,000	$629,000
Cooke County Manufacturing	Cooke	Trinity	3	1		1		1		$528,000		$528,000		$528,000	
Cooke County Mining	Cooke	Trinity	2	1			1			$210,000			$210,000		
Cooke County-Other	Cooke	Trinity	10	2	1	2	1	2	1	$1,412,000	$706,000	$1,412,000	$706,000	$1,412,000	$706,000
Gainesville	Cooke	Trinity (Antlers)	8	2	1	1	2	1	1	$1,412,000	$706,000	$706,000	$1,412,000	$706,000	$706,000
Kiowa Homeowners WSC	Cooke	Trinity (Antlers)	2	1			1			$974,000			$974,000		
Lindsay	Cooke	Trinity (Antlers)	3	1		1		1		$460,000		$460,000		$460,000	
Muenster	Cooke	Trinity (Antlers)	5	1	1	1	1	1		$430,000	$430,000	$430,000	$430,000	$430,000	
Valley View	Cooke	Trinity	1		1						$456,000				
Woodbine WSC	Cooke	Trinity (Antlers)	6	1	1	1	1	1	1	$642,000	$642,000	$642,000	$642,000	$642,000	$642,000
Carrollton	Dallas	Trinity (Travis Peak)	1 emergency	1						$1,173,000					
Cedar Hill	Dallas	Woodbine	1	1						$472,000					
Cedar Hill	Dallas	Trinity (Travis Peak)	2			1		1				$1,168,000		$1,168,000	
Dallas County Irrigation	Dallas	Other	1	1						$316,000					
Dallas County Livestock	Dallas	Woodbine	1	1						$186,000					
Dallas County Manufacturing	Dallas	Trinity	1	1						$705,000					
Dallas County Manufacturing	Dallas	Woodbine	1	1						$705,000					
Dallas County Mining	Dallas	Trinity	1	1						$316,000					
Dallas County-Other	Dallas	Other	1	1						$794,000					
Glenn Heights	Dallas	Woodbine	3	1		1		1		$553,000		$553,000		$553,000	
Grand Prairie	Dallas	Trinity (Travis Peak)	7	2	1	1	1	1	1	$2,398,000	$1,199,000	$1,199,000	$1,199,000	$1,199,000	$1,199,000
Grand Prairie	Dallas	Trinity (Twin Mountains	3		1		1	1			$1,218,000		$1,218,000	$1,218,000	
Wilmer	Dallas	Trinity (Twin Mountains	1	1						$1,521,000					
Wilmer	Dallas	Trinity (Travis Peak)	1			1						$1,456,000			
Argyle WSC	Denton	Trinity (Twin Mountains	4	1		1		1	1	$709,000		$709,000		$709,000	$709,000
Aubrey	Denton	Trinity (Twin Mountains	3	1		1		1		$598,000		$598,000		$598,000	
Bartonville WSC	Denton	Trinity (Travis Peak)	1	1						$617,000					
Bartonville WSC	Denton	Trinity (Paluxy)	4	1	1		1		1	$556,000	$556,000		$556,000		$556,000
Bartonville WSC	Denton	Trinity (Twin Mountains	5		1	1	1	1	1		$635,000	$635,000	$635,000	$635,000	$635,000
Bolivar WSC	Denton	Trinity (Antlers)	18	3	3	3	3	3	3	$1,575,000	$1,575,000	$1,575,000	$1,575,000	$1,575,000	$1,575,000
Bolivar WSC	Denton	Trinity	2	1			1			$348,000			$348,000		
Corinth	Denton	Trinity	1	1						$541,606					

Table Q-13

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				2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060
Denton County Irrigation	Denton	Trinity	1	1						$116,000					
Denton County Livestock	Denton	Trinity	1	1						$116,000					
Denton County Manufacturing	Denton	Trinity	1	1						$504,000					
Denton County Mining	Denton	Trinity	1	1						$196,000					
Denton County Mining	Denton	Woodbine	1			1						$71,000			
Denton County-Other	Denton	Trinity	1	1						$593,000					
Denton County-Other	Denton	Woodbine	1	1						$577,000					
Hackberry	Denton	Trinity	1	1						$363,000					
Hackberry	Denton	Trinity	1				1						$596,000		
Highland Village	Denton	Trinity (Travis Peak)	3	1		1		1		$944,000		$944,000		$944,000	
Highland Village	Denton	Trinity (Twin Mountains	2		1		1				$1,080,000		$1,080,000		
Justin	Denton	Trinity (Travis Peak)	4	1		1		1	1	$547,000		$547,000		$547,000	$547,000
Krum	Denton	Trinity (Paluxy)	2	1				1		$398,000				$398,000	
Krum	Denton	Trinity (Travis Peak)	1			1						$484,000			
Krum	Denton	Trinity (Twin Mountains	2		1		1				$493,000		$493,000		
Lake Cities MUA	Denton	Trinity	2		1		1				$600,000		$600,000		
Lake Cities MUA	Denton	Woodbine	3		1		1		1		$385,000		$385,000		$385,000
Lincoln Park	Denton	Trinity	1	1						$500,000					
Little Elm	Denton	Woodbine	5	1	1	1	1	1		$400,700	$400,700	$400,700	$400,700	$400,700	
Mustang SUD	Denton	Trinity (Twin Mountains	5	1	1	1	1	1		$674,000	$674,000	$674,000	$674,000	$674,000	
Mustang SUD	Denton	Trinity (Travis Peak)	2			1			1			$537,000			$537,000
Northlake	Denton	Woodbine	1	1						$499,561					
Pilot Point	Denton	Trinity (Antlers)	6	1	1	1	1	1	1	$667,000	$667,000	$667,000	$667,000	$667,000	$667,000
Ponder	Denton	Trinity (Twin Mountains	3		1		1		1		$495,000		$495,000		$495,000
Ponder	Denton	Trinity (Paluxy)	1	1						$417,000					
Roanoke	Denton	Trinity (Paluxy)	4	1		1		1	1	$411,000		$411,000		$411,000	$411,000
Roanoke	Denton	Trinity (Travis Peak)	1		1						$520,000				
Sanger	Denton	Trinity (Antlers)	6	1	1	1	1	1	1	$560,000	$560,000	$560,000	$560,000	$560,000	$560,000
The Colony	Denton	Trinity (Travis Peak)	2	1				1		$1,387,000				$1,387,000	
The Colony	Denton	Trinity (Twin Mountains	1			1						$1,444,000			
Trophy Club Mud #1	Denton	Trinity (Travis Peak)	1	1						$847,000					
Trophy Club Mud #2	Denton	Trinity (Paluxy)	3		1		1		1		$444,000		$444,000		$444,000
Bardwell	Ellis	Woodbine	1	1						$581,000					
Buena Vista - Bethel SUD	Ellis	Trinity (Travis Peak)	4	1	1		1		1	$933,000	$933,000		$933,000		$933,000
Ellis County Irrigation	Ellis	Trinity	1	1						$394,000					
Ellis County Livestock	Ellis	Woodbine	2	1			1			$194,000			$194,000		
Ellis County Manufacturing	Ellis	Trinity	13	3	2	2	2	2	2	$2,503,000	$1,669,000	$1,669,000	$1,669,000	$1,669,000	$1,669,000
Ellis County Manufacturing	Ellis	Woodbine	5	1	1	1	1	1		$502,000	$502,000	$502,000	$502,000	$502,000	
Ellis County Mining	Ellis	Woodbine	2	1			1			$194,000			$194,000		
Ellis County-Other	Ellis	Woodbine	4	1	1		1		1	$591,000	$591,000		$591,000		$591,000
Ellis County-Other	Ellis	Trinity	7	1	1	2	1	1	1	$923,000	$923,000	$1,847,000	$923,000	$923,000	$923,000
Ferris	Ellis	Woodbine	2	1			1			$650,000			$650,000		
Grand Prairie	Ellis	Trinity	1	1						$1,218,000					
Italy	Ellis	Trinity (Travis Peak)	2	1			1			$975,000			$975,000		
Italy	Ellis	Woodbine	1	1						$484,000					
Maypearl	Ellis	Woodbine	2	1			1			$379,000			$379,000		
Maypearl	Ellis	Trinity (Twin Mountains	1	1						$801,000					
Milford	Ellis	Woodbine	2		1		1				$479,000		$479,000		
Mountain Peak WSC	Ellis	Trinity (Travis Peak)	2	1			1			$881,000			$881,000		
Mountain Peak WSC	Ellis	Trinity (Twin Mountains	2		1			1			$848,000			$848,000	
Ovilla	Ellis	Woodbine	1 emergency	1						$466,000					
Palmer	Ellis	Woodbine	2	1			1			$576,000			$576,000		
Red Oak	Ellis	Woodbine	3	1		1		1		$583,000		$583,000		$583,000	
Sardis Lone Elm WSC	Ellis	Trinity (Travis Peak)	4	1		1		1	1	$1,236,000		$1,236,000		$1,236,000	$1,236,000
Sardis Lone Elm WSC	Ellis	Trinity (Twin Mountains	2		1		1				$1,167,000		$1,167,000		

Table Q-13

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				2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060
Ector	Fannin	Woodbine	3	1		1		1		$444,000		$444,000		$444,000	
Fannin Co. Manufacturing	Fannin	Woodbine	2		1		1				$485,000		$485,000		
Fannin Co. SEP	Fannin	Woodbine	2		1		1				$593,000		$593,000		
Fannin County Irrigation	Fannin	Other	65	11	11	11	11	11	10	$867,000	$867,000	$867,000	$867,000	$867,000	$788,000
Fannin County Livestock	Fannin	Woodbine	4	1		1		1	1	$268,000		$268,000		$268,000	$268,000
Fannin County Livestock	Fannin	Trinity	1		1						$400,000				
Fannin County-Other	Fannin	Woodbine	11	2	2	2	2	1	2	$1,605,000	$1,605,000	$1,605,000	$1,605,000	$803,000	$1,605,000
Fannin County-Other	Fannin	Trinity	5	1	1	1	1	1		$934,000	$934,000	$934,000	$934,000	$934,000	
Honey Grove	Fannin	Woodbine	2	1			1			$922,000			$922,000		
Ladonia	Fannin	Trinity	2		1		1				$1,125,000		$1,125,000		
Leonard	Fannin	Woodbine	3	1		1		1		$814,000		$814,000		$814,000	
North Hunt WSC	Fannin	Woodbine	2		1		1				$1,143,000		$1,143,000		
Savoy	Fannin	Woodbine	3		1		1		1		$456,000		$456,000		$456,000
SW Fannin Co. SUD	Fannin	Woodbine	8	1	2	1	2	1	1	$686,000	$1,372,000	$686,000	$1,372,000	$686,000	$686,000
Trenton	Fannin	Woodbine	2		1		1				$613,000		$613,000		
Fairfield	Freestone	Carrizo-Wilcox	4	1		1		1	1	$639,000		$639,000		$639,000	$639,000
Flo Community WSC	Freestone	Carrizo-Wilcox	5	1	1	1		1	1	$461,000	$461,000	$461,000		$461,000	$461,000
Freestone County Irrigation	Freestone	Carrizo-Wilcox	1		1						$75,000				
Freestone County Livestock	Freestone	Carrizo-Wilcox & Queen	1		1						$75,000				
Freestone County Mining	Freestone	Carrizo-Wilcox	1		1						$118,000				
Freestone County Steam Electric Power	Freestone	Carrizo-Wilcox	1		1						$374,000				
Freestone County-Other	Freestone	Carrizo-Wilcox	1		1						$463,000				
Teague	Freestone	Carrizo-Wilcox	4	1	1	1		1		$581,000	$581,000	$581,000		$581,000	
Bells	Grayson	Trnity (Antlers)	2	1				1		$799,000				$799,000	
Bells	Grayson	Woodbine	1			1						$435,000			
Collinsville	Grayson	Trnity (Antlers)	5	1	1	1	1	1		$598,000	$598,000	$598,000	$598,000	$598,000	
Denison	Grayson	Trnity (Antlers)	1	1						$676,000					
Denison	Grayson	Woodbine	4		1	1	1	1			$435,000	$435,000	$435,000	$435,000	
Grayson County Irrigation	Grayson	Woodbine	49	9	8	8	8	8	8	$1,842,000	$1,638,000	$1,638,000	$1,638,000	$1,638,000	$1,638,000
Grayson County Livestock	Grayson	Woodbine	5	1	1	1	1	1		$205,000	$205,000	$205,000	$205,000	$205,000	
Grayson County Manufacturing	Grayson	Woodbine	25	5	4	4	4	4	4	$2,597,000	$2,077,000	$2,077,000	$2,077,000	$2,077,000	$2,077,000
Grayson County Mining	Grayson	Trinity	4	1		1		1	1	$465,000		$465,000		$465,000	$465,000
Grayson County Mining	Grayson	Woodbine	5	1	1	1	1	1		$205,000	$205,000	$205,000	$205,000	$205,000	
Grayson County-Other	Grayson	Trnity	15	3	3	2	3	2	2	$3,394,000	$3,394,000	$2,263,000	$3,394,000	$2,263,000	$2,263,000
Grayson County-Other	Grayson	Woodbine	21	4	3	4	3	4	3	$2,790,000	$2,093,000	$2,790,000	$2,093,000	$2,790,000	$2,093,000
Gunter	Grayson	Woodbine	3	1		1		1		$825,000		$825,000		$825,000	
Howe	Grayson	Woodbine	3	1		1		1		$762,000		$762,000		$762,000	
Luella WSC	Grayson	Woodbine	7	2	1	1	1	1	1	$1,204,000	$602,000	$602,000	$602,000	$602,000	$602,000
Pottsboro	Grayson	Woodbine	3	1		1		1		$375,000		$375,000		$375,000	
Sherman	Grayson	Trinity	17	3	3	3	3	3	2	$3,394,000	$3,394,000	$3,394,000	$3,394,000	$3,394,000	$2,263,000
Sherman	Grayson	Woodbine	21	4	3	4	3	4	3	$2,790,000	$2,093,000	$2,790,000	$2,093,000	$2,790,000	$2,093,000
South Grayson WSC	Grayson	Trinity	5	1	1	1	1	1		$869,000	$869,000	$869,000	$869,000	$869,000	
South Grayson WSC	Grayson	Woodbine	5	1	1	1	1		1	$646,000	$646,000	$646,000	$646,000		$646,000
Southmayd	Grayson	Trinity	1			1						$747,000			
Southmayd	Grayson	Woodbine	2	1				1		$386,000				$386,000	
Southwest Fannin County SUD	Grayson	Woodbine	7	2	1	1	1	1	1	$1,133,000	$566,000	$566,000	$566,000	$566,000	$566,000
Tioga	Grayson	Trnity (Antlers)	3	1		1		1		$610,000		$610,000		$610,000	
Tom Bean	Grayson	Woodbine	2	1			1			$598,000			$598,000		
Two Way SUD	Grayson	Trinity	5	1	1	1	1	1	1	$662,000	$662,000	$662,000	$662,000	$662,000	$662,000

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Two Way SUD	Grayson	Trnity (Antlers)	5	1	1	1	1	1		$683,000	$683,000	$683,000	$683,000	$683,000	
Van Alstyne	Grayson	Trnity (Antlers)	4	1	1		1		1	$961,000	$961,000		$961,000		$961,000
Van Alstyne	Grayson	Woodbine	1			1						$578,000			
Whitesboro	Grayson	Trnity (Antlers)	4	1	1		1		1	$677,000	$677,000		$677,000		$677,000
Whitewright	Grayson	Woodbine	6	1	2	1	1	1	1	$574,000	$1,147,000	$574,000	$574,000	$574,000	$574,000
Whitewright	Grayson	Woodbine	4	1	1		1		1	$541,000	$541,000		$541,000		$541,000
Athens	Henderson	Carrizo-Wilcox	3	1		1		1		$653,000		$653,000		$653,000	
Bethel-Ash WSC	Henderson	Carrizo-Wilcox	8	2	1	2	1	1	1	$928,000	$464,000	$928,000	$464,000	$464,000	$464,000
Eustace	Henderson	Carrizo-Wilcox	3	1		1		1		$345,000		$345,000		$345,000	
Henderson County Irrigation	Henderson	Carrizo-Wilcox	1	1						$56,000					
Henderson County Livestock	Henderson	Carrizo-Wilcox, Queen (	1	1						$56,000					
Henderson County Manufacturing	Henderson	Carrizo-Wilcox	1	1						$315,000					
Henderson County Mining	Henderson	Carrizo-Wilcox	1	1						$82,000					
Henderson County-Other	Henderson	Carrizo-Wilcox	1	1						$404,000					
Log Cabin	Henderson	Carrizo-Wilcox	4	1		1		1	1	$350,000		$350,000		$350,000	$350,000
Malakoff	Henderson	Carrizo-Wilcox	4	1		1		1	1	$378,000		$378,000		$378,000	$378,000
Payne Springs	Henderson	Carrizo-Wilcox	2		1		1				$344,000		$344,000		
Virginia Hill WSC	Henderson	Carrizo-Wilcox	6	1	1	1	1	1	1	$516,000	$516,000	$516,000	$516,000	$516,000	$516,000
Bryson	Jack	Other (Cisco formation)	1	1						$372,000					
Jack County Irrigation	Jack	Other	1	1						$43,000					
Jack County Livestock	Jack	Other	1	1						$43,000					
Jack County Mining	Jack	Other	1	1						$63,000					
Jack County-Other	Jack	Other	1	1						$372,000					
Kaufman County Irrigation	Kaufman	Nacatoch	1	1						$56,000					
Kaufman County Livestock	Kaufman	Nacatoch	1	1						$56,000					
Kaufman County-Other	Kaufman	Nacatoch	1	1						$404,000					
Frost	Navarro	Woodbine	1 emergency		1					$558,000					
Navarro County Livestock	Navarro	Carrizo-Wilcox	1	1						$105,000					
Navarro County Mining	Navarro	Carrizo-Wilcox & Nacat	2	1		1				$174,000		$174,000			
Navarro County-Other	Navarro	Woodbine	1		1						$558,000				
Aledo	Parker	Trinity (Paluxy)	6	1	1	1	1	1	1	$372,000	$372,000	$372,000	$372,000	$372,000	$372,000
Annetta South	Parker		10	2	2	2	1	2	1	$722,000	$722,000	$722,000	$361,000	$722,000	$361,000
Annetta	Parker		10	2	2	2	1	2	1	$722,000	$722,000	$722,000	$361,000	$722,000	$361,000
Hudson Oaks	Parker	Trinity (Paluxy)	21	4	3	4	3	4	3	$1,432,000	$1,074,000	$1,432,000	$1,074,000	$1,432,000	$1,074,000
Parker County Irrigation	Parker	Trinity	1	1						$28,000					
Parker County Livestock	Parker	Trinity	1	1						$28,000					
Parker County Manufacturing	Parker	Trinity	1	1						$242,000					
Parker County Mining	Parker	Trinity	1	1						$38,000					
Parker County-Other	Parker	Trinity & Other	1	1						$331,000					
Reno	Parker	Trinity (Paluxy)	6	1	1	1	1	1	1	$386,000	$386,000	$386,000	$386,000	$386,000	$386,000
Springtown	Parker	Trinity (Paluxy)	2	1				1		$530,000				$530,000	
Springtown	Parker	Trinity (Travis Peak)	1			1						$361,000			
Willow Park	Parker	Trinity (Paluxy)	17	3	3	3	3	3	2	$994,000	$994,000	$994,000	$994,000	$994,000	$663,000
Rockwall County Livestock	Rockwall	Other	1	1						$28,000					
Rockwall County-Other	Rockwall	Other	1	1						$331,000					
Bedford	Tarrant	Trinity	2	1			1			$1,031,000			$1,031,000		
Benbrook	Tarrant	Trinity (Paluxy)	14	3	3	2	2	2	2	$1,047,000	$1,047,000	$698,000	$698,000	$698,000	$698,000
Bethesda WSC	Tarrant	Trinity (Paluxy)	24	4	4	4	4	4	4	$1,746,000	$1,746,000	$1,746,000	$1,746,000	$1,746,000	$1,746,000
Blue Mound	Tarrant	Trinity (Paluxy)	3	1			1			$764,084			$764,084		
Crowley	Tarrant	Trinity (Travis Peak)	6	1	1	1	1	1	1	$533,000	$533,000	$533,000	$533,000	$533,000	$533,000
Crowley	Tarrant	Trinity (Paluxy)	2	1			1			$408,000			$408,000		
Dalworthington Gardens	Tarrant	Trinity (Travis Peak)	1	1						$705,000					
Dalworthington Gardens	Tarrant	Trinity (Paluxy)	1				1						$460,000		
Euless	Tarrant	Trinity (Travis Peak)	2	1			1			$1,125,000			$1,125,000		

Table Q-13

Cost Estimates for Supplemental Wells to Maintain Current Groundwater Production Capacity

Water User Group	County	Aquifer	# Wells in 2008	Installation Schedule						Construction Costs (incl eng/contingencies/permitting)					
				2010	2020	2030	2040	2050	2060	2010	2020	2030	2040	2050	2060
Everman	Tarrant	Trinity (Paluxy)	4	1		1		1	1	$414,000		$414,000		$414,000	$414,000
Everman	Tarrant	Trinity (Twin Mountains	2		1		1				$626,000		$626,000		
Everman	Tarrant	Trinity (Travis Peak)	1		1						$616,000				
Haslet	Tarrant	Trinity (Paluxy)	3	1			1		1	$430,000			$430,000		$430,000
Haslet	Tarrant	Trinity (Travis Peak)	1			1						$583,000			
Hurst	Tarrant	Trinity (Travis Peak)	6	1	1	1	1	1	1	$993,000	$993,000	$993,000	$993,000	$993,000	$993,000
Keller	Tarrant	Trinity (Paluxy)	2		1						$711,000				
Kennedale	Tarrant	Trinity (Twin Mountains	3	1		1		1		$862,000		$862,000		$862,000	
Kennedale	Tarrant	Trinity (Paluxy)	3		1		1		1		$433,000		$433,000		$433,000
Kennedale	Tarrant	Trinity (Travis Peak)	1	1						$847,000					
Lake Worth	Tarrant	Trinity (Paluxy)	4	1		1		1	1	$368,000		$368,000		$368,000	$368,000
Lake Worth	Tarrant	Trinity (Travis Peak)	1		1						$479,000				
Lakeside	Tarrant	Trinity	5	1	1	1	1	1		$413,000	$413,000	$413,000	$413,000	$413,000	
North Richland Hills	Tarrant	Trinity (Travis Peak)	1	1						$502,000					
Pantego	Tarrant	Trinity (Travis Peak)	5	1		1	1	1	1	$612,000		$612,000	$612,000	$612,000	$612,000
Pantego	Tarrant	Trinity (Paluxy)	1		1						$450,000				
Pelican Bay	Tarrant	Trinity (Travis Peak)	3	1		1		1		$402,000		$402,000		$402,000	
Pelican Bay	Tarrant	Trinity (Paluxy)	6	1	1	1	1	1	1	$336,000	$336,000	$336,000	$336,000	$336,000	$336,000
Pelican Bay	Tarrant	Trinity (Twin Mountains	2		1		1				$359,000		$359,000		
Richland Hills	Tarrant	Trinity (Travis Peak)	3	1		1		1		$716,000		$716,000		$716,000	
Richland Hills	Tarrant	Trinity (Paluxy)	3		1		1		1		$411,000		$411,000		$411,000
Sansom Park Village	Tarrant	Trinity (Paluxy)	9	2	1	2	1	2	1	$768,000	$384,000	$768,000	$384,000	$768,000	$384,000
Tarrant County Irrigation	Tarrant	Trinity	1	1						$75,000					
Tarrant County Livestock	Tarrant	Trinity	1	1						$75,000					
Tarrant County Mining	Tarrant	Trinity	2		1		1				$78,000		$78,000		
Tarrant County-Other	Tarrant	Trinity	1	1						$463,000					
White Settlement	Tarrant	Trinity (Paluxy)	6	1	1	1	1	1	1	$349,000	$349,000	$349,000	$349,000	$349,000	$349,000
White Settlement	Tarrant	Trinity (Twin Mountains	3	1		1		1		$461,000		$461,000		$461,000	
White Settlement	Tarrant	Trinity (Travis Peak)	1		1						$492,000				
Alvord	Wise	Trinity (Paleozoic Erathe	4	1		1		1	1	$377,000		$377,000		$377,000	$377,000
Aurora	Wise		4	1	1		1		1	$378,000	$378,000		$378,000		$378,000
Bolivar WSC	Wise	Trinity	2	1			1			$348,000			$348,000		
Boyd	Wise	Trinity (Paleozoic Erathe	2	1			1			$380,000			$380,000		
Chico	Wise	Trinity (Antlers)	7	2	1	1	1	1	1	$639,000	$320,000	$320,000	$320,000	$320,000	$320,000
New Fairview	Wise		4	1	1		1		1	$335,000	$335,000		$335,000		$335,000
Newark	Wise	Trinity (Paluxy)	6	1	1	1	1	1	1	$397,000	$397,000	$397,000	$397,000	$397,000	$397,000
Rhome	Wise	Trinity (Paluxy)	3	1		1		1		$394,000		$394,000		$394,000	
Wise County Irrigation	Wise	Trinity	1	1						$35,000					
Wise County Livestock	Wise	Trinity	1	1						$35,000					
Wise County Manufacturing	Wise	Other	1	1						$259,000					
Wise County Mining	Wise	Trinity	1	1						$49,000					
Wise County-Other	Wise	Trinity	1	1						$348,000					

Table Q-14
Cost Estimates for New Water Treatment Plants

WUG	Water Management Strategies	County	New	Capital Costs (including engineering, contingencies & interest)					
			MGD	2010	2020	2030	2040	2050	2060
Lewisville	New WTP of 10 MGD	Denton	10				$31,621,000		
Fairfield	New 0.7 MGD WTP on Richland - Chambers	Freestone	0.7				$6,151,000		
East Cedar Creek FWSD	New WTP of 2 MGD	Henderson	2			$11,576,000			
Gun Barrel City	New WTP of 2 MGD	Henderson	2		$11,576,000				
Chatfield WSC - Alternative WMS*	New WTP of 2 MGD on Richland-Chambers Reservoir	Navarro	2		$4,000,000				
Chatfield WSC - Alternative WMS*	New WTP of 2 MGD on Cedar Creek Reservoir	Navarro	2		$4,500,000				
M E N WSC - Alternative WMS*	New WTP of 2 MGD on Richland-Chambers Reservoir	Navarro	2		$4,000,000				
M E N WSC - Alternative WMS*	New WTP of 2 MGD on Cedar Creek Reservoir	Navarro	2		$4,500,000				
Corsicana**	New WTP of 8 MGD - Lake Halbert/Richland-Chambers (to replace existing 4 MGD WTP)	Navarro	8		$28,665,000				
Dawson	New WTP of 0.1 MGD on Navarro Mills	Navarro	0.1		$1,044,000				
Walnut Creek SUD	New WTP of 2 MGD	Parker	2			$11,576,000			
Springtown	New WTP of 1 MGD	Parker	1		$8,188,000				
Fort Worth	New West WTP 12 MGD	Tarrant	12		$57,915,000				
Fort Worth	New Southwest WTP 25 MGD	Tarrant	25		$42,702,000				
Mansfield	New WTP of 15 MGD	Tarrant	15		$41,080,000				
Azle	New WTP of 3 MGD	Tarrant	3				$14,964,000		
Bridgeport	New WTP of 2 MGD	Wise	2		$11,576,000				
Wise County WSD (Decatur)	New WTP of 2 MGD	Wise	2			$11,576,000			
West Wise SUD	New WTP of 0.5 MGD	Wise	0.5			$4,871,000			

*Costs provided by WUG's engineer
**See Q-97 for details

Table Q-15
Water Treatment Plant Expansions

WUG	Water Management Strategies	Number of expansions	County	Each Expansion (MGD)	Capital Costs (including engineering, contingencies & interest)					
					2010	2020	2030	2040	2050	2060
Denton	Ray Roberts WTP Exp. of 30 MGD	2	Denton	30			$51,111,000		$51,111,000	
Denton	Ray Roberts WTP Exp. of 20 MGD	2	Denton	20		$37,367,000		$37,367,000		
Denton	Water treatment plant expansion	2	Denton	25						$88,478,000
Lewisville	Water treatment plant expansion	2	Denton	8	$19,669,000	$19,669,000				
Lewisville	New Water treatment plant expansion	1	Denton	5						$14,328,000
Wortham	Plant rehabilitation and upgrades	1	Freestone	1.2	$4,662,000					
Denison	Water treatment plant expansion	1	Grayson	2		$7,270,000				
East Cedar Creek	Water treatment plant expansion	2	Henderson	2		$7,270,000				$7,270,000
Athens MWA	Water treatment plant expansion	1	Henderson	4						$12,387,000
Mabank	Water treatment plant expansion	1	Kaufman	1			$4,094,000			
MacBee WSC	Water treatment plant expansion	1	Kaufman	2		$7,270,000				
West Cedar Creek MUD	Water treatment plant expansion	2	Kaufman	5			$14,328,000			$14,328,000
Corsicana* - Alternative WMS	Water treatment plant expansion	1	Navarro	8				$14,548,000		
Weatherford	Water treatment plant expansion	2	Parker	7			$18,211,000			$18,211,000
Walnut Creek SUD	Water treatment plant expansion	7	Parker	2		$7,270,000	$14,540,000	$14,540,000	$7,270,000	$7,270,000
Springtown	Water treatment plant expansion	1	Parker	1			$4,094,000			
Cash SUD	Water treatment plant expansion	1	Rockwall	2			$7,270,000			
Benbrook	Water treatment plant expansion	3	Tarrant	1.5		$5,682,000		$5,682,000	$5,682,000	
Fort Worth	Eagle Mountain WTP Expansion of 35 MGD	1	Tarrant	35			$58,126,000			
Fort Worth	Rolling Hills WTP Expansion	1	Tarrant	50		$77,883,000				
Fort Worth	Water treatment plant expansion	5	Tarrant	50					$77,883,000	$77,883,000
Fort Worth	Eagle Mountain WTP Exp. of 70 MGD	1	Tarrant	70				$103,367,000		
Fort Worth	New West WTP Exp. of 35 MGD	1	Tarrant	35				$58,126,000		
Fort Worth	New Southwest WTP Exp. of 25 MGD	1	Tarrant	25					$44,239,000	
Fort Worth	New West WTP Exp. of 23 MGD	1	Tarrant	23				$41,490,000		
Mansfield	Water treatment plant expansion	5	Tarrant	15		$59,008,000	$29,504,000	$29,504,000		$29,504,000
Azle	Water treatment plant expansion	2	Tarrant	3		$10,446,000			$10,446,000	
Arlington	Water treatment plant expansion	1	Tarrant	32.5				$54,618,000		
Bridgeport	Water treatment plant expansion	2	Wise	2				$7,270,000		$7,270,000
Wise County WSD (Decatur)	Water treatment plant expansion	3	Wise	2		$7,270,000		$7,270,000		$7,270,000
Runaway Bay	Water treatment plant expansion	1	Wise	0.5		$2,735,000				
West Wise SUD	Water treatment plant expansion	1	Wise	1						$4,094,000

*See Q-96 for details

Table Q-16

WWPNAME: **Sabine River Authority**
STRATEGY: **Toledo Bend Pipeline Project**
Quantity: **700,000 Ac-ft per year**

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	**No.**	**Size**	**Quantity**	**Unit**	**Cost**
Segment A	2x	120 in.	1,129,920	LF	$1,506,183,000
Segment B	2x	114 in.	168,425	LF	$199,246,000
Segment C	1x	120 in.	502,495	LF	$743,957,000
Segment D	1x	90 in.	172,995	LF	$180,780,000
Segment E	1x	114 in.	224,077	LF	$265,083,000
Segment F	1x	96 in.	63,231	LF	$54,378,000
Engineering and Contingencies (30%)					$884,888,000
Subtotal of Pipeline					**$3,834,515,000**
Right of Way					
Rural ROW			2201	AC	$22,006,000
Urban ROW			341	AC	$20,440,000
Pump Station(s)					
Lake Intake - Toledo Bend			1		$22,348,800
Booster Pump Station 1		41000 HP	2	EA	$67,725,000
Booster Pump Station 2		37000 HP	2	EA	$62,780,000
Booster Pump Station 3		41000 HP	2	EA	$67,725,000
Booster Pump Station 4		15000 HP	1	EA	$16,340,000
Booster Pump Station 5		22000 HP	1	EA	$21,715,000
Booster Pump Station 6		40000 HP	1	EA	$33,325,000
Booster Pump Station 7		20000 HP	1	EA	$20,425,000
Booster Pump Station 8		12000 HP	1	EA	$13,889,000
Booster Pump Station 9		12000 HP	1	EA	$13,889,000
Engineering and Contingencies (35%)					$119,057,000
Subtotal of Pump Station(s)					**$459,218,800**
Storage					
Ground Storage Tank 1		98.0 MG	2	EA	$15,422,000
Ground Storage Tank 2		91.0 MG	1	EA	$7,408,000
Ground Storage Tank 3		49.0 MG	3	EA	$13,512,000
Ground Storage Tank 4		28.0 MG	2	EA	$6,894,000
Engineering and Contingencies (35%)					$15,133,000
Subtotal of Storage					**$58,369,000**
CONSTRUCTION TOTAL					**$4,394,548,800**
Permitting and Mitigation					**$33,755,000**
Interest During Construction					**$538,792,000**
TOTAL COST					**$4,967,095,800**

Table Q-16, Continued

Capital Cost by User:		
SRA	100,000 AF/Y	**$462,190,000**
NTMWD	200,000 AF/Y	**$1,211,114,000**
TRWD	200,000 AF/Y	**$1,860,018,000**
DWU	200,000 AF/Y	**$1,433,774,000**
ANNUAL COSTS for SRA		
Debt Service (6% for 30 years)		$33,577,538
Electricity ($0.09 kWh)		$13,850,500
Operation & Maintenance		$4,211,011
Raw Water Purchase		$0
Total Annual Costs		**$51,639,049**
UNIT COSTS (Until Amortized)		
Per Acre-Foot		$516
Per 1,000 Gallons		$1.58
UNIT COSTS (After Amortization)		
Per Acre-Foot		$181
Per 1,000 Gallons		$0.55
ANNUAL COSTS for NTMWD		
Debt Service (6% for 30 years)		$87,986,154
Electricity ($0.09 kWh)		$34,096,000
Operation & Maintenance		$10,994,330
Raw Water Purchase ($0.10/Kgal)		$6,517,020
Total Annual Costs		**$139,593,504**
UNIT COSTS (Until Amortized)		
Per Acre-Foot		$698
Per 1,000 Gallons		$2.14
UNIT COSTS (After Amortization)		
Per Acre-Foot		$258
Per 1,000 Gallons		$0.79

Table Q-16, Continued

ANNUAL COSTS for TRWD	
Debt Service (6% for 30 years)	$135,128,154
Electricity ($0.09 kWh)	$50,481,000
Operation & Maintenance	$16,808,044
Raw Water Purchase	$6,517,020
Total Annual Costs	**$208,934,218**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$1,045
Per 1,000 Gallons	$3.21
UNIT COSTS (After Amortization)	
Per Acre-Foot	$369
Per 1,000 Gallons	$1.13
ANNUAL COSTS for DWU	
Debt Service (6% for 30 years)	$104,162,154
Electricity ($0.09 kWh)	$38,958,500
Operation & Maintenance	$12,965,615
Raw Water Purchase	$6,517,020
Total Annual Costs	**$162,603,289**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$813
Per 1,000 Gallons	$2.50
UNIT COSTS (After Amortization)	
Per Acre-Foot	$292
Per 1,000 Gallons	$0.90
TOTAL ANNUAL COSTS for REGION C (Excludes SRA)	
Debt Service (6% for 30 years)	$327,276,462
Electricity ($0.09 kWh)	$123,535,500
Operation & Maintenance	$40,767,989
Raw Water Purchase ($0.10 per kGal)	$19,551,060
Total Annual Costs	**$511,131,011**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$852
Per 1,000 Gallons	$2.61
UNIT COSTS (After Amortization)	
Per Acre-Foot	$306
Per 1,000 Gallons	$0.94

Table Q-17

WWPNAME: **Sabine River Authority**
STRATEGY: **Toledo Bend Pipeline Project**
Quantity: **500,000 Ac-ft per year**

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	**No.**	**Size**	**Quantity**	**Unit**	**Cost**
Segment A	2x	102 in.	1,129,920	LF	$1,081,333,000
Segment B	2x	96 in.	168,425	LF	$144,845,000
Segment C	1x	90 in.	502,495	LF	$431,858,000
Segment D	1x	90 in.	172,995	LF	$180,780,000
Segment E	1x	102 in.	224,077	LF	$214,441,000
Segment F	1x	96 in.	63,231	LF	$54,378,000
Engineering and Contingencies (30%)					$632,291,000
Subtotal of Pipeline					**$2,739,926,000**
Right of Way					
Rural ROW			1772	AC	$17,722,000
Urban ROW			304	AC	$18,258,000
Pump Station(s)					
Lake Intake - Toledo Bend			1		$19,866,000
Booster Pump Station 1		35000 HP	2	EA	$60,200,000
Booster Pump Station 2		30000 HP	2	EA	$53,750,000
Booster Pump Station 3		32500 HP	2	EA	$56,975,000
Booster Pump Station 4		13000 HP	1	EA	$14,706,000
Booster Pump Station 5		19000 HP	1	EA	$19,608,000
Booster Pump Station 6		26000 HP	1	EA	$24,295,000
Booster Pump Station 7		22000 HP	1	EA	$21,715,000
Booster Pump Station 8		15000 HP	1	EA	$16,340,000
Booster Pump Station 9		12000 HP	1	EA	$13,889,000
Engineering and Contingencies (35%)					$105,470,000
Subtotal of Pump Station(s)					**$406,814,000**
Storage					
Ground Storage Tank 1		70.0 MG	2	EA	$12,954,000
Ground Storage Tank 2		63.0 MG	1	EA	$6,158,000
Ground Storage Tank 3		28.0 MG	5	EA	$17,235,000
Engineering and Contingencies (35%)					$12,721,000
Subtotal of Storage					**$49,068,000**
CONSTRUCTION TOTAL					**$3,231,788,000**
Permitting and Mitigation					**$24,813,000**
Interest During Construction					**$396,231,000**
TOTAL COST					**$3,652,832,000**

Table Q-17, Continued

Capital Cost by User:		
SRA	100,000 AF/Y	**$475,650,000**
NTMWD	200,000 AF/Y	**$1,239,762,000**
TRWD	200,000 AF/Y	**$1,937,420,000**
ANNUAL COSTS for SRA		
Debt Service (6% for 30 years)		$34,555,400
Electricity ($0.09 kWh)		$15,718,800
Operation & Maintenance		$4,420,622
Raw Water Purchase		$0
Total Annual Costs		**$54,694,822**
UNIT COSTS (Until Amortized)		
Per Acre-Foot		$547
Per 1,000 Gallons		$1.68
UNIT COSTS (After Amortization)		
Per Acre-Foot		$201
Per 1,000 Gallons		$0.62
ANNUAL COSTS for NTMWD		
Debt Service (6% for 30 years)		$90,067,600
Electricity ($0.09 kWh)		$37,997,600
Operation & Maintenance		$11,454,489
Raw Water Purchase ($0.10 per kGal)		$6,518,000
Total Annual Costs		**$146,037,689**
UNIT COSTS (Until Amortized)		
Per Acre-Foot of treated water		$730
Per 1,000 Gallons		$2.24
UNIT COSTS (After Amortization)		
Per Acre-Foot		$280
Per 1,000 Gallons		$0.86

Table Q-17, Continued

ANNUAL COSTS for TRWD	
Debt Service (6% for 30 years)	$140,751,000
Electricity ($0.09 kWh)	$58,295,600
Operation & Maintenance	$17,858,889
Raw Water Purchase ($0.10 per kGal)	$6,518,000
Total Annual Costs	**$223,423,489**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$1,117
Per 1,000 Gallons	$3.43
UNIT COSTS (After Amortization)	
Per Acre-Foot	$413
Per 1,000 Gallons	$1.27
TOTAL ANNUAL COSTS for Region C (excludes SRA)	
Debt Service (6% for 30 years)	$230,818,600
Electricity ($0.09 kWh)	$96,293,200
Operation & Maintenance	$29,313,378
Raw Water Purchase ($0.10 per kGal)	$13,036,000
Total Annual Costs	**$369,461,178**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$924
Per 1,000 Gallons	$2.83
UNIT COSTS (After Amortization)	
Per Acre-Foot	$347
Per 1,000 Gallons	$1.06

Table Q-18
Gulf of Mexico Water with Desalination

Probable Owner: Multiple
Amount: 200,000 Acre-Feet/Year

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural (2 pipelines)	78 in.	1,465,625	LF	$591	$1,732,369,000
Pipeline Urban (2 pipelines)	78 in.	65,625	LF	$799	$104,869,000
Right of Way Easements (Rural)		2,931,250	LF	$9	$26,381,000
Right of Way Easements (Urban)		131,250	LF	$55	$7,219,000
Engineering and Contingencies (30%)					$551,171,000
Subtotal of Pipeline					**$2,422,009,000**
Pump Station(s)					
Intake and Pump Station at Gulf	535 MGD	1	EA	$2,343,000	$2,343,000
Booster Pump Station	33478 HP	5	EA	$29,118,000	$145,590,000
Ground Storage Tanks (covered)	8 MG	20	EA	$2,822,000	$56,440,000
Engineering and Contingencies (35%)					$71,531,000
Subtotal of Pump Station(s)					**$275,904,000**
Terminal Storage in North Texas					
Ground Storage Tanks (covered)	10 MG	12	EA	$3,746,000	$44,952,000
Permitting and Mitigation		1	LS		$25,039,000

WATER TREATMENT FACILITIES

Additonal water treatment capacity in North Texas	110	MGD	$126,343,000
Treatment Plant with RO	250	MGD	$700,416,000
Engineering and Contingencies (35%)			$289,366,000
Subtotal of Water Treatment			**$1,116,125,000**
Permitting of treatment plant and reject stream			$9,921,000
CONSTRUCTION TOTAL			**$3,893,950,000**
Interest During Construction		**(36 months)**	**$473,777,000**
TOTAL CAPITAL COST			**$4,367,727,000**

Table Q-18, Continued

ANNUAL COSTS	
Debt Service (6% for 30 years)	$317,311,000
Raw water purchase	NA
Electricity ($0.09 per kWh)	$56,582,000
Facility Operation & Maintenance	$29,527,000
Water Treatment ($1.24/1,000 gal finished water)	$80,811,000
Reject water disposal ($0.35/1,000 gal)	$22,810,000
Total Annual Costs	**$507,041,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot of treated water	$2,535
Per 1,000 Gallons of treated water	$7.78
UNIT COSTS (After Amortization)	
Per Acre-Foot of treated water	$949
Per 1,000 Gallons of treated water	$2.91

Table Q-19
Cost of Marvin Nichols IA Reservoir and Transmission System

Probable Owner:	NTMWD	172,800 AF/Y	34.9%	170,895	
	TRWD	165,500 AF/Y	33.4%	163,676	
	Dallas	97,000 AF/Y	19.6%	95,931	
	Irving	25,000 AF/Y	5.0%	24,724	
	Upper Trinity RWD	35,000 AF/Y	7.1%	34,614	
	Total	495,300 AF/Y		489,840	80% of yield with Ralph Hall lake built

CONSTRUCTION COSTS

DAM & RESERVOIR	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Land Purchase Costs		77,427	AC	$1,250	$96,784,000
Mobilization		1	LS	$8,545,000	$8,545,000
Spillway Construction					
Mass Concrete		87,300	CY	$165	$14,362,000
Reinforced Concrete		26,800	CY	$625	$16,754,000
Soil Cement		3,600	CY	$41	$148,000
Spillway Bridge		640	LF	$1,450	$928,000
Gates, Including Anchoring System		14,040	SF	$309	$4,338,000
Gate Hoist and Operating System		13	EA	$296,000	$3,848,000
Stop Gate and Lift Beam		640	LF	$2,110	$1,350,000
Instrumentation		640	LF	$921	$589,000
Excavation		2,894,000	CY	$4	$11,426,000
Structural Fill		121,000	CY	$16	$1,911,000
Subtotal of Spillway Construction					**$55,654,000**
Embankment Construction					
Random Fill		6,049,600	CY	$2.60	$15,729,000
Impervious Core		1,455,000	CY	$3.30	$4,802,000
Borrow		4,731,600	CY	$2.60	$12,302,000
Foundation Drain (Filter Material)		502,500	CY	$40.80	$20,502,000
Soil Cement		337,800	CY	$46.10	$15,573,000
Slurry Trench Cutoff		1,770,000	SF	$11.20	$19,824,000
Asphalt Paving on Embankment Crest		68,350	SY	$23.00	$1,572,000
Containment Levee		79,100	CY	$3.30	$261,000
Subtotal of Embankment Construction					**$90,565,000**
Other Items					
Barrier Warning System		640	LF	$118	$76,000
Electrical System		1	LS	$658,000	$658,000
Power Drop		1	LS	$263,200	$263,000
Spillway Low-Flow System		1	LS	$460,600	$461,000
Stop Gate Monorail System		640	LF	$1,050	$672,000
Grassing		100	AC	$4,500	$450,000
Clearing and Grubbing/ Site Preparation		27960	LF	$39	$1,090,000
Care of Water (3% of construction)		1	LS	$4,387,000	$4,387,000
Reservoir Land Clearing		16800	AC	$990	$16,632,000
Subtotal of Other Items					**$24,689,000**

Table Q-19, Continued

Conflicts		1	LS	$ 69,341,000	$69,341,000
Engineering and Contingencies (35%)					$87,078,000
Permitting and Mitigation					$213,968,000
Total Dam and Reservoir					**$646,624,000**
Subtotal for Region C Part of Dam & Reservoir					**$646,624,000**
NTMWD Portion of Dam & Reservoir	*34.9%*				*$225,672,000*
Dallas Portion of Dam & Reservoir	*19.6%*				*$126,738,000*
TRWD Portion of Dam & Reservoir	*33.4%*				*$215,972,000*
Irving Portion of Dam & Reservoir	*5.0%*				*$32,331,000*
Upper Trinity RWD Portion Dam & Reservoir	*7.1%*				*$45,910,000*
Subtotal Check					*$646,623,000*

TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural (Reservoir to Lk. Lavon) x 2	108 in	419,200	LF	$1,075	$901,280,000
Pipeline Urban (Reservoir to Lk. Lavon) x 2	108 in	10,000	LF	$1,451	$29,020,000
Right of Way Easements Rural (ROW)		838,400	LF	$9	$7,546,000
Right of Way Easements Urban (ROW)		20,000	LF	$55	$1,100,000
Engineering and Contingencies (30%)					$279,090,000
Permitting & Mitigation					$11,164,000
Subtotal of Pipeline (Reservoir to Lake Lavon)					**$1,229,200,000**
Pipeline Rural (Lake Lavon to Lewisville) x 2	96 in	69,000	LF	$860	$118,680,000
Pipeline Urban (Lake Lavon to Lewisville) x 2	96 in	103,500	LF	$1,161	$240,327,000
Right of Way Easements Rural (ROW)		138,000	LF	$9	$1,242,000
Right of Way Easements Urban (ROW)		207,000	LF	$55	$11,385,000
Engineering and Contingencies (30%)					$107,702,000
Permitting & Mitigation					$4,308,000
Subtotal of Pipeline (Lake Lavon to Lake Lewisville)					**$483,644,000**

Table Q-19, Continued

Pipeline Rural (Lake Lewisville to Eagle Mountain Lake) x 2	72 in	136,290	LF	$516	$140,651,000
Pipeline Urban (Lake Lewisville to Eagle Mountain Lake) x 2	72 in	58,410	LF	$697	$81,424,000
Right of Way Easements Rural (ROW)		272,580	LF	$7	$1,908,000
Right of Way Easements Urban (ROW)		116,820	LF	$41	$4,790,000
Engineering and Contingencies (30%)					$66,623,000
Permitting & Mitigation					$2,665,000
Subtotal of Pipeline (Lake Lewisville to Eagle Mountain Lake)					**$298,061,000**
Total Pipeline Cost					**$2,010,905,000**

NTMWD Portion of Pipeline	*34.9% (Res to Lavon)*	*$428,991,000*
Dallas Portion of Pipeline	*19.6% (Res to Lavon) & 30.1% (Lavon to Lewisville)*	*$386,403,000*
TRWD Portion of Pipeline	*33.4% (Res to Lavon) & 51.3% (Lavon to Lewisville) & 100% (Lewisville to Eagle Mountain)*	*$956,819,000*
Irving Portion of Pipeline	*5% (Res to Lavon) & 7.75% (Lavon to Lewisvville)*	*$98,942,000*
Upper Trinity RWD Portion of Pipeline	*7.1% (Res to Lavon) & 10.85% (Lavon to Lewisville)*	*$139,749,000*
Total Check		*$2,010,904,000*

Pump Station(s)	**Size (per PS)**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pump Stations with Intake (Reservoir to Lake Lavon)	55800 HP	2	LS	$55,617,000	$111,234,000
Ground Storage Tanks at booster station	10 MG	7	EA	$2,752,000	$19,264,000
Engineering and Contingencies (35%)					$45,674,000
Permitting & Mitigation					$1,566,000
Subtotal of Pump Station(s) (Reservoir to Lake Lavon)					**$177,738,000**
Pump Station (Lake Lavon to Lake Lewisville)	20300 HP	1	LS	$20,619,000	$20,619,000
Ground Storage Tanks	10 MG	4	EA	$2,752,000	$11,008,000
Engineering and Contingencies (35%)					$11,069,000
Permitting & Mitigation					$380,000
Subtotal of Pump Station(s) (Lake Lavon to Lake Lewisville)					**$43,076,000**
Pump Stations (Lewisville to Eagle Mountain Lake)	7700 HP	2	LS	$9,600,000	$19,200,000
Ground Storage Tanks	10 MG	4	EA	$2,752,000	$11,008,000
Engineering and Contingencies (35%)					$10,573,000
Permitting & Mitigation					$362,000
Subtotal of Pump Station(s) (Lake Lewisville to Eagle Mountain Lake)					**$41,143,000**
Total Pump Station Costs (Including Storage Tanks)					**$261,957,000**

Table Q-19, Continued

NTMWD	*34.9 (Res to Lavon)*	*$62,031,000*
Dallas	*19.6% (Res to Lavon) & 30.1% (Lavon to Lewisville)*	*$47,794,000*
TRWD	*33.4% (Res to Lavon) & 51.3% (Lavon to Lewisville) & 100%*	*$122,615,000*
Irving	*5% (Res to Lavon) & 7.75% (Lavon to Lewisvville)*	*$12,225,000*
UTRWD	*7.1% (Res to Lavon) & 10.85% (Lavon to Lewisville)*	*$17,293,000*
Total Check		*$261,958,000*
CONSTRUCTION TOTAL		**$2,919,486,000**
Interest During Construction	**(36 months - pipeline)**	**$381,079,000**
	(48 months for reservoir)	
TOTAL COST		**$3,300,565,000**
NTMWD		*$810,244,000*
Dallas		*$634,154,000*
TRWD		*$1,464,495,000*
Irving		*$162,229,000*
Upper Trinity RWD		*$229,443,000*
Total Check		*$3,300,565,000*

TOTAL COST ANALYSIS

NTMWD	**Cost**
Debt Service (6% for 30 years)	$58,863,000
Electricity ($0.09 kWh)	$16,977,000
Operation & Maintenance	$6,336,000
Total Annual Costs (NTMWD)	**$82,176,000**
Dallas	
Debt Service (6% for 30 years)	$46,071,000
Electricity ($0.09 per kWh)	$12,210,000
Operation & Maintenance	$5,140,000
Total Annual Costs (Dallas)	**$63,421,000**
TRWD	
Debt Service (6% for 30 years)	$106,394,000
Electricity ($0.09 kWh)	$28,037,000
Operation & Maintenance	$12,332,000
Total Annual Costs (TRWD)	**$146,763,000**
Irving	
Debt Service (6% for 30 years)	$11,786,000
Electricity ($0.09 kWh)	$3,147,000
Operation & Maintenance	$1,315,000
Total Annual Costs (Irving)	**$16,248,000**
Upper Trinity RWD	
Debt Service (6% for 30 years)	$16,669,000
Electricity ($0.09 kWh)	$4,406,000
Operation & Maintenance	$1,859,000
Total Annual Costs (Upper Trinity RWD)	**$22,934,000**

Table Q-19, Continued

TOTAL ANNUAL	
Debt Service (6% for 30 years)	$239,783,000
Electricity ($0.09 kWh)	$64,777,000
Operation & Maintenance	$26,982,000
Total Annual Costs (All Users)	**$331,542,000**
UNIT COSTS (Before Amortization)	
NTMWD	
Per Acre-Foot	$481
Per 1,000 Gallons	$1.48
Dallas	
Per Acre-Foot	$661
Per 1,000 Gallons	$2.03
TRWD	
Per Acre-Foot	$897
Per 1,000 Gallons	$2.75
Irving	
Per Acre-Foot	$657
Per 1,000 Gallons	$2.02
Upper Trinity RWD	
Per Acre-Foot	$663
Per 1,000 Gallons	$2.03
TOTAL ALL USERS	
Per Acre-Foot	$677
Per 1,000 Gallons	$2.08
ANNUAL COSTS (After Amortization)	
NTMWD	**Cost**
Electricity ($0.09 kWh)	$16,977,000
Operation & Maintenance	$6,336,000
Total Annual Costs (NTMWD)	**$23,313,000**
Dallas	
Electricity ($0.09 kWh)	$12,210,000
Operation & Maintenance	$5,140,000
Total Annual Costs (Dallas)	**$17,350,000**
TRWD	
Electricity ($0.09 kWh)	$28,037,000
Operation & Maintenance	$12,332,000
Total Annual Costs (TRWD)	**$40,369,000**
Irving	
Electricity ($0.09 kWh)	$3,147,000
Operation & Maintenance	$1,315,000
Total Annual Costs (Irving)	**$4,462,000**

Table Q-19, Continued

Upper Trinity RWD	
Electricity ($0.09 kWh)	$4,406,000
Operation & Maintenance	$1,859,000
Total Annual Costs (Upper Trinity RWD)	**$6,265,000**
TOTAL ALL USERS	
Electricity ($0.09 kWh)	$64,777,000
Operation & Maintenance	$26,982,000
Total Annual Costs	**$91,759,000**
UNIT COSTS (After Amortization)	
NTMWD	
Per Acre-Foot	$136
Per 1,000 Gallons	$0.42
Dallas	
Per Acre-Foot	$181
Per 1,000 Gallons	$0.55
TRWD	
Per Acre-Foot	$247
Per 1,000 Gallons	$0.76
Irving	
Per Acre-Foot	$180
Per 1,000 Gallons	$0.55
Upper Trinity RWD	
Per Acre-Foot	$181
Per 1,000 Gallons	$0.56
TOTAL ALL USERS	
Per Acre-Foot	$187
Per 1,000 Gallons	$0.57

Table Q-20
Cost of Marvin Nichols IA Reservoir and Transmission System
North Texas MWD, Tarrant Regional WD, and Upper Trinity RWD

Total Yield = 612,300 acre-feet per year (with Ralph Hall senior, system operation with Wright Patman)

Region D	122,460		20.0%	Portion of Region C
NTMWD	174,840	AF/Y	28.6%	35.8%
TRWD	280,000	AF/Y	45.7%	57.1%
Upper Trinity RWD	35,000	AF/Y	5.7%	7.1%
Total	612,300	AF/Y		

CONSTRUCTION COSTS

DAM & RESERVOIR	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Land Purchase Costs		77,427	AC	$1,250	$96,784,000
Mobilization		1	LS	$8,545,000	$8,545,000
Spillway Construction					
Mass Concrete		87,300	CY	$165	$14,362,000
Reinforced Concrete		26,800	CY	$625	$16,754,000
Soil Cement		3,600	CY	$41	$148,000
Spillway Bridge		640	LF	$1,450	$928,000
Gates, Including Anchoring System		14,040	SF	$309	$4,338,000
Gate Hoist and Operating System		13	EA	$296,000	$3,848,000
Stop Gate and Lift Beam		640	LF	$2,110	$1,350,000
Instrumentation		640	LF	$921	$589,000
Excavation		2,894,000	CY	$4	$11,426,000
Structural Fill		121,000	CY	$16	$1,911,000
Subtotal of Spillway Construction					**$55,654,000**
Embankment Construction					
Random Fill		6,049,600	CY	$2.60	$15,729,000
Impervious Core		1,455,000	CY	$3.30	$4,802,000
Borrow		4,731,600	CY	$2.60	$12,302,000
Foundation Drain (Filter Material)		502,500	CY	$40.80	$20,502,000
Soil Cement		337,800	CY	$46.10	$15,573,000
Slurry Trench Cutoff		1,770,000	SF	$11.20	$19,824,000
Asphalt Paving on Embankment Crest		68,350	SY	$23.00	$1,572,000
Containment Levee		79,100	CY	$3.30	$261,000
Subtotal of Embankment Construction					**$90,565,000**
Other Items					
Barrier Warning System		640	LF	$118	$76,000
Electrical System		1	LS	$658,000	$658,000
Power Drop		1	LS	$263,000	$263,000
Spillway Low-Flow System		1	LS	$461,000	$461,000
Stop Gate Monorail System		640	LF	$1,050	$672,000
Grassing		100	AC	$4,500	$450,000
Clearing and Grubbing/ Site Preparation		27960	LF	$39	$1,090,000
Care of Water		1	LS	$4,387,000	$4,387,000
Reservoir Land Clearing		16800	AC	$990	$16,632,000
Subtotal of Other Items					**$24,689,000**

Table Q-20, Continued

Conflicts		1	LS	$ 69,341,000	**$69,341,000**
Engineering and Contingencies (35%)					$87,078,000
Permitting and Mitigation					$213,968,000
Total Dam and Reservoir					**$646,624,000**
Subtotal for Region C Part of Dam & Reservoir					**$646,624,000**
NTMWD Portion of Dam & Reservoir	*35.8%*				*$231,491,000*
TRWD Portion of Dam & Reservoir	*57.1%*				*$369,222,000*
Upper Trinity RWD Portion Dam & Reservoir	*7.1%*				*$45,910,000*
Subtotal Check					*$646,623,000*

TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural (Reservoir to Lk. Lavon) x 2	108 in	419,200	LF	$1,075	$901,280,000
Pipeline Urban (Reservoir to Lk. Lavon) x 2	108 in	10,000	LF	$1,451	$29,020,000
Right of Way Easements Rural (ROW)		838,400	LF	$9	$7,546,000
Right of Way Easements Urban (ROW)		20,000	LF	$55	$1,100,000
Engineering and Contingencies (30%)					$279,090,000
Permitting & Mitigation					$11,164,000
Subtotal of Pipeline (Reservoir to Lake Lavon)					**$1,229,200,000**
Pipeline Rural (Lake Lavon to Lewisville) x 2	90 in	69,000	LF	$774	$106,812,000
Pipeline Urban (Lake Lavon to Lewisville) x 2	90 in	103,500	LF	$1,045	$216,315,000
Right of Way Easements Rural (ROW)		138,000	LF	$9	$1,242,000
Right of Way Easements Urban (ROW)		207,000	LF	$55	$11,385,000
Engineering and Contingencies (30%)					$96,938,000
Permitting & Mitigation					$3,878,000
Subtotal of Pipeline (Lake Lavon to Lake Lewisville)					**$436,570,000**
Pipeline Rural (Lake Lewisville to Eagle Mountain Lake) x 2	90 in	136,290	LF	$774	$210,977,000
Pipeline Urban (Lake Lewisville to Eagle Mountain Lake) x 2	90 in	58,410	LF	$1,045	$122,077,000
Right of Way Easements Rural (ROW)		272,580	LF	$9	$2,453,000
Right of Way Easements Urban (ROW)		116,820	LF	$55	$6,425,000
Engineering and Contingencies (30%)					$99,916,000
Permitting & Mitigation					$3,997,000
Subtotal of Pipeline (Lake Lewisville to Eagle Mountain Lake)					**$445,845,000**
Total Pipeline Cost					**$2,111,615,000**
NTMWD Portion of Pipeline	*35.8% (Res to Lavon)*				*$440,054,000*
TRWD Portion of Pipeline	*57.1% (Res to Lavon) & 88.9% (Lavon to Lewisville) & 100% (Lewisville to Eagle Mountain)*				*$1,535,780,000*
Upper Trinity RWD Portion of Pipeline	*7.1% (Res to Lavon) & 11.1% (Lavon to Lewisville)*				*$135,781,000*
Total Check					*$2,111,615,000*

Pump Station(s)	**Size (per PS)**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pump Stations with Intake (Reservoir to Lake Lavon)	55800 HP	2	LS	$55,617,000	$111,234,000
Ground Storage Tanks at booster station	10 MG	7	EA	$2,752,000	$19,264,000
Engineering and Contingencies (35%)					$45,674,000
Permitting & Mitigation					$1,566,000
Subtotal of Pump Station(s) (Reservoir to Lake Lavon)					**$177,738,000**

Table Q-20, Continued

Pump Station (Lake Lavon to Lake Lewisville)	24200 HP	1	LS	$23,134,000	$23,134,000
Ground Storage Tanks	9 MG	5	EA	$2,410,500	$12,053,000
Engineering and Contingencies (35%)					$12,315,000
Permitting & Mitigation					$422,000
Subtotal of Pump Station(s) (Lake Lavon to Lake Lewisville)					**$47,924,000**
Pump Stations (Lewisville to Eagle Mountain	26900 HP	1	LS	$24,875,500	$24,876,000
Ground Storage Tanks	10 MG	4	EA	$2,752,000	$11,008,000
Engineering and Contingencies (35%)					$12,559,000
Permitting & Mitigation					$431,000
Subtotal of Pump Station(s) (Lake Lewisville to Eagle Mountain Lake)					**$48,874,000**
Total Pump Station Costs (Including Storage Tanks)					**$274,536,000**
NTMWD	*35.8% (Res to Lavon)*				*$63,630,000*
TRWD	*57.1% (Res to Lavon) & 88.9% (Lavon to Lewisville) & 100%*				*$192,962,000*
UTRWD	*7.1% (Res to Lavon) & 11.1% (Lavon to Lewisville)*				*$17,944,000*
Total Check					*$274,536,000*
CONSTRUCTION TOTAL					**$3,032,775,000**
Interest During Construction	**(36 months - pipeline)**				**$394,863,000**
	(48 months for reservoir)				
TOTAL COST					**$3,427,638,000**
NTMWD					*$830,894,000*
TRWD					*$2,371,116,000*
Upper Trinity RWD					*$225,628,000*
Total Check					*$3,427,638,000*
TOTAL COST ANALYSIS					
NTMWD					**Cost**
Debt Service (6% for 30 years)					$60,364,000
Electricity ($0.09 kWh)					$17,177,000
Operation & Maintenance					$5,292,000
Total Annual Costs (NTMWD)					**$82,833,000**
TRWD					
Debt Service (6% for 30 years)					$172,259,000
Electricity ($0.09 kWh)					$48,093,000
Operation & Maintenance					$19,825,000
Total Annual Costs (TRWD)					**$240,177,000**
Upper Trinity RWD					
Debt Service (6% for 30 years)					$16,392,000
Electricity ($0.09 kWh)					$4,524,000
Operation & Maintenance					$1,836,000
Total Annual Costs (Upper Trinity RWD)					**$22,752,000**

Table Q-20, Continued

TOTAL ANNUAL	
Debt Service (6% for 30 years)	$249,015,000
Electricity ($0.09 per kWh)	$69,794,000
Operation & Maintenance	$26,953,000
Total Annual Costs (All Users)	**$345,762,000**
UNIT COSTS (During Amortization)	
NTMWD	
Per Acre-Foot	$474
Per 1,000 Gallons	$1.45
TRWD	
Per Acre-Foot	$858
Per 1,000 Gallons	$2.63
Upper Trinity RWD	
Per Acre-Foot	$650
Per 1,000 Gallons	$1.99
Total All Users	
Per Acre-Foot	$706
Per 1,000 Gallons	$2.17
ANNUAL COSTS (After Amortization)	
NTMWD	**Cost**
Electricity ($0.09 kWh)	$17,177,000
Operation & Maintenance	$5,292,000
Total Annual Costs (NTMWD)	**$22,469,000**
TRWD	
Electricity ($0.09 kWh)	$48,093,000
Operation & Maintenance	$19,825,000
Total Annual Costs (TRWD)	**$67,918,000**
Upper Trinity RWD	
Electricity ($0.09 kWh)	$4,524,000
Operation & Maintenance	$1,836,000
Total Annual Costs (Upper Trinity RWD)	**$6,360,000**
Total All Users	
Electricity ($0.09 kWh)	$69,794,000
Operation & Maintenance	$26,953,000
Total Annual Costs (All Users)	**$96,747,000**
UNIT COSTS (After Amortization)	
NTMWD	
Per Acre-Foot	$129
Per 1,000 Gallons	$0.39
TRWD	
Per Acre-Foot	$243
Per 1,000 Gallons	$0.74

Table Q-20, Continued

Upper Trinity RWD	
Per Acre-Foot	$182
Per 1,000 Gallons	$0.56
All Users	
Per Acre-Foot	$198
Per 1,000 Gallons	$0.61
COST ANALYSIS FOR PHASE I	
TOTAL COST	
NTMWD	*$555,228,000*
TRWD	*$1,448,098,000*
Upper Trinity RWD	*$143,042,000*
Total	***$2,146,368,000***
NTMWD	
Debt Service (6% for 30 years)	$40,337,000
Electricity ($0.09 kWh)	$8,588,500
Operation & Maintenance	$3,066,000
Total Annual Costs (NTMWD)	**$51,991,500**
TRWD	
Debt Service (6% for 30 years)	$105,203,000
Electricity ($0.09 kWh)	$24,046,500
Operation & Maintenance	$11,174,000
Total Annual Costs (TRWD)	**$140,423,500**
Upper Trinity	
Debt Service (6% for 30 years)	$10,392,000
Electricity ($0.09 kWh)	$2,262,000
Operation & Maintenance	$1,066,000
Total Annual Costs (Upper Trinity)	**$13,720,000**
Total, All Users	
Debt Service (6% for 30 years)	$155,932,000
Electricity ($0.09 kWh)	$34,897,000
Operation & Maintenance	$15,306,000
Total Annual Costs (All Users)	**$206,135,000**
PHASE I UNIT COSTS (During Amortization)	
NTMWD	
Per Acre-Foot	$595
Per 1,000 Gallons	$1.83
TRWD	
Per Acre-Foot	$1,003
Per 1,000 Gallons	$3.08
Upper Trinity	
Per Acre-Foot	$784
Per 1,000 Gallons	$2.41

Table Q-20, Continued

All Users	
Per Acre-Foot	$842
Per 1,000 Gallons	$2.58
COST ANALYSIS FOR Phase II	
TOTAL COST	
NTMWD	*$275,666,000*
TRWD	*$923,018,000*
Upper Trinity RWD	*$82,586,000*
Total	***$1,281,270,000***
NTMWD	**Cost**
Debt Service (6% for 30 years)	$20,027,000
Electricity ($0.09 kWh)	$8,588,500
Operation & Maintenance	$2,226,000
Total Annual Costs (NTMWD)	**$30,841,500**
TRWD	
Debt Service (6% for 30 years)	$67,056,000
Electricity ($0.09 kWh)	$24,046,500
Operation & Maintenance	$8,651,000
Total Annual Costs (TRWD)	**$99,753,500**
Upper Trinity	
Debt Service (6% for 30 years)	$6,000,000
Electricity ($0.09 kWh)	$2,262,000
Operation & Maintenance	$770,000
Total Annual Costs (Upper Trinity)	**$9,032,000**
All Users	
Debt Service (6% for 30 years)	$93,083,000
Electricity ($0.09 kWh)	$34,897,000
Operation & Maintenance	$11,647,000
Total Annual Costs (All Users)	**$139,627,000**
UNIT COSTS FOR PHASE II (During Amortization)	
NTMWD	
Per Acre-Foot	$353
Per 1,000 Gallons	$1.08
TRWD	
Per Acre-Foot	$713
Per 1,000 Gallons	$2.19
Upper Trinity	
Per Acre-Foot	$516
Per 1,000 Gallons	$1.58
Total All Users	
Per Acre-Foot	$570
Per 1,000 Gallons	$1.75

Table Q-21
Wright Patman to Dallas Water Utilities
Purchase 100,000 Acre-Feet per Year from Texarkana

Probable Owner: DWU 100,000 Acre-Feet per Year
Peak Delivery: 112 MGD (1.25 Peaking Factor)
Note: Pipeline straight to East Side WTP.

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline (Rural)	78 in	777,000	LF	$591	$459,207,000
Pipeline (Urban)	78 in	8,000	LF	$799	$6,392,000
ROW Easements (Rural)		777,000	LF	$9	$6,993,000
ROW Easements (Urban)		8,000	LF	$55	$440,000
Engineering and Contingencies (30%)					$139,680,000
Subtotal of Pipeline					**$612,712,000**

Pump Station(s)	**Size (per PS)**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Lake Wright Patman Pump Station	8700 HP	1	LS	$14,154,300	$14,154,000
Booster Pump Stations	8700 HP	2	Ea	$10,642,500	$21,285,000
Ground Storage Tanks	8 MG	4	Ea	$2,069,000	$8,276,000
Engineering and Contingencies (35%)					$15,300,000
Subtotal of Pump Stations					**$59,015,000**
CONSTRUCTION TOTAL					**$671,727,000**
Permitting and Mitigation		**1**	**LS**		**$6,112,000**
Interest During Construction	**(36 months)**				**$81,729,000**
TOTAL COST					**$759,568,000**

ANNUAL COSTS

Debt Service (6% for 30 years)	$55,182,000
Raw Water (31 cents per 1,000 gallons)	$10,101,000
Electricity ($0.09 per kWh)	$10,110,000
Operation & Maintenance	$6,899,000
Total Annual Costs	**$82,292,000**

UNIT COSTS (Until Amortized)

Per Acre-Foot	$823
Per 1,000 Gallons	$2.53

UNIT COSTS (After Amortization))

Per Acre-Foot	$271
Per 1,000 Gallons	$0.83

Table Q-22
Wright Patman to North Texas Municipal Water District
Purchase 100,000 Acre-Feet per Year from Texarkana

Probable Owner: NTMWD 100,000 Acre-Feet per Year
Peak Delivery: 112 MGD (1.25 Peaking Factor)
Note: Pipeline straight to Lake Lavon.

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline (Rural)	78 in.	647,000	LF	$591	$382,377,000
Pipeline (Urban)	78 in.	20,000	LF	$799	$15,980,000
ROW Easements (Rural)		647,000	LF	$9	$5,823,000
ROW Easements (Urban)		20,000	LF	$55	$1,100,000
Engineering and Contingencies (30%)					$119,507,000
Subtotal of Pipeline					**$524,787,000**

Pump Station(s)	**Size (per PS)**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Lake Wright Patman Pump Station	9700 HP	1	LS	$15,784,200	$15,784,000
Booster Pump Stations	9700 HP	2	Ea	$11,868,000	$23,736,000
Lavon Raw Water Pump Station	4900 HP	1	LS	$9,174,400	$9,174,000
Ground Storage Tanks	8 MG	4	Ea	$2,822,000	$11,288,000
Engineering and Contingencies (35%)					$20,994,000
Subtotal of Pump Stations					**$80,976,000**
CONSTRUCTION TOTAL					**$605,763,000**
Permitting and Mitigation		**1**	**LS**		**$5,500,000**
Interest During Construction	**(36 months)**				**$73,703,000**
TOTAL COST					**$684,966,000**

ANNUAL COSTS

Debt Service (6% for 30 years)	$49,762,000
Raw Water (31 cents per 1,000 gallons)	$10,101,000
Electricity ($0.09 per kWh)	$14,781,000
Operation & Maintenance	$6,580,000
Total Annual Costs	**$81,224,000**

UNIT COSTS (Until Amortized)

Per Acre-Foot	$812
Per 1,000 Gallons	$2.49

UNIT COSTS (After Amortization)

Per Acre-Foot	$315
Per 1,000 Gallons	$0.97

Table Q-23
Wright Patman to Tarrant Regional Water District
Purchase 100,000 Acre-Feet per Year from Texarkana

Probable Owner: TRWD 100,000 Acre-Feet per Year
Peak Delivery: 112 MGD (1.25 Peaking Factor)
Note: Pipeline to Eagle Mountain Lake

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline (Rural)	78 in	864,200	LF	$591	$510,742,000
Pipeline (Urban)	78 in	170,000	LF	$799	$135,830,000
ROW Easements (Rural)		864,200	LF	$9	$7,778,000
ROW Easements (Urban)		170,000	LF	$55	$9,350,000
Engineering and Contingencies (30%)					$193,972,000
Subtotal of Pipeline					**$857,672,000**

Pump Station(s)	**Size (per PS)**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Lake Wright Patman Pump Station	10900 HP	1	LS	$17,276,940	$17,277,000
Booster Pump Stations	10900 HP	3	Ea	$12,990,300	$38,971,000
Ground Storage Tanks	8 MG	6	Ea	$2,822,000	$16,932,000
Engineering and Contingencies (35%)					$25,613,000
Subtotal of Pump Stations					**$98,793,000**
CONSTRUCTION TOTAL					**$956,465,000**
Permitting and Mitigation		**1**	**LS**		**$8,637,000**
Interest During Construction	**(36 months)**				**$116,373,000**
TOTAL COST					**$1,081,475,000**

ANNUAL COSTS	
Debt Service (6% for 30 years)	$78,568,000
Raw Water (31 cents per 1,000 gallons)	$10,101,000
Electricity ($0.09 per kWh)	$18,117,000
Operation & Maintenance	$9,954,000
Total Annual Costs	**$116,740,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$1,167
Per 1,000 Gallons	$3.58
UNIT COSTS (After Amortization))	
Per Acre-Foot	$382
Per 1,000 Gallons	$1.17

Table Q-24
Wright Patman to Dallas Water Utilities
Develop 112,100 Acre-Feet per Year from Lake Wright Patman

Probable Owner: DWU 112,100 Acre-Feet per Year
Peak Delivery: 125 MGD (1.25 Peaking Factor)
Note: Pipeline straight to East Side WTP

CONSTRUCTION COSTS

RAW WATER IMPROVEMENTS

	Size	Quantity	Unit	Unit Price	Cost
Storage Purchase from COE			L.S.	$14,477,000	$14,477,000
Real Estate Purchase from COE			L.S.	$13,161,000	$13,161,000
Relocation Cost (facilities)			L.S.	$17,109,000	$17,109,000
Mitigation			L.S.	$26,322,000	$26,322,000
NEPA Evaluation			L.S.	$2,468,000	$2,468,000
Engineering, Acquisition and Contingencies at 35%			L.S.	$25,738,000	$25,738,000
Subtotal of Raw Water Improvements					**$99,275,000**

TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline (Rural)	78 in	777,000	LF	$591	$459,207,000
Pipeline (Urban)	78 in	8,000	LF	$799	$6,392,000
ROW Easements (Rural)		777,000	LF	$9	$6,993,000
ROW Easements (Urban)		8,000	LF	$55	$440,000
Engineering and Contingencies (30%)					$139,680,000
Subtotal of Pipeline					**$612,712,000**

Pump Station(s)	**Size (per PS)**	**Quantity**	**Unit**	**Unit Price**	**Cost**
New Pump Station for Texarkana	2200 HP	1	LS	$5,785,000	$5,785,000
Lake Wright Patman Pump Station	11500 HP	1	LS	$17,929,000	$17,929,000
Booster Pump Stations	11500 HP	2	Ea	$13,480,500	$26,961,000
Ground Storage Tanks	7 MG	4	Ea	$2,446,000	$9,784,000
Engineering and Contingencies (35%)					$21,161,000
Subtotal of Pump Stations					**$81,620,000**
CONSTRUCTION TOTAL					**$793,607,000**
Permitting and Mitigation for Pipelines and Pump Stations					**$6,313,000**
Interest During Construction	**(36 months)**				**$96,558,000**
TOTAL COST					**$896,478,000**

Table Q-24, Continued

ANNUAL COSTS	
Debt Service (6% for 30 years)	$65,128,000
Electricity ($0.09 per kWh)	$13,060,000
Operation & Maintenance	$7,227,000
Total Annual Costs	**$85,415,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$762
Per 1,000 Gallons	$2.34
UNIT COSTS (After Amortization))	
Per Acre-Foot	$181
Per 1,000 Gallons	$0.56

Table Q-25
Wright Patman to Dallas Water Utilities
Develop 180,000 Acre-Feet per Year from Lake Wright Patman

Probable Owner: DWU 180,000 Acre-Feet per Year
Peak Delivery: 201 MGD (1.25 Peaking Factor)
Note: Pipeline straight to East Side WTP

CONSTRUCTION COSTS

RAW WATER IMPROVEMENTS

	Size	Quantity	Unit	Unit Price	Cost
Storage Purchase from COE			L.S.	$14,477,000	$14,477,000
Real Estate Purchase from COE			L.S.	$13,161,000	$13,161,000
Relocation Cost (facilities)			L.S.	$17,109,000	$17,109,000
Mitigation			L.S.	$26,322,000	$26,322,000
NEPA Evaluation			L.S.	$2,468,000	$2,468,000
Engineering, Acquisition and Contingencies at 35%			L.S.	$25,738,000	$25,738,000
Subtotal of Raw Water Improvements					**$99,275,000**

TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline (Rural)	72 in	777,000	LF	$516	$498,834,000
Pipeline (Urban)	72 in	8,000	LF	$697	$7,184,000
ROW Easements (Rural)		1,554,000	LF	$7	$10,878,000
ROW Easements (Urban)		16,000	LF	$41	$656,000
Engineering and Contingencies (30%)					$151,805,000
Subtotal of Pipeline					**$669,357,000**

Pump Station(s)	**Size (per PS)**	**Quantity**	**Unit**		**Cost**
New Pump Station for Texarkana	2200 HP	1	LS	$5,785,000	$5,785,000
Lake Wright Patman Pump Station	18200 HP	1	LS	$25,209,000	$25,209,000
Booster Pump Stations	18200 HP	2	Ea	$18,954,400	$37,909,000
Ground Storage Tanks	8 HP	6	Ea	$2,069,000	$12,414,000
Engineering and Contingencies (35%)					$28,461,000
Subtotal of Pump Stations					**$109,778,000**
CONSTRUCTION TOTAL					**$878,410,000**
Permitting and Mitigation for Pipelines and Pump Stations					**$7,048,000**
Interest During Construction	**(36 months)**				**$106,876,000**
TOTAL COST					**$992,334,000**

Table Q-25, Continued

ANNUAL COSTS	
Debt Service (6% for 30 years)	$72,092,000
Electricity ($0.09 per kWh)	$20,739,000
Operation & Maintenance	$8,338,000
Total Annual Costs	**$101,169,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$562
Per 1,000 Gallons	$1.72
UNIT COSTS (After Amortization))	
Per Acre-Foot	$29,077,000
Per 1,000 Gallons	$0.50

Table Q-26
Wright Patman to North Texas Municipal Water District
Develop 180,000 Acre-Feet per Year from Lake Wright Patman

Probable Owner: NTMWD 180,000 Acre-Feet per Year
Peak Delivery: 201 MGD (1.25 Peaking Factor)
Note: Pipeline straight to Lake Lavon.

CONSTRUCTION COSTS

RAW WATER IMPROVEMENTS	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Storage Purchase from COE			L.S.	$14,477,000	$14,477,000
Real Estate Purchase from COE			L.S.	$13,161,000	$13,161,000
Relocation Cost (facilities)			L.S.	$17,109,000	$17,109,000
Mitigation			L.S.	$26,322,000	$26,322,000
NEPA Evaluation			L.S.	$2,468,000	$2,468,000
Engineering, Acquisition and Contingencies at 35%			L.S.	$25,738,000	$25,738,000
Subtotal of Raw Water Improvements					**$99,275,000**

TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline (Rural) x 2	72 in	647,000	LF	$516	$415,374,000
Pipeline (Urban) x 2	72 in	20,000	LF	$697	$17,960,000
ROW Easements (Rural)		1,294,000	LF	$7	$9,058,000
ROW Easements (Urban)		40,000	LF	$41	$1,640,000
Engineering and Contingencies (30%)					$130,000,000
Subtotal of Pipeline					**$574,032,000**

Pump Station(s)	**Size (per PS)**	**Quantity**	**Unit**		**Cost**
New Pump Station for Texarkana	2200 HP	1	LS	$5,785,000	$5,785,000
Lake Wright Patman Pump Station	19400 HP	1	LS	$26,513,000	$26,513,000
Booster Pump Stations	19400 HP	2	Ea	$19,935,000	$39,870,000
Lavon Raw Water Pump Station	8800 HP	1	LS	$10,750,000	$10,750,000
Ground Storage Tanks	8 MG	6	Ea	$2,069,000	$12,414,000
Engineering and Contingencies (35%)					$33,366,000
Subtotal of Pump Stations					**$128,698,000**
CONSTRUCTION TOTAL					**$802,005,000**
Permitting and Mitigation for Pipelines and Pump Stations					**$6,344,000**
Interest During Construction	**(36 months)**				**$97,580,000**
TOTAL COST					**$905,929,000**

Table Q-26, Continued

ANNUAL COSTS	
Debt Service (6% for 30 years)	$65,815,000
Electricity ($0.09 per kWh)	$24,088,000
Operation & Maintenance	$7,886,000
Total Annual Costs	**$97,789,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$543
Per 1,000 Gallons	$1.67
UNIT COSTS (After Amortization))	
Per Acre-Foot	$178
Per 1,000 Gallons	$0.55

Table Q-27
Wright Patman to Tarrant Regional Water District
Develop 180,000 Acre-Feet per Year from Lake Wright Patman

Probable Owner: TRWD 180,000 Acre-Feet per Year
Peak Delivery: 201 MGD (1.25 Peaking Factor)
Note: Pipeline straight to Eagle Mountain Lake

CONSTRUCTION COSTS

RAW WATER IMPROVEMENTS

	Size	Quantity	Unit	Unit Price	Cost
Storage Purchase from COE			L.S.	$14,477,000	$14,477,000
Real Estate Purchase from COE			L.S.	$13,161,000	$13,161,000
Relocation Cost (facilities)			L.S.	$17,109,000	$17,109,000
Mitigation			L.S.	$26,322,000	$26,322,000
NEPA Evaluation			L.S.	$2,468,000	$2,468,000
Engineering, Acquisition and Contingencies at 35%			L.S.	$25,738,000	$25,738,000
Subtotal of Raw Water Improvements					**$99,275,000**

TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline (Rural)	96 in	864,200	LF	$860	$743,212,000
Pipeline (Urban)	96 in	170,000	LF	$1,161	$197,370,000
ROW Easements (Rural)		864,200	LF	$9	$7,778,000
ROW Easements (Urban)		170,000	LF	$55	$9,350,000
Engineering and Contingencies (30%)					$282,175,000
Subtotal of Pipeline					**$1,239,885,000**

Pump Station(s)	**Size (per PS)**	**Quantity**	**Unit**		**Cost**
New Pump Station for Texarkana	2200 HP	1	LS	$5,785,000	$5,785,000
Lake Wright Patman Pump Station	22000 HP	1	LS	$28,881,000	$28,881,000
Booster Pump Stations	22000 HP	3	Ea	$21,715,000	$65,145,000
Ground Storage Tanks	8 MG	9	Ea	$2,069,000	$18,621,000
Engineering and Contingencies (35%)					$41,451,000
Subtotal of Pump Stations					**$159,883,000**
CONSTRUCTION TOTAL					**$1,499,043,000**
Permitting and Mitigation for Pipelines and Pump Stations					**$12,708,000**
Interest During Construction	**(36 months)**				**$182,389,000**
TOTAL COST					**$1,694,140,000**

Table Q-27, Continued

ANNUAL COSTS	
Debt Service (6% for 30 years)	$123,077,000
Electricity ($0.09 per kWh)	$34,018,000
Operation & Maintenance	$14,666,000
Total Annual Costs	**$171,761,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$954
Per 1,000 Gallons	$2.93
UNIT COSTS (After Amortization))	
Per Acre-Foot	$270
Per 1,000 Gallons	$0.83

Table Q-28
Wright Patman to DWU, NTMWD, and TRWD
Develop 390,000 Acre-Feet per Year from Lake Wright Patman

Probable Owner: Multiple 390,000 Acre-Feet per Year
Peak Delivery: 435 MGD (1.25 Peaking Factor)
Note: Water includes 100,000 acre-feet per year purchased from Texarkana, 182,000 acre-feet per year new supply, and 108,000 acre-feet per year system operation. Pipeline to Lake Lavon, Lake Lewisville, and Eagle Mountain Lake.

CONSTRUCTION COSTS

RAW WATER IMPROVEMENTS (all Phase 1)

	Size	Quantity	Unit	Unit Price	Cost
Storage Purchase from COE			L.S.	$14,477,000	$14,477,000
Real Estate Purchase from COE			L.S.	$13,161,000	$13,161,000
Relocation Cost (facilities)			L.S.	$17,109,000	$17,109,000
Mitigation			L.S.	$26,322,000	$26,322,000
NEPA Evaluation			L.S.	$2,468,000	$2,468,000
Engineering, Acquisition and Contingencies at 35%			L.S.	$25,738,000	$25,738,000
Subtotal of Raw Water Improvements					**$99,275,000**
- NTMWD					$33,092,000
- DWU					$33,091,000
- TRWD					$33,092,000

TRANSMISSION FACILITIES

Pipeline Phase 1	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Segment 1 (WP to Chapman - Total Capacity = 614 mgd, Phase 1 capacity = 307 mgd)					
Pipeline	108 in	426,149	L.F.	$1,075	$458,110,000
ROW Easements (80 Ft.)		426,149	L.F.	$9	$3,835,000
Engineering and Contingencies (30%)					$137,433,000
Segment 1 Subtotal					$599,378,000
Segment 2 (Chapman to Lavon - Total Capacity = 435 mgd, Phase 1 capacity = 218 mgd)					
Pipeline (rural)	96 in	188,450	L.F.	$860	$162,067,000
Pipeline (urban)	96 in	20,000	L.F.	$1,161	$23,220,000
ROW Easements (80 Ft., rural)		188,450	L.F.	$9	$1,696,000
ROW Easements (80 Ft., urban)		20,000	L.F.	$55	$1,100,000
Engineering and Contingencies (30%)					$55,586,000
Segment 2 Subtotal					$243,669,000

Table Q-28, Continued

Segment 3 (Lavon to Lewisville - Capacity = 290 mgd, phase 1 capacity = 145 mgd)					
Pipeline (rural)	84 in	69,000	L.F.	$677	$46,713,000
Pipeline (urban)	84 in	103,500	L.F.	$914	$94,599,000
ROW Easements (80 Ft., rural)		69,000	L.F.	$9	$621,000
ROW Easements (80 Ft., urban)		103,500	L.F.	$55	$5,693,000
Engineering and Contingencies (30%)					$42,394,000
Segment 3 Subtotal					$190,020,000
Segment 4 (Lewisville to EM - Capacity = 145 mgd)					
Pipeline (rural)	84 HP	136,290	L.F.	$677	$92,268,000
Pipeline (urban)	84 HP	58,410	L.F.	$914	$53,387,000
ROW Easements (40 Ft., rural)		136,290	L.F.	$9	$1,227,000
ROW Easements (40 Ft., urban)		58,410	L.F.	$55	$3,213,000
Engineering and Contingencies (30%)					$43,697,000
Segment 4 Subtotal					$193,792,000
Phase 1 Pipeline Total					**$1,226,859,000**
- NTMWD					$281,016,000
- DWU					$376,026,000
- TRWD					$569,819,000
Pipeline Phase 2	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Segment 1 (WP to Chapman - Total Capacity = 614 mgd)					
Pipeline	108 HP	426,149	L.F.	$1,075	$458,110,000
Engineering and Contingencies (30%)					$137,433,000
Segment 1 Subtotal					$595,543,000
Segment 2 (Chapman to Lavon - Total Capacity = 435 mgd)					
Pipeline (rural)	96 HP	198,450	L.F.	$860	$170,667,000
Pipeline (urban)	96 HP	10,000	L.F.	$1,161	$11,610,000
Engineering and Contingencies (30%)					$54,683,000
Segment 2 Subtotal					$236,960,000
Segment 3 (Lavon to Lewisville - Total Capacity = 290 mgd)					
Pipeline (rural)	84 HP	69,000	L.F.	$677	$46,713,000
Pipeline (urban)	84 HP	103,500	L.F.	$914	$94,599,000
Engineering and Contingencies (30%)					$42,394,000
Segment 3 Subtotal					$183,706,000
Phase 2 Pipeline Total					**$1,016,209,000**
- NTMWD					$277,501,000
- DWU					$369,354,000
- TRWD					$369,354,000
PIPELINE TOTAL					**$2,243,068,000**
- NTMWD					$558,517,000
- DWU					$745,380,000
- TRWD					$939,173,000

Table Q-28, Continued

Pump Station Phase 1	**Size**	**Quantity**	**Unit**		**Cost**
Segment 1 (WP to Chapman - Capacity = 614 mgd)					
New Pump Station for Texarkana	2200 HP	1	LS	$5,785,000	$5,785,000
Lake Wright Patman Pump Station	28000 HP	1	LS	$34,028,000	$34,028,000
Booster Pump Station 1	32500 HP	1	Ea	$28,488,000	$28,488,000
Booster 1 Ground Storage Tanks	8 HP	5	Ea	$2,069,000	$10,345,000
Engineering and Contingencies (35%)					$27,526,000
Segment 1 Total					$106,172,000
Segment 2 (Chapman to Lavon - Capacity = 435 mgd)					
Lake Chapman Pump Station	28300 HP	1	LS	$34,286,000	$34,286,000
Engineering and Contingencies (35%)					$12,000,000
Segment 2 Total					$46,286,000
Segment 3 (Lavon to Lewisville - Capacity = 290 mgd)					
Lake Lavon Pump Station	13000 HP	1	LS	$19,559,000	$19,559,000
Engineering and Contingencies (35%)					$6,846,000
Segment 3 Total					$26,405,000
Segment 4 (Lewisville to EM - Capacity = 145 mgd)					
Lake Lewisville Pump Station	13000 HP	1	LS	$19,559,000	$19,559,000
Engineering and Contingencies (35%)					$6,846,000
Segment 4 Total					$26,405,000
Phase 1 Pump Station Total					**$205,268,000**
- NTMWD					$50,819,000
- DWU					$64,022,000
- TRWD					$90,426,000
Pump Station Phase 2	**Size**	**Quantity**	**Unit**		**Cost**
Segment 1 (WP to Chapman - Capacity = 614 mgd)					
Lake Wright Patman Pump Station	28000 HP	1	LS	$34,028,000	$34,028,000
Booster Pump Station 1	32500 HP	1	Ea	$28,488,000	$28,488,000
Booster 1 Ground Storage Tanks	8 HP	5	Ea	$2,069,000	$10,345,000
Engineering and Contingencies (35%)					$25,501,000
Segment 1 Total					$98,362,000
Segment 2 (Chapman to Lavon - Capacity = 435 mgd)					
Lake Chapman Pump Station	28300 HP	1	LS	$34,286,000	$34,286,000
Engineering and Contingencies (35%)					$12,000,000
Segment 2 Total					$46,286,000
Segment 3 (Lavon to Lewisville - Capacity = 290 mgd)					
Lake Lavon Pump Station	13000 HP	1	LS	$19,559,000	$19,559,000
Engineering and Contingencies (35%)					$6,846,000
Segment 3 Total					$26,405,000

Table Q-28, Continued

Segment 4 (Lewisville to EM - Capacity = 145 mgd)					
Lake Lewisville Pump Station	5300 HP	1	LS	$9,722,000	$9,722,000
Engineering and Contingencies (35%)					$3,403,000
Segment 4 Total					$13,125,000
Phase 2 Pump Station Total					**$184,178,000**
- NTMWD					$48,216,000
- DWU					$61,419,000
- TRWD					$74,543,000
PUMP STATION TOTAL					**$389,446,000**
- NTMWD					$99,035,000
- DWU					$125,441,000
- TRWD					$164,969,000
CONSTRUCTION TOTAL					
Phase 1					**$1,531,402,000**
- NTMWD					$364,927,000
- DWU					$473,139,000
-TRWD					$693,337,000
Phase 2					**$1,200,387,000**
- NTMWD					$325,717,000
- DWU					$430,773,000
-TRWD					$443,897,000
TOTAL					**$2,731,789,000**
- NTMWD					$690,644,000
- DWU					$903,912,000
-TRWD					$1,137,234,000
Permitting and Mitigation (All Phase 1)					**$24,006,000**
- NTMWD					$8,002,000
- DWU					$8,002,000
-TRWD					$8,002,000
Interest During Construction (36 months)					
Phase 1					**$186,326,000**
- NTMWD					$44,401,000
- DWU					$57,567,000
-TRWD					$84,358,000
Phase 2					**$142,601,000**
- NTMWD					$38,694,000
- DWU					$51,174,000
-TRWD					$52,733,000
TOTAL					**$328,927,000**
- NTMWD					$83,095,000
- DWU					$108,741,000
-TRWD					$137,091,000

Table Q-28, Continued

TOTAL COST	
Phase 1	**$1,741,734,000**
- NTMWD	$417,330,000
- DWU	$538,708,000
-TRWD	$785,697,000
Phase 2	**$1,342,988,000**
- NTMWD	$364,411,000
- DWU	$481,947,000
-TRWD	$496,630,000
TOTAL	**$3,084,722,000**
- NTMWD	$781,741,000
- DWU	$1,020,655,000
-TRWD	$1,282,327,000
ANNUAL COSTS - PHASE 1	
Debt Service (6% for 30 years)	**$126,535,000**
- NTMWD	$30,319,000
- DWU	$39,137,000
-TRWD	$57,080,000
Raw Water (100,000 Acre-Feet at $0.31 per 1,000 gallons)	**$10,101,000**
- NTMWD	$3,367,000
- DWU	$3,367,000
-TRWD	$3,367,000
Electricity ($0.09 per kWh)	**$33,001,000**
- NTMWD	$8,269,000
- DWU	$10,869,000
-TRWD	$13,863,000
Operation & Maintenance	**$16,816,000**
- NTMWD	$4,067,000
- DWU	$5,206,000
-TRWD	$7,543,000
Total Annual Costs	**$186,453,000**
- NTMWD	$46,022,000
- DWU	$58,579,000
-TRWD	$81,853,000

Table Q-28, Continued

ANNUAL COSTS - PHASE 2	
Debt Service (6% for 30 years)	**$97,567,000**
- NTMWD	$26,474,000
- DWU	$35,013,000
-TRWD	$36,080,000
Raw Water (100,000 Acre-Feet at $0.31 per 1,000 gallons)	**$0**
- NTMWD	$0
- DWU	$0
-TRWD	$0
Electricity ($0.09 kWh)	**$34,794,000**
- NTMWD	$8,269,000
- DWU	$10,869,000
-TRWD	$15,656,000
Operation & Maintenance	**$13,223,000**
- NTMWD	$3,550,000
- DWU	$4,692,000
-TRWD	$4,981,000
Total Annual Costs	**$145,584,000**
- NTMWD	$38,293,000
- DWU	$50,574,000
-TRWD	$56,717,000
ANNUAL COSTS - PHASES 1 & 2	
Debt Service (6% for 30 years)	**$224,102,000**
- NTMWD	$56,793,000
- DWU	$74,150,000
-TRWD	$93,160,000
Raw Water (100,000 Acre-Feet at $0.31 per 1,000 gallons)	**$10,101,000**
- NTMWD	$3,367,000
- DWU	$3,367,000
-TRWD	$3,367,000
Electricity ($0.09 kWh)	**$67,795,000**
- NTMWD	$16,538,000
- DWU	$21,738,000
-TRWD	$29,519,000
Operation & Maintenance	**$30,039,000**
- NTMWD	$7,617,000
- DWU	$9,898,000
-TRWD	$12,524,000
Total Annual Costs	**$332,037,000**
- NTMWD	$84,315,000
- DWU	$109,153,000
-TRWD	$138,570,000

Table Q-28, Continued

UNIT COSTS (Phase 1)	
Per Acre-Foot	
Overall	**$956**
- NTMWD	$708
- DWU	$901
- TRWD	$1,259
Per 1,000 Gallons	
Overall	**$2.93**
- NTMWD	$2.17
- DWU	$2.77
- TRWD	$3.86
UNIT COSTS (Phase 2)	
Per Acre-Foot	
Overall	**$747**
- NTMWD	$589
- DWU	$778
- TRWD	$873
Per 1,000 Gallons	
Overall	**$2.29**
- NTMWD	$1.81
- DWU	$2.39
- TRWD	$2.68
UNIT COSTS (Phases 1 & 2)	
Per Acre-Foot	
Overall	**$851**
- NTMWD	$649
- DWU	$840
- TRWD	$1,066
Per 1,000 Gallons	
Overall	**$2.61**
- NTMWD	$1.99
- DWU	$2.58
- TRWD	$3.27

Table Q-28, Continued
UNIT COSTS AFTER AMORTIZATION (Phases 1 & 2)

Per Acre-Foot	
Overall	**$277**
- NTMWD	$212
- DWU	$269
- TRWD	$349
Per 1,000 Gallons	
Overall	**$0.85**
- NTMWD	$0.65
- DWU	$0.83
- TRWD	$1.07

Table Q-29
Lake Texoma Already Authorized with Blending
WTP at Leonard

Probable Owner: North Texas MWD
Amount: 113,000 Acre-Feet/Year

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline (Rural)	90 in.	274,791	LF	$774	$212,688,000
Right of Way Easements (ROW)	40 ft.	274,791	LF	$9	$2,473,000
Engineering and Contingencies (30%)					$63,806,000
Subtotal of Pipeline					**$278,967,000**
Pump Station(s)					
Add 2 Pumps to existing Facility	100 MGD	2	EA	$2,600,000	$5,200,000
Engineering and Contingencies (35%)					$1,820,000
Subtotal of Pump Station(s)					**$7,020,000**
Two Day Terminal Storage (400 MG)					
Compacted Fill		1,147,844	CY	$6.60	$7,576,000
12" Soil Cement		80,424	CY	$65.80	$5,292,000
HDPE Liner		241,272	SY	$4.15	$1,001,000
Roads		11,336	SY	$20.00	$227,000
Grassing		20	AC	$4,500	$89,000
Control structures		4	EA	$329,000	$1,316,000
Fencing		6,996	LF	$20.00	$140,000
Mobilization		1	LS	5.00%	$782,000
Engineering and Contingencies (35%)					$5,748,000
Subtotal Terminal Storage					**$22,171,000**
Permitting and Mitigation		**1**	**LS**		**$2,802,000**
CONSTRUCTION TOTAL					**$310,960,000**
Interest During Construction			**(24 months)**		**$25,396,000**
TOTAL CAPITAL COST					**$336,356,000**

Table Q-29, Continued

ANNUAL COSTS	
Debt Service (6% for 30 years)	$24,436,000
Raw water purchase	$3,027,000
Electricity ($0.09 per kWh)	$3,840,000
Facility Operation & Maintenance	$2,990,000
Total Annual Costs	**$34,293,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot of raw water	$303
Per 1,000 Gallons of raw water	$0.93
UNIT COSTS (After Amortization)	
Per Acre-Foot of raw water	$87
Per 1,000 Gallons of raw water	$0.27

Table Q-30
NTMWD Substantial Additional Lake Texoma Supply with Desalination

Probable Owner: North Texas MWD
Amount: 113,000 Acre-Feet/Year pumped. 105,000 ac-ft/yr delivered after desalination.

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline	90 in.	274,791	LF	$774	$212,688,000
Right of Way Easements (ROW)	40 ft.	274,791	LF	$9	$2,473,000
Engineering and Contingencies (30%)					$63,806,000
Subtotal of Pipeline					**$278,967,000**
Pump Station(s)					
Add 2 Pumps to existing Facility	100 MGD	2	EA	$2,600,000	$5,200,000
Engineering and Contingencies (35%)					$1,820,000
Subtotal of Pump Station(s)					**$7,020,000**
Two Day Terminal Storage (400 MG)					
Compacted Fill		1,147,844	CY	$6.60	$7,576,000
12" Soil Cement		80,424	CY	$65.80	$5,292,000
HDPE Liner		241,272	SY	$4.15	$1,001,000
Roads		11,336	SY	$20.00	$227,000
Grassing		20	AC	$4,500	$89,000
Control structures		4	EA	$329,000	$1,316,000
Fencing		6,996	LF	$20.00	$140,000
Mobilization		1	LS	5.00%	$782,000
Engineering and Contingencies (35%)					$5,748,000
Subtotal Terminal Storage					**$22,171,000**
Permitting and Mitigation		**1**	**LS**		**$2,802,000**

WATER TREATMENT FACILITIES

Desalination					
Treatment Plant with RO (70 MGD)		200	MGD		$271,510,000
Brine disposal wells	200 gpm	30	EA	$1,184,000	$35,520,000
Disposal conveyance system		1	LS	$5,328,000	$5,328,000
Engineering and Contingencies (35%)					$109,325,000
Subtotal of Desalination					**$421,683,000**
Permitting of treatment plant and reject stream					**$3,748,296**

Table Q-30, Continued

CONSTRUCTION TOTAL		**$736,391,296**
Interest During Construction	**(24 months)**	**$60,141,000**
TOTAL CAPITAL COST		**$796,532,296**
ANNUAL COSTS		
Debt Service (6% for 30 years)		$57,867,000
Raw water purchase		$3,027,000
Raw Water Electricity ($0.09 per kWh)		$3,840,000
Facility Operation & Maintenance		$4,119,600
Water Treatment		$30,988,000
Reject water disposal		$4,562,000
Total Annual Costs		**$104,403,600**
UNIT COSTS (During Amortization)		
Per Acre-Foot of treated water		$994
Per 1,000 Gallons of treated water		$3.05
UNIT COSTS (During Amortization)		
Per Acre-Foot of treated water		$443
Per 1,000 Gallons of treated water		$1.36

Table Q-31
Additional Lake Texoma Supply with Blending

Probable Owner: Multiple
Amount: 113,000 Acre-Feet/Year
Peak Delivery 201.6 MGD

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline (rural)	96 in.	223,959	LF	$860	$192,605,000
Pipeline (urban)	96 in.	109,375	LF	$1,161	$126,984,000
Right of Way Easements (Rural)	40 ft.	223,959	LF	$9	$2,016,000
Right of Way Easements (Urban)	40 ft.	109,375	LF	$55	$6,016,000
Engineering and Contingencies (30%)					$95,877,000
Subtotal of Pipeline					**$423,498,000**
Pump Station(s)					
Lakeside Pump Station	23900 HP	1	EA	$30,511,000	$30,511,000
Engineering and Contingencies (35%)					$10,679,000
Subtotal of Pump Station(s)					**$41,190,000**
Terminal Storage (400 MG)					
Compacted Fill		1,147,844	CY	$6.60	$7,576,000
12" Soil Cement		80,424	CY	$65.80	$5,292,000
HDPE Liner		241,272	SY	$4.15	$1,001,000
Roads		11,336	SY	$20.00	$227,000
Grassing		20	AC	$4,500	$89,000
Control structures		4	EA	$329,000	$1,316,000
Fencing		6,996	LF	$20.00	$140,000
Mobilization		1	LS	5.00%	$782,000
Engineering and Contingencies (35%)					$5,748,000
Subtotal Terminal Storage					**$22,171,000**
Permitting and Mitigation		**1**	**LS**		**$4,398,300**
CONSTRUCTION TOTAL					**$491,257,300**
Interest During Construction		**(24 months)**			**$40,121,000**
TOTAL CAPITAL COST					**$531,378,300**

Table Q-31, Continued

ANNUAL COSTS	
Debt Service (6% for 30 years)	$38,604,000
Raw water purchase	$3,027,000
Electricity ($0.09 per kWh)	$3,638,000
Facility Operation & Maintenance	$5,032,000
Total Annual Costs	**$50,301,000**
UNIT COSTS (During Amortization)	
Per Acre-Foot of raw water	$445
Per 1,000 Gallons of raw water	$1.37
UNIT COSTS (After Amortization)	
Per Acre-Foot of treated water	$104
Per 1,000 Gallons of treated water	$0.32

Table Q-32
Substantial Additional Lake Texoma Supply with Desalination

Probable Owner: Multiple
Amount: 113,000 Acre-Feet/Year pumped.
Amount: 105,000 ac-ft/yr delivered after desalination.

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline (rural)	90 in.	223,959	LF	$774	$173,344,000
Pipeline (urban)	90 in.	109,375	LF	$1,045	$114,297,000
Right of Way Easements (Rural)	40 ft.	223,959	LF	$9	$2,016,000
Right of Way Easements (Urban)	40 ft.	109,375	LF	$55	$6,016,000
Engineering and Contingencies (30%)					$86,292,000
Subtotal of Pipeline					**$381,965,000**
Pump Station(s)					
Lakeside Pump Station	10400 HP	1	EA	$16,734,000	$16,734,000
Engineering and Contingencies (35%)					$5,857,000
Subtotal of Pump Station(s)					**$22,591,000**
Permitting and Mitigation		**1**	**LS**		**$3,849,600**
Two Day Terminal Storage (400 MG)					
Compacted Fill		1,147,844	CY	$6.60	$7,576,000
12" Soil Cement		80,424	CY	$65.80	$5,292,000
HDPE Liner		241,272	SY	$4.15	$1,001,000
Roads		11,336	SY	$20.00	$227,000
Grassing		20	AC	$4,500	$89,000
Control structures		4	EA	$329,000	$1,316,000
Fencing		6,996	LF	$20.00	$140,000
Mobilization		1	LS	5.00%	$782,000
Engineering and Contingencies (35%)					$5,748,000
Subtotal Terminal Storage					**$22,171,000**

Table Q-32, Continued

WATER TREATMENT FACILITIES

Desalination					
Treatment Plant with RO (70 MGD)		200	MGD		$271,510,000
Brine disposal wells	200 gpm	30	EA	$1,184,000	$35,520,000
Disposal conveyance system		1	LS	$5,328,000	$5,328,000
Engineering and Contingencies (35%)					$109,325,000
Subtotal of Desalination					**$421,683,000**
Permitting of treatment plant and reject stream					**$3,748,296**
CONSTRUCTION TOTAL					**$856,007,896**
Interest During Construction			**(24 months)**		**$69,910,000**
TOTAL CAPITAL COST					**$925,917,896**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$67,267,000
Raw water purchase					$3,027,000
Raw Water Electricity ($0.09 per kWh)					$4,201,000
Facility Operation & Maintenance					$5,365,620
Water Treatment					$30,988,000
Reject water disposal					$4,562,000
Total Annual Costs					**$115,410,620**
UNIT COSTS (During Amortization)					
Per Acre-Foot of treated water					$1,099
Per 1,000 Gallons of treated water					$3.37
UNIT COSTS (After Amortization)					
Per Acre-Foot of treated water					$459
Per 1,000 Gallons of treated water					$1.41

Table Q-33
Lake Livingston to Dallas Water Utilities

Probable Owner:	Dallas	200,000	Acre-Feet per Year
Peak Delivery:		223	MGD (1.25 Peaking Factor)

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline (Rural) x 2	78 in	919,000	LF	$591	$1,086,258,000
Pipeline (Urban) x 2	78 in	33,000	LF	$799	$52,734,000
ROW Easements (Rural)		1,838,000	LF	$9	$16,542,000
ROW Easements (Urban)		66,000	LF	$55	$3,630,000
Engineering and Contingencies (30%)					$341,698,000
Subtotal of Pipeline					**$1,500,862,000**
Pump Station(s)	**Size (per PS)**	**Quantity**	**Unit**		**Cost**
Lake Pump Station	17000 HP	1	LS	$23,905,200	$23,905,200
Booster Pump Stations	17000 HP	3	Ea	$17,974,000	$53,922,000
Ground Storage Tanks	10 MG	9	Ea	$2,752,000	$24,768,000
Engineering and Contingencies (35%)					$35,908,000
Subtotal of Pump Stations					**$138,503,200**
Permitting and mitigation		1	LS		$14,899,000
CONSTRUCTION TOTAL					**$1,654,264,200**
Interest During Construction	**(36 months)**				**$201,274,000**
TOTAL COST					**$1,855,538,200**

ANNUAL COSTS	
Debt Service (6% for 30 years)	$134,803,000
Raw Water ($95 per acre-foot)	$19,000,000
Electricity ($0.09 per kWh)	$25,840,000
Operation & Maintenance	$16,746,000
Total Annual Costs	**$196,389,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$982
Per 1,000 Gallons	$3.01
UNIT COSTS (After Amortization))	
Per Acre-Foot	$308
Per 1,000 Gallons	$0.95

Table Q-34
Lake Livingston to North Texas Municipal Water District

Probable Owner:	NTMWD	200,000	Acre-Feet per Year
Peak Delivery:		223	MGD (1.25 Peaking Factor)

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline (Rural) x 2	78 in	938,000	LF	$591	$1,108,716,000
Pipeline (Urban) x 2	78 in	120,000	LF	$799	$191,760,000
ROW Easements (Rural)		1,876,000	LF	$9	$16,884,000
ROW Easements (Urban)		240,000	LF	$55	$13,200,000
Engineering and Contingencies (30%)					$390,143,000
Subtotal of Pipeline					**$1,720,703,000**

Pump Station(s)	**Size (per PS)**	**Quantity**	**Unit**		**Cost**
Lake Pump Station	19000 HP	1	LS	$26,078,400	$26,078,400
Booster Pump Stations	19000 HP	3	Ea	$19,608,000	$58,824,000
Ground Storage Tanks	10 MG	9	Ea	$2,752,000	$24,768,000
Engineering and Contingencies (35%)					$38,385,000
Subtotal of Pump Stations					**$148,055,400**
Permitting and mitigation		1	LS		$16,922,000
CONSTRUCTION TOTAL					**$1,885,680,400**
Interest During Construction	**(36 months)**				**$229,431,000**
TOTAL COST					**$2,115,111,400**

ANNUAL COSTS	
Debt Service (6% for 30 years)	$153,661,000
Raw Water ($95 per acre-foot)	$19,000,000
Electricity ($0.09 per kWh)	$28,945,000
Operation & Maintenance	$18,896,000
Total Annual Costs	**$220,502,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$1,103
Per 1,000 Gallons	$3.38
UNIT COSTS (After Amortization))	
Per Acre-Foot	$334
Per 1,000 Gallons	$1.03

Table Q-35
Lake Livingston to Tarrant Regional Water District

Probable Owner:	TRWD	200,000	Acre-Feet per Year
Peak Delivery:		223	MGD (1.25 Peaking Factor)

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline (Rural) x 2	78 in	973,000	LF	$591	$1,150,086,000
Pipeline (Urban) x 2	78 in	77,000	LF	$799	$123,046,000
ROW Easements (Rural)		1,946,000	LF	$9	$17,514,000
ROW Easements (Urban)		154,000	LF	$55	$8,470,000
Engineering and Contingencies (30%)					$381,940,000
Subtotal of Pipeline					**$1,681,056,000**
Pump Station(s)	**Size (per PS)**	**Quantity**	**Unit**		**Cost**
Lake Pump Station	22000 HP	1	LS	$28,880,800	$28,880,800
Booster Pump Stations	22000 HP	3	Ea	$21,715,000	$65,145,000
Ground Storage Tanks	10 MG	9	Ea	$2,752,000	$24,768,000
Engineering and Contingencies (35%)					$41,578,000
Subtotal of Pump Stations					**$160,371,800**
Permitting and mitigation		1	LS		$16,703,000
CONSTRUCTION TOTAL					**$1,858,130,800**
Interest During Construction	**(36 months)**				**$226,079,000**
TOTAL COST					**$2,084,209,800**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$151,416,000
Raw Water ($95 per acre-foot)					$19,000,000
Electricity ($0.09 per kWh)					$34,719,000
Operation & Maintenance					$18,841,000
Total Annual Costs					**$223,976,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot					$1,120
Per 1,000 Gallons					$3.44
UNIT COSTS (After Amortization))					
Per Acre-Foot					$363
Per 1,000 Gallons					$1.11

Table Q-36
Replace Tawakoni Pipeline

Owner:	Dallas	
Quantity:	77,994	AF/Y

Item	Quantity	Unit	Unit Price	Cost
Capital Costs (144-inch pipeline & pumping facilities)	1	LS	$362,000,000	$362,000,000
Engineering, permitting and contingencies				$114,392,000
TOTAL CONSTRUCTION COST				**$476,392,000**
Interest During Construction	**(12 months)**			**$19,851,000**
TOTAL CAPITAL COST				**$496,243,000**
Annual Costs				
Debt Service (6 percent for 30 years)				$36,052,000
Electricity (incremental for 69,128 af/yr increase)				$2,325,000
Operation and Maintenance				$5,126,000
Total Annual Cost				**$43,503,000**
Available Project Yield (ac-ft/yr)				**77,994**
UNIT COSTS (Until Amortized)				
Water Cost ($ per ac-ft)				**$558**
Water Cost ($ per 1,000 gallons)				**$1.71**
UNIT COSTS (After Amortization)				
Water Cost ($ per ac-ft)				**$96**
Water Cost ($ per 1,000 gallons)				**$0.29**

Capital costs provided by DWU

Table Q-37
Main Stem Pump Station

Owner:	Dallas	
Quantity:	41,029	AF/Y

Item	Quantity	Unit	Unit Price	Cost
Capital Costs (90 MGD Pump Station + 10 mile 60-inch pipeline)	1	LS	$104,000,000	$104,000,000
Engineering, permitting and contingencies				$32,864,000
TOTAL CONSTRUCTION COST				**$136,864,000**
Interest During Construction		**(12 months)**		**$5,703,000**
TOTAL CAPITAL COST				**$142,567,000**
Annual Costs				
Debt Service (6 percent for 30 years)				$10,357,000
Electricity				$705,000
Operation and Maintenance				$1,472,000
Total Annual Cost				**$12,534,000**
Available Project Yield (ac-ft/yr)				**41,029**
UNIT COSTS (Until Amortized)				
Water Cost ($ per ac-ft)				**$305**
Water Cost ($ per 1,000 gallons)				**$0.94**
UNIT COSTS (After Amortization)				
Water Cost ($ per ac-ft)				**$53**
Water Cost ($ per 1,000 gallons)				**$0.16**

Capital costs provided by DWU

Table Q-38
Roberts County Water Supply Project
200,000 AFY Water Supply to DWU
Ogallala Groundwater to Lake Ray Roberts
Panhandle Water Project

Item	Size		Quantity	Unit	Unit Price	Cost
Groundwater Costs						
Groundwater Rights	1	Acre	300,000	Acre	$700	$210,000,000
Subtotal						**$210,000,000**
Capital Costs						
Roberts & Hemphill Counties Well Field						
Test Holes [1]			176	EA	$9,600	$1,689,600
Groundwater Wells [2]	225	HP (Avg)	88	EA	$400,000	$35,200,000
Monitoring Wells	1	LS	1	EA	$1,000,000	$1,000,000
69 KV Transmission System [15]	1	Miles	41	MI	$198,000	$8,118,000
Electrical Substations [15]	1	LS	6	EA	$1,485,000	$8,910,000
Power to Wells [15]			810	MI	$33,000	$26,730,000
Wellfield Collection Lines to Wellfield Pump Sta. or Transmission System [3]	14	inch (Avg)	370,000	FT	$60	$22,200,000
Transmission from Wellfield Pump or Booster Sta. to Main Line Pump Sta. [3]	42	inch (Avg)	542,000	FT	$215	$116,530,000
Landowner Well Site and Pipeline Damages Compensation	1	LS	1	EA	$6,345,000	$6,345,000
20% Standby Wells	1	LS	1	EA	$18,433,000	$18,433,000
Pump Station 1 (600 Hp)	600	HP	4	EA	$2,150,000	$8,600,000
Pump Station 2 (3200 Hp)	3200	HP	2	EA	$5,235,000	$10,470,000
Pump Station 3 (400 Hp)	400	HP	4	EA	$1,795,000	$7,180,000
Pump Station 4 (75 Hp)	75	HP	4	EA	$693,500	$2,774,000
Pump Station 2 Ground Storage Tank	1.5	MG	2	EA	$591,000	$1,182,000
Pump Station 3 Ground Strorage Tank	0.8	MG	2	EA	$414,600	$829,200
Pump Station 4 Ground Storage Tank	0.2	MG	2	EA	$200,250	$400,500
Pump Station 5 Ground Storage Tank	2	MG	2	EA	$714,000	$1,428,000
Pump Station 6 Ground Storage Tank	5.1	MG	2	EA	$1,323,200	$2,646,400
Standpipe	1.6	MG	1	EA	$615,600	$615,600
Terminus Tank at Connection to Transmission Main	5.8	MG	2	EA	$1,464,600	$2,929,200
Terminus Tank at Connection to Transmission Main	9	MG	2	EA	$2,410,500	$4,821,000
Unpaved Access Roads to Wells	15	Feet	316,800	FT	$13	$3,960,000
Pipeline Easements outside of Mesa Water Rights	1	Acre	200	AC	$3,500	$700,000
Environmental Studies, Permitting & Mitigation			1	LS	$2,536,000	$2,536,000
Subtotal						**$296,227,500**
Panhandle Water Transmission System to Lake Ray Roberts						
Pipeline - Roberts County to Lake Ray Roberts - Rural, Soil [5]	90	inch	1,372,000	FT	$774	$1,061,928,000
Pipeline - Roberts County to Lake Ray Roberts - Rural, Soil/Rock [5]	90	inch	64,000	FT	$968	$61,920,000
Pump Station No. 1 - Roberts County to Lake Ray Roberts [6]	3,500	HP	1	EA	$5,557,500	$5,557,500

Table Q-38 (Continued)						
Pump Station No. 2 - Roberts County to Lake Ray Roberts [6]	25,000	HP	1	EA	$23,650,000	$23,650,000
Storage Tanks (10.8% of Peak Daily Flow) [7] - Three - 8 MG Tanks Per Station	8	MG	6	EA	$2,069,000	$12,414,000
Pressure Reducing Station [8]			2	EA	$329,000	$658,000
Discharge Structure			1	EA	$250,000	$250,000
Easement - Rural [9]			1,436,000	LF	$9	$12,924,000
Environmental Studies, Permitting & Mitigation			1	LS	$13,993,500	$13,993,500
Subtotal						**$1,193,295,000**
Engineering and Contingencies (35% for pump stations, 30% for other items)						$440,722,000
Total Capital Cost						**$1,930,244,500**
Interest During Construction [10]	3	YR				$234,853,000
Total Construction Cost						**$2,165,097,500**
Development Costs						
Preliminary Expenses			1	LS	$25,000,000	$25,000,000
Development Fee for wellfield only	7.0	%	1	LS	$35,436,000	$35,436,000
Subtotal						**$60,436,000**
Total Project Cost						**$2,435,533,500**
Pre-Amortization Annual Cost						
Debt Service (6 percent for 30 years) [11]						$176,939,000
Well Field and Transmission System Operation and Maintenance [12]						$18,792,000
Well Field and Transmission System Energy [13]						$23,434,000
Electric Substation Lease [14]						$1,089,711
Supplemental Wells & Infrastructure (.5% of Wellfield Capital Cost)			1	EA	$1,490,000	$1,490,000
Total Annual Cost						**$221,744,711**
Available Project Yield (ac-ft/yr)						**200,000**
Annual Cost of Water ($ per ac-ft)						**$1,109**
Annual Cost of Water ($ per 1,000 gallons)						**$3.40**
Post Amortization Annual Cost						
Well Field and Transmission System Operation and Maintenance [12]						$18,792,000
Well Field and Transmission System Energy [13]						$23,434,000
Electric Substation Lease [14]						$1,089,711
Supplemental Wells & Infrastructure (3% of Wellfield Capital Cost)			1	EA	$1,490,000	$1,490,000
Total Annual Cost						**$44,805,711**
Annual Cost of Water ($ per ac-ft)						**$224**
Annual Cost of Water ($ per 1,000 gallons)						**$0.69**

[1] Number of test holes per R.W. Harden & Assoc. (4/01/08). Unit cost based on average 600 ft deep test hole @ $16/ft.

[2] Number of wells based on preliminary well field layout (R.W. Harden & Assoc., 04/01/08) for 100,000 ac-ft/year project. Well requirements doubled for estimate of 200,000 ac-ft/year project.

[3] Average collection line size per preliminary well field collection and transmisson system layout and calculations by RPS / PBS&J.

[4] Well field pump stations based on preliminary 100,000 ac-ft/year well field collection and transmisson system layout and calculations by RPS / PBS&J. Well field pump stations and storage requirements doubled for estimate of 200,000 ac-ft/year project. HP = .17536 x mgd x TDH/ 75% Eff.

[5] Unit costs for pipelines from Freese and Nichols' Updated November 30, 2004 Memorandum Cost Estimating for SB1 Projects; unit cost for rur

[6] Pump Station costs based on peak HP requirements from preliminary design using WaterCAD version 5.0 and 75% pump and motor efficiency.

[7] Storage tanks costs from referenced Freese and Nichols' Updated November 30, 2004 Memo.

[8] Cost for pressure reducing station from water supply study - Providing Groundwater from the Texas Panhandle to Communities throughout the S

[9] ROW acquisition unit cost from referenced Freese and Nichols' Updated November 30, 2004 Memo.

[10] A 6% interest rate with a 4% annual rate of return for a construction period of 3 years.

[11] Interest rate is 6% per year simple interest.

[12] Assumes O&M costs of 1% of non-pump station construction costs and 2.5% of pump station construction costs plus 20% contingency. Does n

[13] Based on Roberts County well field and transmission system average-flow power requirements @ $0.055/kWh.

[14] Cost equal to 150% of cost previously provided by Universal Utility Services (subsidiary of Xcel Energy) for wellfield located only in western I

[15] Costs for 69KV transmission line, overhead power lines and substations were provided July 21, 2008 by Burns & McDonnell. Costs were adjus

[14] Cost equal to 150% of cost previously provided by Universal Utility Services (subsidiary of Xcel Energy) for wellfield located only in western I

[15] Unit costs from Universal Utility Services. Length of power lines equal to length of well field collection and transmission lines. Substation long

Table Q-39
Roberts County Water Supply Project
200,000 AFY Water Supply to NTMWD - Scenario 5B
Ogallala Groundwater to Lake Lavon Near Princeton, Texas
Panhandle Water Project

Item	Size		Quantity	Unit	Unit Price	Cost
Groundwater Costs						
Groundwater Rights			300,000	Acre	$700	$210,000,000
Subtotal						**$210,000,000**
Capital Costs						
Roberts and Hemphill Counties Well Field						
Test Holes [1]			176	EA	$9,600	$1,689,600
Groundwater Wells [2]	225	HP (Avg)	88	EA	$400,000	$35,200,000
Monitoring Wells	1	LS	1	EA	$1,000,000	$1,000,000
69 KV Transmission System [15]	1	Miles	41	MI	$198,000	$8,118,000
Electrical Substations [15]	1	LS	6	EA	$1,485,000	$8,910,000
Power to Wells [15]			810	MI	$33,000	$26,730,000
Wellfield Collection Lines to Wellfield Pump Sta. or Transmission System [3]	14	inch (Avg)	370,000	FT	$60	$22,200,000
Transmission from Wellfield Pump or Booster Sta. to Main Line Pump Sta. [3]	42	inch (Avg)	542,000	FT	$215	$116,530,000
Landowner Damages Compensation	1	LS	1	EA	$6,345,000	$6,345,000
20% Standby Wells	1	LS	1	EA	$18,433,000	$18,433,000
Pump Station 1 (600 Hp)	600	HP	4	EA	$2,150,000	$8,600,000
Pump Station 2 (3200 Hp)	3200	HP	2	EA	$5,235,000	$10,470,000
Pump Station 3 (400 Hp)	400	HP	4	EA	$1,795,000	$7,180,000
Pump Station 4 (75 Hp)	75	HP	4	EA	$693,500	$2,774,000
Pump Station 2 Ground Storage Tank	1.5	MG	2	EA	$591,000	$1,182,000
Pump Station 3 Ground Strorage Tank	0.8	MG	2	EA	$414,600	$829,200
Pump Station 4 Ground Storage Tank	0.2	MG	2	EA	$200,250	$400,500
Pump Station 5 Ground Storage Tank	2	MG	2	EA	$714,000	$1,428,000
Pump Station 6 Ground Storage Tank	5.1	MG	2	EA	$1,323,200	$2,646,400
Standpipe	1.6	MG	1	EA	$615,600	$615,600
Terminus Tank at Connection to Transmission Main	5.8	MG	2	EA	$1,464,600	$2,929,200
Terminus Tank at Connection to Transmission Main	9	MG	2	EA	$2,410,500	$4,821,000
Unpaved Access Roads to Wells	15	Feet	316,800	FT	$13	$3,960,000
Rights	1	Acre	200	AC	$3,500	$700,000
Environmental Studies, Permitting & Mitigation			1	LS	$2,536,000	$2,536,000
Subtotal						**$296,227,500**

Table Q-39, Continued						
Panhandle Water Transmission System to Lake Lavon						
Pipeline - Roberts County to Lake Lavon - Rural, Soil [5]	90	inch	1,627,000	FT	$774	$1,259,298,000
Pipeline - Roberts County to Lake Lavon - Rural, Rock [5]	90	inch	53,000	FT	$968	$51,278,000
Pipeline - Roberts County to Lake Lavon - Urban, Soil [5]	90	inch	25,000	FT	$1,045	$26,125,000
Pump Station No. 1 - Roberts County to Lake Lavon (Peak - 3,500 HP) [6]	3,500	HP	1	EA	$5,557,500	$5,557,500
Pump Station No. 2 - Roberts County to Lake Lavon (Peak - 26,000 HP) [6]	26,000	HP	1	EA	$24,295,000	$24,295,000
Pump Station No. 3 - Roberts County to Lake Lavon (Peak - 2,000 HP) [6]	2,000	HP	1	EA	$4,182,000	$4,182,000
Storage Tanks (10.8% of Peak Daily Flow) [7] - Three - 8 MG Tanks Per Station	8	MG	9	EA	$2,069,000	$18,621,000
Pressure Reducing Station [8]			2	EA	$329,000	$658,000
Discharge Structure			1	EA	$250,000	$250,000
Easement - Rural [9]	80'/40'		1,680,000	FT	$9	$15,120,000
Easement - Urban [9]	80'/40'		25,000	FT	$55	$1,375,000
Environmental Studies, Permitting & Mitigation			1	LS	16,680,000	$16,680,000
Subtotal						**$1,423,439,500**
Engineering and Contingencies (35% for pump stations, 30% for other items)						$505,909,000
Total Capital Cost						**$1,929,348,500**
Interest During Construction [10]	3	YR				$234,744,000
Total Construction Cost						**$2,164,092,500**
Development Costs						
Preliminary Expenses			1	LS	$25,000,000	$25,000,000
Development Fee	7.0	%	1	LS	$35,436,000	$35,436,000
Subtotal						**$60,436,000**
Total Project Cost						**$2,434,528,500**
Pre-Amortization Annual Cost						
Debt Service (6 percent for 30 years) [11]						$176,866,000
Well Field and Transmission System Operation and Maintenance [12]						$21,677,000
Well Field and Transmission System Energy Costs [13]						$24,316,000
Electric Substation Lease [14]						$1,090,000
Supplemental Wells & Infrastructure (0.5% of Initial Wellfield Capital Cost			1	EA	$1,482,000	$1,482,000
Total Annual Cost						**$225,431,000**
Available Project Yield (ac-ft/yr)						**200,000**
Water Cost ($ per ac-ft)						**$1,127**
Water Cost ($ per 1,000 gallons)						**$3.46**
Post Amortization Annual Cost						
Well Field and Transmission System Operation and Maintenance [12]						$21,677,000
Well Field and Transmission System Energy Costs [13]						$24,316,000
Electric Substation Lease [14]						$1,090,000
Supplemental Wells & Infrastructure (0.5% of Initial Wellfield Capital Cost)						$1,482,000
Total Annual Cost						**$48,565,000**
Water Cost ($ per ac-ft)						**$243**
Water Cost ($ per 1,000 gallons)						**$0.75**

Table Q-40
Roberts County Water Supply Project
200,000 AFY Water Supply to TRWD
Ogallala Groundwater to Eagle Mountain Lake Via Lake Bridgeport

Item	Size		Quantity	Unit	Unit Price	Cost
Groundwater Costs						
Groundwater Rights	1	Acre	300,000	Acre	$700	$210,000,000
Subtotal						**$210,000,000**
Capital Costs						
Roberts & Hemphill Counties Well Field						
Test Holes [1]			176	EA	$9,600	$1,689,600
Groundwater Wells [2]	225	HP (Avg)	88	EA	$400,000	$35,200,000
Monitoring Wells	1	LS	1	EA	$1,000,000	$1,000,000
69 KV Transmission System [15]	1	Miles	41	MI	$198,000	$8,118,000
Electrical Substations [15]	1	LS	6	EA	$1,485,000	$8,910,000
Power to Wells [15]			810	MI	$33,000	$26,730,000
Wellfield Collection Lines to Wellfield Pump Sta. or Transmission System [3]	14	inch (Avg)	370,000	FT	$60	$22,200,000
Transmission from Wellfield Pump or Booster Sta. to Main Line Pump Sta. [3]	42	inch (Avg)	542,000	FT	$215	$116,530,000
Landowner Damages Compensation	1	LS	1	EA	$6,345,000	$6,345,000
20% Standby Wells	1	LS	1	EA	$18,433,000	$18,433,000
Pump Station 1 (600 Hp)	600	HP	4	EA	$2,150,000	$8,600,000
Pump Station 2 (3200 Hp)	3200	HP	2	EA	$5,235,000	$10,470,000
Pump Station 3 (400 Hp)	400	HP	4	EA	$1,795,000	$7,180,000
Pump Station 4 (75 Hp)	75	HP	4	EA	$693,500	$2,774,000
Pump Station 2 Ground Storage Tank	1.5	MG	2	EA	$591,000	$1,182,000
Pump Station 3 Ground Strorage Tank	0.8	MG	2	EA	$414,600	$829,200
Pump Station 4 Ground Storage Tank	0.2	MG	2	EA	$200,250	$400,500
Pump Station 5 Ground Storage Tank	2	MG	2	EA	$714,000	$1,428,000
Pump Station 6 Ground Storage Tank	5.1	MG	2	EA	$1,323,200	$2,646,400
Standpipe	1.6	MG	1	EA	$615,600	$615,600
Terminus Tank at Connection to Transmission Main	5.8	MG	2	EA	$1,464,600	$2,929,200
Terminus Tank at Connection to Transmission Main	9	MG	2	EA	$2,410,500	$4,821,000
Unpaved Access Roads to Wells	15	Feet	316,800	FT	$13	$3,960,000
Pipeline Easements outside of Mesa Water Rights	1	Acre	200	AC	$3,500	$700,000
Environmental Studies, Permitting & Mitigation			1	LS	$2,536,000	$2,536,000
Subtotal						**$296,227,500**
Panhandle Water Transmission System to Lake Bridgeport						
Pipeline - Roberts County to Lake Bridgeport - Rural, Soil [5]	90	inch	1,235,000	FT	$774	$955,890,000
Pipeline - Roberts County to Lake Bridgeport - Rural, Soil/Rock [5]	90	inch	61,000	FT	$968	$59,018,000
Pump Station No. 1 - Roberts County to Lake Bridgeport[6]	3,000	HP	1	EA	$5,020,000	$5,020,000
Pump Station No. 2 - Roberts County to Lake Bridgeport[6]	17,500	HP	1	EA	$18,382,500	$18,382,500
Storage Tanks (10.8% of Peak Daily Flow) [7] -	24	MG (Per Sta.)	6	EA	$2,069,000	$12,414,000
Pressure Reducing Station [8]			2	EA	$329,000	$658,000
Discharge Structure			1	EA	$250,000	$250,000
Easement - Rural [9]			1,296,000	LF	$9	$11,664,000
Environmental Studies, Permitting & Mitigation			1	LS	$12,616,600	$12,616,600
Subtotal						**$1,075,913,100**

Engineering and Contingencies (35% for pump stations, 30% for other items)						$406,009,000
Total Capital Cost						**$1,778,149,600**
Interest During Construction [10]	3	YR				$216,347,000
Total Construction Cost						**$1,994,496,600**
Development Costs						
Preliminary Expenses			1	LS	$25,000,000	$25,000,000
Development Fee for wellfield only	7.0	%	1	LS	$35,436,000	$35,436,000
Subtotal						**$60,436,000**
Total Project Cost						**$2,264,932,600**
Pre-Amortization Annual Cost						
Debt Service (6 percent for 30 years) [11]						$164,545,000
Well Field and Transmission System Operation and Maintenance [12]						$17,310,000
Well Field and Transmission System Energy[13]						$21,200,000
Electric Substation Lease [14]						$1,089,711
Supplemental Wells & Infrastructure (0.5% of Wellfield Capital Cost)			1	EA	$1,490,000	$1,490,000
Total Annual Cost						**$205,634,711**
Available Project Yield (ac-ft/yr)						**200,000**
Annual Cost of Water ($ per ac-ft)						**$1,028**
Annual Cost of Water ($ per 1,000 gallons)						**$3.16**
Post Amortization Annual Cost						
Well Field and Transmission System Operation and Maintenance [12]						$17,310,000
Well Field and Transmission System Energy[13]						$21,200,000
Electric Substation Lease [14]						$1,089,711
Supplemental Wells & Infrastructure (0.5% of Wellfield Capital Cost)			1	EA	$1,490,000	$1,490,000
Total Annual Cost						**$41,089,711**
Annual Cost of Water ($ per ac-ft)						**$205**
Annual Cost of Water ($ per 1,000 gallons)						**$0.63**

Table Q-41
TRWD & DWU Integrated Pipeline

Owners:	TRWD and DWU	
Amount - (total):	290,776	Ac-Ft/Yr
- TRWD	179,000	Ac-Ft/Yr
- DWU	111,776	Ac-Ft/Yr

		Ownership		Flow (Ac-Ft)	Peak (MGD)
Segments:	**ID:**	**TRWD**	**DWU**		
Lake Palestine to Cedar Creek Connection	**A**	0.0%	100.0%	111,776	150
Cedar Creek Connection to Richland-Chambers Connection	**B**	45.8%	54.2%	227,176	277
Richland-Chambers Connection to Bachman Take-off Point	**C**	56.8%	43.2%	290,776	347
Bachman Take-off Point to Connection to Benbrook Pipeline	**D**	100.0%	0.0%	179,000	197
Cedar Creek Resevoir to Connection to the Main Pipeline	**E**	100.0%	0.0%	115,400	127
Richland-Chambers to Connection to the Main Pipeline	**F**	100.0%	0.0%	63,600	70
Main Pipeline to Existing TRWD Lines	**G**	56.8%	43.2%	290,776	347
Existing TRWD Lines to Bachman WTP	**H**	0.0%	100.0%	111,776	150

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipeline & appurtenances	**Size**	**Quantity**	**Unit**	**Cost**
Pipeline - A	84 in.	215,980	LF	$166,810,160
Pipeline - B	108 in.	24,969	LF	$26,980,667
Pipeline - C	108 in.	307,637	LF	$310,424,355
Pipeline - D	84 in.	122,118	LF	$93,131,452
Pipeline - E	72 in.	8,263	LF	$5,441,541
Pipeline - F	60 in.	54,244	LF	$30,545,507
Pipeline - G	108 in.	8,114	LF	$8,853,172
Pipeline - H	84 in.	146,158	LF	$133,715,691
ROW and Land Acquisition - A		1	LS	$32,668,500
ROW and Land Acquisition - BCD		1	LS	$68,599,500
ROW and Land Acquisition - F		1	LS	$5,423,000
ROW and Land Acquisition - G		1	LS	$1,566,000
ROW and Land Acquisition - H		1	LS	$31,088,000
Permitting & Mitigation				$9,310,800
Engineering and Contingencies				$262,226,323
Subtotal of Pipeline				**$1,186,784,669**

Table Q-41, Continued

Pump Stations				
Intake and Pump Station - Lake Palestine		1	LS	$30,895,551
Intake and Pump Station - Cedar Creek Res		1	LS	$30,895,551
Intake and Pump Station - Richland-Chambers Res		1	LS	$17,555,826
Booster Pump Stations & 40 MG Storage Tank		2	LS	$81,040,293
Power Supply		1	LS	$30,000,000
Permitting & Mitigation				$2,284,600
Engineering and Contingencies				$54,204,941
Subtotal of Pump Stations				**$246,876,763**
TERMINAL STORAGE				
Crowley Balancing Reservoir	200 MG	1	LS	$15,000,000
Bachman	150 MG	1	LS	$11,250,000
Permitting & Mitigation				$421,700
Engineering and Contingencies				$9,581,000
Subtotal of Terminal Storage				**$36,252,700**
CONSTRUCTION TOTAL				**$1,469,914,133**
Interest During Construction (24 months)				$120,048,000

TOTAL COST	**TRWD**	**Dallas**	**Total**
	$702,008,046	**$887,954,087**	**$1,589,962,133**
ANNUAL COSTS			
Debt Service (6% for 30 years)	$51,000,100	$64,508,900	$115,509,000
Electricity ($0.09 kWh)	$21,642,925	$13,732,820	$35,375,745
Operation & Maintenance	$6,444,000	$8,151,000	$14,595,000
Total Annual Costs	**$79,087,025**	**$86,392,720**	**$165,479,745**
UNIT COSTS (Until Amortized)			
Per Acre-Foot	$442	$773	$569
Per 1,000 Gallons	$1.36	$2.37	$1.75
UNIT COSTS (After Amortization)			
Per Acre-Foot	$157	$196	$172
Per 1,000 Gallons	$0.48	$0.60	$0.53

Table Q-42
DWU Oklahoma Water
From Hugo to Lake Lewisville

Probable Owner: Dallas
Quantity: 50,000 AF/Y

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline	60 in	600,000	LF	$366	$219,600,000
30-ft Right of Way Easements (ROW)		600,000	LF	$7	$4,200,000
Red River Tunnel		1,000	LF	$994	$994,000
Engineering and Contingencies (30%)					$66,178,000
Subtotal of Pipeline					**$290,972,000**
Pump Station(s)					
Lake Hugo Pump Station	5700 HP	1	LS	$10,294,000	$10,294,000
Booster 1	5700 HP	1	LS	$7,740,500	$7,741,000
Engineering and Contingencies (35%)					$6,312,000
Subtotal of Pump Station(s)					**$24,347,000**
CONSTRUCTION TOTAL					**$315,319,000**
Permitting and Mitigation					**$2,864,000**
Interest During Construction			**(24 months)**		**$25,751,000**
TOTAL COST					**$343,934,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$24,986,000
Electricity ($0.09 per kWh)					$4,484,000
Operation & Maintenance					$3,188,000
Raw Water Purchase					$2,444,000
Total Annual Costs					**$35,102,000**
UNIT COSTS (During Amortization)					
Per Acre-Foot					$702
Per 1,000 Gallons					$2.15
UNIT COSTS (After Amortization)					
Per Acre-Foot					$202
Per 1,000 Gallons					$0.62

Table Q-43
NTMWD Oklahoma Water
From Hugo to Lake Chapman

Probable Owner: NTMWD
Quantity: 50,000 AF/Y

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	60 in	274,560	LF	$366	$100,489,000
30-ft Right of Way Easements (ROW)		274,560	LF	$7	$1,922,000
Red River Tunnel		1,000	LF	$994	$994,000
Engineering and Contingencies (30%)					$31,022,000
Subtotal of Pipeline					**$134,427,000**
Pump Station(s)					
Pumps with intake & building	6800 HP	1	LS	$11,638,200	$11,638,200
Chapman Pump Station Expansion					$709,000
Booster on Chapman-Lavon Line					$8,516,000
Engineering and Contingencies (35%)					$7,302,120
Subtotal of Pump Station(s)					**$28,165,320**
CONSTRUCTION TOTAL					**$162,592,320**
Permitting and Mitigation					**$1,468,000**
Interest During Construction			**(12 months)**		**$6,775,000**
TOTAL COST					**$170,835,320**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$12,411,000
Electricity ($0.09 per kWh)					$7,148,000
Operation & Maintenance					$1,844,000
Raw Water Purchase					$2,444,000
Total Annual Costs					**$23,847,000**
UNIT COSTS (Before Amortization)					
Per Acre-Foot					$477
Per 1,000 Gallons					$1.46
UNIT COSTS (After Amortization)					
Per Acre-Foot					$229
Per 1,000 Gallons					$0.70

Note: Cost for buying raw water is assumed to be $0.15 per 1,000 gallons

Table Q-44
TRWD Oklahoma Water
From Hugo to Eagle Mountain

Probable Owner: TRWD
Quantity: 50,000 AF/Y

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline	60 in	800,000	LF	$366	$292,800,000
30-ft Right of Way Easements (ROW)		800,000	LF	$7	$5,600,000
Red River Tunnel		1,000	LF	$994	$994,000
Engineering and Contingencies (30%)					$88,138,000
Subtotal of Pipeline					**$387,532,000**
Pump Station(s)					
Lake Hugo Pump Station	5000 HP	1	LS	$9,293,000	$9,293,000
Booster 1	5000 HP	1	LS	$6,988,000	$6,988,000
Booster 2	5000 HP	1	LS	$6,988,000	$6,988,000
Engineering and Contingencies (35%)					$8,144,000
Subtotal of Pump Station(s)					**$31,413,000**
CONSTRUCTION TOTAL					**$418,945,000**
Permitting and Mitigation					**$3,805,000**
Interest During Construction			**(24 months)**		**$34,214,000**
TOTAL COST					**$456,964,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$33,198,000
Electricity ($0.09 per kWh)					$5,659,000
Operation & Maintenance					$4,224,000
Raw Water Purchase					$2,444,000
Total Annual Costs					**$45,525,000**
UNIT COSTS (During Amortization)					
Per Acre-Foot					$911
Per 1,000 Gallons					$2.79
UNIT COSTS (After Amortization)					
Per Acre-Foot					$247
Per 1,000 Gallons					$0.76

Table Q-45
UTRWD and Irving Oklahoma Water
From Hugo to Lake Chapman to Lavon

Probable Owner: UTRWD and Irving
Quantity: 50,000 AF/Y

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	60.0 in	274,560	LF	$366	$100,489,000
30-ft Right of Way Easements (ROW)		274,560	LF	$7	$1,922,000
Red River Tunnel		1,000	LF	$994	$994,000
Engineering and Contingencies (30%)					$30,445,000
Subtotal of Pipeline					**$133,850,000**
Pump Station(s)					
Pumps with intake & building	6100.0 HP	1	LS	$10,837,400	$10,837,400
Chapman Pump Station Expansion					$709,000
Booster on Chapman-Lavon Line					$8,516,000
Engineering and Contingencies (35%)					$7,021,840
Subtotal of Pump Station(s)					**$27,084,240**
CONSTRUCTION TOTAL					**$160,934,240**
Permitting and Mitigation					**$1,459,000**
Interest During Construction			**(18 months)**		**$9,924,000**
TOTAL COST					**$172,317,240**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$12,519,000
Electricity ($0.09 per kWh)					$7,148,000
Operation & Maintenance					$1,820,000
Raw Water Purchase					$2,444,000
Total Annual Costs					**$23,931,000**
UNIT COSTS (During Amortization)					
Per Acre-Foot					$479
Per 1,000 Gallons					$1.47
UNIT COSTS (After Amortization)					
Per Acre-Foot					$228
Per 1,000 Gallons					$0.70

Note: Cost for buying raw water is assumed to be $0.15 per 1,000 gallons

Table Q-46
Oklahoma Water for NTMWD, TRWD, and UTRWD

Probable Owners:	NTMWD	50,000 AF/Y
	TRWD	50,000 AF/Y
	UTRWD	15,000 AF/Y

	Size	Quantity	Unit	Unit Price	Cost
CONSTRUCTION COSTS					
TRANSMISSION FACILITIES					
Pipelines					
Hugo to Lavon	84.0 in	470,300	LF	$677	$318,393,000
Lavon to Lewisville (Rural)	66.0 in	69,000	LF	$441	$30,429,000
Lavon to Lewisville (Urban)	66.0 in	103,500	LF	$591	$61,169,000
Lewisville to Eagle Mountain Lake (Rur	60.0 in	136,290	LF	$366	$49,882,000
Lewisville to Eagle Mountain Lake (Urb	60.0 in	58,410	LF	$495	$28,913,000
Right of Way Easements (Rural 42'-72')		205,290	LF	$7	$1,437,000
Right of Way Easements (Rural 78'-108')		470,300	LF	$9	$4,233,000
Right of Way Easements (Urban)		161,910	LF	$41	$6,638,000
Red River Tunnel		1,000	LF	$1,316	$1,316,000
Engineering and Contingencies (30%)					$150,723,000
Subtotal of Pipeline					**$653,133,000**
Pump Station(s)					
Lake Hugo Pump Station	10300 HP	1	LS	$16,624,980	$16,625,000
Booster (Hugo-Lavon)	10300 HP	1	LS	$12,500,100	$12,500,000
Storage Tanks (Hugo-Lavon Booster)	8.0 MG	2	Ea.	$2,069,000	$4,138,000
Booster (Lavon)	3000 HP	1	LS	$5,020,000	$5,020,000
Storage Tanks (Lavon Booster)	10.0 MG	1	Ea.	$2,752,000	$2,752,000
Booster (Lewisville)	4400 HP	1	LS	$6,452,200	$6,452,000
Storage Tanks (Lewisville Booster)	7.0 MG	1	Ea.	$1,740,000	$1,740,000
Engineering and Contingencies (35%)					$17,229,000
Subtotal of Pump Station(s)					**$66,456,000**
CONSTRUCTION TOTAL					**$719,589,000**
Permitting and Mitigation					**$6,472,000**
Interest During Construction			**(12 months)**		**$29,983,000**
TOTAL COST					**$756,044,000**
ANNUAL COSTS (Pre-Amortization)					
Debt Service (6% for 30 years)					
NTMWD					$15,282,000
TRWD					$32,571,000
UTRWD					$7,073,000
Total					**$54,926,000**

Table Q-46, Continued

Electricity ($0.09 per kWh)	
NTMWD	$3,526,000
TRWD	$6,196,000
UTRWD	$1,303,000
Total	**$11,025,000**
Operation & Maintenance	
NTMWD	$2,102,000
TRWD	$4,317,000
UTRWD	$938,000
Total	**$7,357,000**
Raw Water Purchase	
NTMWD	$2,444,000
TRWD	$2,444,000
UTRWD	$733,000
Total	**$5,621,000**
Total Annual Costs	
NTMWD	$23,354,000
TRWD	$45,528,000
UTRWD	$10,047,000
Total	**$78,929,000**
UNIT COSTS (Before Amortization)	
Per Acre-Foot	
NTMWD	$467
TRWD	$911
UTRWD	$670
Total	$686
Per 1,000 Gallons	
NTMWD	$1.43
TRWD	$2.80
UTRWD	$2.06
Total	**$2.11**
UNIT COSTS (After Amortization)	
Per Acre-Foot	
NTMWD	$161
TRWD	$259
UTRWD	$198
Total	$209

Table Q-46, Continued

Per 1,000 Gallons	
NTMWD	$0.49
TRWD	$0.79
UTRWD	$0.61
Total	**$0.64**

Note: Cost for buying raw water is assumed to be $0.15 per 1,000 gallons

Table Q-47
Cost of Lower Bois d'Arc Creek Reservoir Site

Owner: NTMWD
Quantity 123,000 AF/Y

CONSTRUCTION COSTS

Dam & Reservoir	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Mobilization		1	LS	$2,836,600	$2,836,600
Clearing and Grubbing		85	Ac	$6,000	$510,000
Care of Water During Construction		1	LS	$419,800	$419,800
Required Excavation		2,339,400	CY	$2.40	$5,614,600
Borrow Excavation		2,030,000	CY	$1.80	$3,654,000
Random Compacted Fill		3,261,000	CY	$2.40	$7,826,400
Core Compacted Fill		711,200	CY	$2.40	$1,706,900
Soil Bentonite Slurry Trench		497,700	SF	$14.40	$7,166,900
Soil Cement		114,900	CY	$54.00	$6,204,600
Flex Base Roadway		7,300	CY	$30.00	$219,000
Sand Filter Drain		293,000	CY	$36.00	$10,548,000
Grassing		41	AC	$4,500	$184,500
Intake Tower for Low-Flow Outlet		527	CY	$750	$395,300
Conduit for Low-Flow Outlet		660	CY	$500	$330,000
Impact Basin for Low-Flow Outlet		160	CY	$500	$80,000
Gates and Miscellaneous for Low-Flow Outlet		1	LS	$200,000	$200,000
Electrical System and Instrumentation for Low-Flow Outlet		1	LS	$195,000	$195,000
Spillway Structure and Reinforced Concrete		19,700	CY	$375	$7,387,500
Roller Compacted Concrete		49,900	CY	$65	$3,243,500
Bridge		3,000	SF	$150	$450,000
Barrier and Warning System		1	LS	$50,000	$50,000
Embankment Instrumentation		1	LS	$250,000	$250,000
Timber Guard Posts and Guard Rail		1	LS	$55,000	$55,000
Misc. Internal Drainage		1	LS	$50,000	$50,000
Engineering and Contingencies					$17,870,900
Subtotal for Dam & Reservoir					**$77,448,500**
Conflicts					**$24,543,300**

TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline to Leonard WTP					
Pipe (installed)	90 in.	166,230	LF	$797	$132,438,000
Appurtenances		1	LS	$800,000	$800,000
Crossings		1	LS	$1,974,850	$1,975,000
Right of Way Easements (ROW)		166,230	LF	$9	$1,496,000
Pipeline to Pilot Grove Creek					
Pipe (installed)	66 in.	65,625	LF	$409	$26,850,000
Appurtenances		1	LS	$420,000	$420,000
Crossings		1	LS	$1,974,850	$1,975,000
Right of Way Easements (ROW)		65,625	LF	$7	$459,000
Engineering and Contingencies					$36,011,300
Subtotal of Pipeline					**$202,424,300**

Table Q-47, Continued

Intake Pump Station				
Intake Pump Station	1	LS	$27,973,340	$27,973,000
Powerline and Substation	1	LS	$5,000,000	$5,000,000
Engineering and Contingencies (35%)				$11,541,000
Subtotal of Pump Station				**$44,514,000**
Terminal Storage at Leonard WTP*				
Dam and spillway modification		LS	$5,000,000	$5,000,000
Control structures	4	EA	$300,000	$1,200,000
Mobilization	1	LS	5.00%	$310,000
Engineering and Contingencies (35%)				$2,279,000
Subtotal Terminal Storage				**$8,789,000**
Outlet Structure at Lake Lavon				
Stilling basin	1	LS	$200,000	$200,000
Excavation & rip rap	1	LS	$490,000	$490,000
Engineering and Contingencies (35%)				$242,000
Subtotal Outlet Structure at Lake Lavon				**$932,000**
Permitting and Mitigation for Conveyance System				**$2,258,000**
CONSTRUCTION TOTAL				**$360,909,100**
Land Acquisition - Conservation Pool				**$82,875,000**
Land Acquisition - Flood Pool				**$3,750,000**
Permitting and Mitigation of reservoir and terminal storage				
Permitting (includes EIS)				$10,000,000
Mitigation Lands				$35,000,000
Mitigation construction and monitoring				$40,000,000
Archeology survey and mitigation				$3,000,000
Contingencies (15%)				$13,200,000
Subtotal Reservoir Permitting and Mitigation				**$101,200,000**
Interest During Construction (36 months)				**$66,764,000**
TOTAL COST				**$615,498,100**
ANNUAL COSTS				**Cost**
Debt Service (6% for 30 years)				$44,715,000
Electricity ($0.09 kWh)				$4,573,000
Operation & Maintenance				$3,962,000
Total Annual Costs				**$53,250,000**
UNIT COSTS (Before Amortization)				
Per Acre-Foot				$433
Per 1,000 Gallons				$1.33
UNIT COSTS (After Amortization)				
Per Acre-Foot				$69
Per 1,000 Gallons				$0.21

* Preliminary cost esimtates for modification of existing structure.

Table Q-48
Cost of George Parkhouse North Reservoir for Dallas Water Utilities

Probable Owner: DWU Total yield = 148,700 AF/Y
Quantity: 112,000 AF/Y

CONSTRUCTION COSTS

Dam & Reservoir	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Excavation					
Approach Channel		107,400	CY	$3	$283,000
Discharge Channel		114,600	CY	$3	$302,000
Spillway		472,200	CY	$3	$1,243,000
Fill					
Random Compacted Fill		4,790,900	CY	$3	$12,610,000
Impervious Fill		1,107,200	CY	$3	$3,643,000
Filter		558,600	CY	$39	$22,055,000
Bridge		390	LF	$1,448	$565,000
Roadway		96,067	SY	$24	$2,276,000
Slurry Trench		1,092,500	SF	$16	$17,254,000
Soil Cement		324,340	CY	$86	$27,746,000
Elevator		1	LS	$131,608	$132,000
Barrier Warning System		936	LF	$118	$111,000
Gates					
Gate & Anchor		4,480	SF	$309	$1,386,000
Stop Gate & Lift		160	LF	$2,106	$337,000
Hoist		8	Ea	$296,117	$2,369,000
Electrical		1	LS	$658,038	$658,000
Power Drop		1	LS	$263,215	$263,000
Spillway Low-Flow System		1	LS	$460,627	$461,000
Stop Gate Monorail System		390	LF	$1,053	$411,000
Embankment Internal Drainage		39,300	LF	$70	$2,760,000
Guardrail		780	LF	$33	$26,000
Grassing		28	Ac	$5,264	$147,000
Concrete (mass)		97,000	CY	$165	$15,957,000
Concrete (walls)		7,000	CY	$625	$4,376,000
Mobilization (5% of subtotal)					$5,869,000
Clearing/Grubbing, care of water (6% of subtotal)					$7,042,000
Land Clearing		950	Ac	$987	$938,000
Engineering and Contingencies (35%)					$45,927,000
Subtotal for Dam & Reservoir					**$177,147,000**

Table Q-48, Continued

Conflicts	**$13,086,000**
Engineering and Contingencies (35%)	$4,580,000
Subtotal of Conflicts	**$17,666,000**
Land Acquisition	$19,007,000
Permitting and Mitigation of Reservoir	$38,014,000
Total Reservoir Construction Cost	**$251,834,000**
Interest during construction (36 months)	$30,641,000
Amount Attributed to DWU (75%)	**$211,856,000**

TRANSMISSION FACILITIES

Pump from George Parkhouse Reservoir to Lake Ray Hubbard.

DWU would use existing infrastructure to convey water from Lake Ray Hubbard to East Side WTP

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline (Rural)	84 in.	279,900	LF	$677	$189,492,000
ROW Easements (Rural)		279,900	LF	$9	$2,519,000
Engineering and Contingencies (30%)					$56,848,000
Subtotal of Pipeline					**$248,859,000**
Intake Pump Station					
George Parkhouse Pump Statio	6500 HP	1	LS	$9,894,000	$9,894,000
Booster Pump Station (Fairline	6500 HP	1	LS	$8,493,000	$8,493,000
Lake Ray Hubbard Pump Stati	900 HP	1	LS	$3,505,000	$3,505,000
Ground Storage Tanks	8 MG	2	Ea	$2,069,000	$4,138,000
Engineering and Contingencies (35%)					$9,111,000
Subtotal of Pump Station					**$35,141,000**
CONSTRUCTION TOTAL					**$284,000,000**
Permitting and Mitigation - Conveyance System					**$2,586,000**
Interest During Construction (24 months)					**$23,194,000**
TOTAL COST (DWU)					**$521,636,000**

Table Q-48, Continued

ANNUAL COSTS	**Cost**
Debt Service (6% for 30 years)	$37,896,000
Electricity ($0.09 per kWh)	$5,456,000
Operation & Maintenance	$7,929,000
Total Annual Costs	**$51,281,000**

UNIT COSTS (Until Amortized)	
Per Acre-Foot	$458
Per 1,000 Gallons	$1.41

UNIT COSTS (After Amortization)	
Per Acre-Foot	$120
Per 1,000 Gallons	$0.37

Table Q-49
Cost of George Parkhouse North Reservoir for North Texas Municipal Water District

Probable Owner: NTMWD Total yield = 148,700 AF/Y
Quantity: 118,960 AF/Y

CONSTRUCTION COSTS

Dam & Reservoir	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Excavation					
Approach Channel		107,400	CY	$3	$283,000
Discharge Channel		114,600	CY	$3	$302,000
Spillway		472,200	CY	$3	$1,243,000
Fill					
Random Compacted Fill		4,790,900	CY	$3	$12,610,000
Impervious Fill		1,107,200	CY	$3	$3,643,000
Filter		558,600	CY	$39	$22,055,000
Bridge		390	LF	$1,448	$565,000
Roadway		96,067	SY	$24	$2,276,000
Slurry Trench		1,092,500	SF	$16	$17,254,000
Soil Cement		324,340	CY	$86	$27,746,000
Elevator		1	LS	$131,608	$132,000
Barrier Warning System		936	LF	$118	$111,000
Gates					
Gate & Anchor		4,480	SF	$309	$1,386,000
Stop Gate & Lift		160	LF	$2,106	$337,000
Hoist		8	Ea	$296,117	$2,369,000
Electrical		1	LS	$658,038	$658,000
Power Drop		1	LS	$263,215	$263,000
Spillway Low-Flow System		1	LS	$460,627	$461,000
Stop Gate Monorail System		390	LF	$1,053	$411,000
Embankment Internal Drainage		39,300	LF	$70	$2,760,000
Guardrail		780	LF	$33	$26,000
Grassing		28	Ac	$5,264	$147,000
Concrete (mass)		97,000	CY	$165	$15,957,000
Concrete (walls)		7,000	CY	$625	$4,376,000
Mobilization (5% of subtotal)					$5,869,000
Clearing/Grubbing, care of water (6% of subtotal)					$7,042,000
Land Clearing		950	Ac	$987	$938,000
Engineering and Contingencies (35%)					$45,927,000
Subtotal for Dam & Reservoir					**$177,147,000**

Table Q-49, Continued

Conflicts					**$13,086,000**
Engineering and Contingencies (35%)					$4,580,000
Subtotal of Conflicts					**$17,666,000**
Land Acquisition					$19,007,000
Permitting and Mitigation of Reservoir					$38,014,000
Total Reservoir Construction Cost					**$251,834,000**
Interest during construction (36 months)					$30,641,000
Amount Attributed to NTMWD (80%)					**$225,980,000**
TRANSMISSION FACILITIES					
Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline to Lake Lavon (by way of Lake Chapman)	84.0 in	271,000	LF	$677	$183,467,000
Right of Way Easements (ROW)		271,000	LF	$9	$2,439,000
Engineering and Contingencies (30%)					$55,040,000
Subtotal of Pipeline					**$240,946,000**
Intake Pump Station					
Intake Pump Station (at Parkhouse)		10000 HP	LS	$14,277,000	$14,277,000
Pump Station Expansion at Chapman		1	LS	$4,610,000	$4,610,000
Engineering and Contingencies (35%)					$6,610,000
Subtotal of Pump Station					**$25,497,000**
CONSTRUCTION TOTAL					**$266,443,000**
Permitting and Mitigation - Conveyance System					**$2,402,000**
Interest During Construction (24 months)					**$21,760,000**
TOTAL COST (NTMWD)					**$516,585,000**

Table Q-49, Continued

ANNUAL COSTS	**Cost**
Debt Service (6% for 30 years)	$37,529,000
Electricity ($0.09 per kWh)	$8,738,000
Operation & Maintenance	$4,659,000
Total Annual Costs	**$50,926,000**

UNIT COSTS (Until Amortized)	
Per Acre-Foot	$428
Per 1,000 Gallons	$1.31

UNIT COSTS (After Amortization)	
Per Acre-Foot	$113
Per 1,000 Gallons	$0.35

Table Q-50
TRWD Wetlands Reuse

Owner:	TRWD	
Quantity:	105,500	AF/Y

TRWD Richland-Chambers Wetlands

Item	Size	Quantity	Unit	Unit Price	Cost
Wetlands cells and pump stations		1	LS	$52,000,000	$52,000,000
Engineering & permitting		1	LS	$3,000,000	$3,000,000
Subtotal					**$55,000,000**

TRWD Cedar Creek Wetlands

Item	Size	Quantity	Unit	Unit Price	Cost
Wetland cells and pump stations		1	LS	$114,850,000	$114,850,000
Engineering & permitting					$19,525,000
Subtotal					**$134,375,000**

TOTAL CONSTRUCTION COST		**$189,375,000**
Interest During Construction	**(36 months)**	**$23,041,000**
TOTAL CAPITAL COST		**$212,416,000**
Annual Costs		
Debt Service (6 percent for 30 years)		$15,432,000
Electricity - Pumping from River to Wetlands		$1,140,000
Operation and Maintenance		$5,006,000
Total Annual Cost		**$21,578,000**
Available Project Yield (ac-ft/yr)		**105,500**
UNIT COSTS (Until Amortized)		
Water Cost ($ per ac-ft)		**$205**
Water Cost ($ per 1,000 gallons)		**$0.63**
UNIT COSTS (After Amortization)		
Water Cost ($ per ac-ft)		**$58**
Water Cost ($ per 1,000 gallons)		**$0.18**

Costs for wetland cells and pump stations provided by TRWD. Costs include contingency.

Table Q-51
Cost of Neches River Run-of-the-River Diversions Project for Dallas Water Utilities

Probable Owner:	DWU		
Quantity:	134,500	AF/Y	20% Retained for Local Use (~20 MGD)
Quantity for DWU:	112,100	AF/Y	

CONSTRUCTION COSTS	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Dam and Reservoir					
Dams and Reservoirs Construction		1	LS	$193,450,000	$193,450,000
Engineering and Contingencies (35%)					$67,708,000
Land Acquisition and Mitigation		1	LS	$65,969,000	$65,969,000
Total Dams and Reservoirs					**$327,127,000**
Transmission Systems					
Intake and Pump Station at River	235808 HP	1	LS	$308,292,000	$308,292,000
Diversion Pipelines to DWU OCRs (Rural)	144 in	148,000	LF	$1,903	$281,644,000
Diversion Pipeline to Local OCR (Rural)	114 in	17,400	LF	$1,183	$20,584,000
Intake and Pump Station at DWU OCRs	10370 in	1	LS	$26,452,000	$26,452,000
Booster Pump Stations from DWU OCRs	Varies	3	LS	$17,105,000	$51,315,000
Transmission Pipeline from DWU OCRs (Rural)	72 in	536,838	LF	$530	$284,524,000
Transmission Pipeline from DWU OCRs (Urban)	72 in	156,546	LF	$714	$111,774,000
ROW Easements					$7,588,000
					$1,092,173,000
Engineering and Contingencies (30% for pipelines, 35% for other)					$344,678,000
Permitting & Mitigation - Conveyance System					$4,095,000
Construction					**$1,768,073,000**
Interest During Construction (36 months)					**$212,205,000**
TOTAL CAPITAL COST					**$1,980,278,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$143,865,000
Electricity ($0.09 per kWh)					$30,021,000
Operation & Maintenance					$19,415,000
Total Annual Costs					**$193,301,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot					$1,437
Per 1,000 Gallons					$4.41
UNIT COSTS (After Amortization)					
Per Acre-Foot					$368
Per 1,000 Gallons					$1.13

Cost estimates provided by HDR, Inc.

Table Q-52
Cost of George Parkhouse South Reservoir for North Texas Municipal Water District

Probable Owner: NTMWD Total yield = 135,600 AF/Y
Quantity: 108,480 AF/Y
Peak: 121.0 MGD

CONSTRUCTION COSTS

Dam & Reservoir	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Excavation					
Approach Channel		140,200	CY	$2.63	$369,000
Discharge Channel		123,000	CY	$2.63	$323,000
Spillway		289,300	CY	$2.63	$761,000
Emergency Spillway		434,300	CY	$2.63	$1,142,000
Fill					
Random Compacted Fill		7,169,400	CY	$2.63	$18,856,000
Impervious Fill		1,567,800	CY	$3.29	$5,158,000
Filter		668,200	CY	$39.50	$26,394,000
Bridge		190	LF	$1,450	$276,000
Roadway		63,067	SY	$23.70	$1,495,000
Slurry Trench		800,000	SF	$15.80	$12,640,000
Soil Cement		394,130	CY	$85.50	$33,698,000
Elevator		1	LS	$132,000	$132,000
Barrier Warning System		456	LF	$118	$54,000
Gates					
Gate & Anchor		2,240	SF	$395	$885,000
Stop Gate & Lift		160	LF	$2,110	$338,000
Hoist		8	Ea	$296,000	$2,368,000
Electrical		1	LS	$658,000	$658,000
Power Drop		1	LS	$263,000	$263,000
Spillway Low-Flow System		1	LS	$461,000	$461,000
Stop Gate Monorail System		390	LF	$1,050	$410,000
Embankment Internal Drainage		39,300	LF	$70.20	$2,759,000
Guardrail		780	LF	$33.30	$26,000
Grassing		28	Ac	$4,500	$126,000
Concrete (mass)		52,000	CY	$165	$8,580,000
Concrete (walls)		5,600	CY	$625	$3,500,000
Mobilization (5% of subtotal)					$6,084,000
Clearing/Grubbing, care of water (6% of subtotal)					$7,300,000
Land Clearing		950	AC	$987	$938,000
Engineering and Contingencies (35%)					$47,598,000
Subtotal for Dam & Reservoir					**$183,592,000**

Table Q-52, Continued

Conflicts					**$48,513,000**
Engineering and Contingencies (35%)					$16,980,000
Subtotal of Conflicts					**$65,493,000**
Land Acquisition		31,741	AC	$1,201	$38,121,000
Permitting and Mitigation of Reservoir					$84,605,000
Total Reservoir Construction Cost					**$371,811,000**
Interest during construction (36 months)					$45,238,000
Amount Attributed to NTMWD (80%)					**$333,639,000**
TRANSMISSION FACILITIES					
Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline to Lake Lavon (by way of Lake Chapman)	78 in	317,000	LF	$591	$187,347,000
Right of Way Easements (ROW)		317,000	LF	$9	$2,853,000
Engineering and Contingencies (30%)					$56,204,000
Subtotal of Pipeline					**$246,404,000**
Intake Pump Station					
Intake Pump Station (at Parkhouse)	11000 HP	1	LS	$16,657,000	$16,657,000
Pump Station Expansion at Chapman		1	LS	$4,610,000	$4,610,000
Storage Tanks	8 MG	4	EA	$2,069,000	$8,276,000
Engineering and Contingencies (35%)					$10,340,000
Subtotal of Pump Station					**$39,883,000**
CONSTRUCTION TOTAL					**$286,287,000**
Permitting and Mitigation - Conveyance System					**$2,503,000**
Interest During Construction (24 months)					**$23,381,000**
TOTAL COST (NTMWD)					**$645,810,000**

Table Q-52, Continued

ANNUAL COSTS	**Cost**
Debt Service (6% for 30 years)	$46,917,000
Electricity ($0.09 per kWh)	$8,563,000
Operation & Maintenance	$5,092,000
Total Annual Costs	**$60,572,000**

UNIT COSTS (Until Amortized)	
Per Acre-Foot	$558
Per 1,000 Gallons	$1.71

UNIT COSTS (After Amortization)	
Per Acre-Foot	$126
Per 1,000 Gallons	$0.39

Table Q-53
Cost of George Parkhouse South Reservoir for City of Dallas

Probable Owner: City of Dallas Total yield = 135,600 AF/Y
Quantity: 115,260 AF/Y
Peak: 129 MGD

CONSTRUCTION COSTS

Dam & Reservoir	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Excavation					
Approach Channel		140,200	CY	$2.63	$369,000
Discharge Channel		123,000	CY	$2.63	$323,000
Spillway		289,300	CY	$2.63	$761,000
Emergency Spillway		434,300	CY	$2.63	$1,142,000
Fill					
Random Compacted Fill		7,169,400	CY	$2.63	$18,856,000
Impervious Fill		1,567,800	CY	$3.29	$5,158,000
Filter		668,200	CY	$39.50	$26,394,000
Bridge		190	LF	$1,450	$276,000
Roadway		63,067	SY	$23.70	$1,495,000
Slurry Trench		800,000	SF	$15.80	$12,640,000
Soil Cement		394,130	CY	$85.50	$33,698,000
Elevator		1	LS	$132,000	$132,000
Barrier Warning System		456	LF	$118	$54,000
Gates					
Gate & Anchor		2,240	SF	$395	$885,000
Stop Gate & Lift		160	LF	$2,110	$338,000
Hoist		8	Ea	$296,000	$2,368,000
Electrical		1	LS	$658,000	$658,000
Power Drop		1	LS	$263,000	$263,000
Spillway Low-Flow System		1	LS	$461,000	$461,000
Stop Gate Monorail System		390	LF	$1,050	$410,000
Embankment Internal Drainage		39,300	LF	$70.20	$2,759,000
Guardrail		780	LF	$33.30	$26,000
Grassing		28	Ac	$4,500	$126,000
Concrete (mass)		52,000	CY	$165	$8,580,000
Concrete (walls)		5,600	CY	$625	$3,500,000
Mobilization (5% of subtotal)					$6,084,000
Clearing/Grubbing, care of water (6% of subtotal)					$7,300,000
Land Clearing		950	AC	$987	$938,000
Engineering and Contingencies (35%)					$47,598,000
Subtotal for Dam & Reservoir					**$183,592,000**

Table Q-53, Continued

Conflicts					**$48,513,000**
Engineering and Contingencies (35%)					$16,980,000
Subtotal of Conflicts					**$65,493,000**
Land Acquisition		31,741	AC	$1,250	$39,676,000
Permitting and Mitigation of Reservoir					$87,715,000
Total Reservoir Construction Cost					**$376,476,000**
Interest during construction (36 months)					$45,806,000
Amount Attributed to Dallas (85%)					**$358,940,000**
TRANSMISSION FACILITIES					
Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline (Rural)	78 in	325,900	LF	$591	$192,607,000
Right of Way Easements (ROW)		325,900	LF	$9	$2,933,000
Engineering and Contingencies (30%)					$57,782,000
Subtotal of Pipeline					**$253,322,000**
Intake Pump Station					
Intake Pump Station (at Parkhouse)	12500 HP	1	LS	$16,657,000	$16,657,000
Booster Pump Station	12500 HP	1	LS	$14,298,000	$14,298,000
Storage Tanks	8 MG	4	EA	$2,069,000	$8,276,000
Engineering and Contingencies (35%)					$13,731,000
Subtotal of Pump Station					**$52,962,000**
CONSTRUCTION TOTAL					**$306,284,000**
Permitting and Mitigation - Conveyance System					**$2,683,000**
Interest During Construction (24 months)					**$25,014,000**
TOTAL COST (Dallas)					**$692,921,000**

Table Q-53, Continued

ANNUAL COSTS	**Cost**
Debt Service (6% for 30 years)	$50,340,000
Electricity ($0.09 per kWh)	$9,649,000
Operation & Maintenance	$5,446,000
Total Annual Costs	**$65,435,000**

UNIT COSTS (Until Amortized)	
Per Acre-Foot	$568
Per 1,000 Gallons	$1.74

UNIT COSTS (After Amortization)	
Per Acre-Foot	$131
Per 1,000 Gallons	$0.40

Table Q-54
Groundwater from the Carrizo-Wilcox from Brazos County for Dallas Water Utilities

Owner:	DWU
Quantity:	100,000 AF/Y
Peak Flow:	111.5 MGD

Item	Size	Quantity	Unit	Unit Price	Cost
Capital Costs					
Wellfield and Treatment					
Wells	500 gpm	168	Ea.	$90,300	$15,170,000
Connection to Pump Station		168	Ea.	$160,000	$26,880,000
Chlorination		1	LS	$23,163,000	$23,163,000
Storage Tank (Closed)	8 MG	2	Ea.	$2,069,000	$4,138,000
Engineering and Contingencies (35% for pump stations, 30% for other items)					$24,273,000
Subtotal for Wellfield and Treatment					**$93,624,000**
Transmission System					
Pipeline Brazos Co. to Dallas - Rural	78 inch	740,400	LF	$591	$437,576,000
Pipeline Brazos Co to Dallas - Urban	78 inch	25,200	LF	$799	$20,135,000
Pump Station	12,900 HP	1	LS	$14,624,300	$14,624,000
Booster Pump Station	12,900 HP	1	LS	$14,624,300	$14,624,000
Storage Tanks (Closed - South and Booster)	8 MG	2	Ea.	$2,069,000	$4,138,000
Easement - Rural		740,400	LF	$9	$6,664,000
Easement - Rural		25,200	LF	$55	$1,386,000
Engineering and Contingencies (30% for pipleines, 35% for other items)					$148,998,000
Subtotal for Transmission					**$648,145,000**
TOTAL CONSTRUCTION COST					**$741,769,000**
Interest During Construction			**(24 months)**		**$52,934,000**
Permitting and Mitigation					**$6,725,000**
TOTAL CAPITAL COST					**$801,428,000**
Annual Costs					
Debt Service (6 percent for 30 years)					$58,223,000
Coverage for Debt Service (Represents profit for developer)					$14,556,000
Electricity (Transmission)					$10,105,000
Electricity (Wells)					$817,650
Chemicals					$921,000
Operation and Maintenance					$8,575,000
Groundwater Rights					$21,452,000
Groundwater District Fees					$7,502,000
Total Annual Cost					**$122,151,650**
UNIT COSTS (Until Amortized)					
Water Cost ($ per ac-ft)					**$1,222**
Water Cost ($ per 1,000 gallons)					**$3.75**
UNIT COSTS (After Amortization)					
Water Cost ($ per ac-ft)					**$494**
Water Cost ($ per 1,000 gallons)					**$1.52**

Table Q-55
Groundwater from the Carrizo-Wilcox from Brazos County for North Texas MWD

Owner:	NTMWD
Quantity:	100,000 AF/Y
Peak Flow:	111.5 MGD

Item	Size	Quantity	Unit	Unit Price	Cost
Capital Costs					
Wellfield and Treatment					
Wells	500 gpm	168	Ea.	$90,300	$15,170,000
Connection to Pump Station		168	Ea.	$160,000	$26,880,000
Chlorination		1	LS	$23,163,000	$23,163,000
Storage Tank (Closed)	8 MG	2	Ea.	$2,069,000	$4,138,000
Engineering and Contingencies (35% for pump stations, 30% for other items)					$24,273,000
Subtotal for Wellfield and Treatment					**$93,624,000**
Transmission System					
Pipeline to Wylie - Rural	78 inch	804,000	LF	$591	$475,164,000
Pipeline to Wylie - Urban	78 inch	71,000	LF	$799	$56,729,000
Pump Station	14,300 HP	1	LS	$15,768,100	$15,768,000
Booster Pump Station	14,300 HP	1	LS	$15,768,100	$15,768,000
Storage Tanks (Closed - South and Booster)	8 MG	2	Ea.	$2,069,000	$4,138,000
Easement - Rural		804,000	LF	$9	$7,236,000
Easement - Rural		71,000	LF	$55	$3,905,000
Engineering and Contingencies (30% for pipleines, 35% for other items)					$172,054,000
Subtotal for Transmission					**$750,762,000**
TOTAL CONSTRUCTION COST					**$844,386,000**
Interest During Construction			**(24 months)**		**$61,315,000**
Permitting and Mitigation					**$7,643,000**
TOTAL CAPITAL COST					**$913,344,000**
Annual Costs					
Debt Service (6 percent for 30 years)					$66,353,000
Coverage for Debt Service (Represents profit for developer)					$16,588,000
Electricity (Transmission)					$11,056,000
Electricity (Wells)					$8,176,500
Chemicals					$921,000
Operation and Maintenance					$9,534,000
Groundwater Rights					$21,452,000
Groundwater District Fees					$7,502,000
Total Annual Cost					**$141,582,500**
UNIT COSTS (Until Amortized)					
Water Cost ($ per ac-ft)					**$1,416**
Water Cost ($ per 1,000 gallons)					**$4.35**
UNIT COSTS (After Amortization)					
Water Cost ($ per ac-ft)					**$586**
Water Cost ($ per 1,000 gallons)					**$1.80**

Table Q-56
Carrizo-Wilcox Groundwater from the Brazos County Area
Preliminary Cost Estimate - 30-Year Amortization @ 6% ($0.09/KW-hr Power Cost)
50,000 AFY Water Supply to TRWD
Carrizo-Wilcox Groundwater in Brazos, Burleson, Milam, and Robertson Counties to Richland-Chambers Reservoir

Item	Size		Quantity	Unit	Unit Price	Cost
Capital Costs						
Transmission System to Richland Chambers Reservoir						
Pipeline - Rural (parallel pipelines)	60	inch	510,400	LF	$366	$186,806,000
Pump Station #1 from Well Field to Booster	4,600	HP	1	EA	$8,818,600	$8,819,000
Pump Station #2 - from Booster PS to Richland-Chambers Reservoir	4,600	HP	1	EA	$6,630,800	$6,631,000
Storage Tanks - no roof	8	MG	1	EA	$2,069,000	$2,069,000
Discharge Structure	45	MGD	1	EA	$114,200	$114,000
Easement - Rural			1,020,800	LF	$7	$7,146,000
Engineering and Contingencies (30% for pipleines, 35% for other items)						$62,213,000
Subtotal						**$273,798,000**
Transmission System from Richland Chambers Reservoir to Tarrant County						
Pipeline - Rural (not parallelled - other lines)	60	inch	321,150	LF	$366	$117,541,000
Pipeline - Urban (not parallelled - other lines)	60	inch	93,000	LF	$495	$46,035,000
Pump Station at R-C	4,200	HP	1	LS	$8,344,200	$8,344,000
Booster Pump Station at Ennis	3,800	HP	1	LS	$5,880,000	$5,880,000
Booster Pump Station at Waxahachie	2,700	HP	1	LS	$4,768,600	$4,769,000
Storage Tanks at Boosters	8	MG	2	EA	$2,069,000	$4,138,000
Easement - Rural			321,150	LF	$7	$2,248,000
Easement - Urban			93,000	LF	$41	$3,813,000
Engineering and Contingencies (35% for pump stations, 30% for other items)						$57,169,000
Subtotal						**$249,937,000**
TOTAL CONSTRUCTION COST						**$523,735,000**
Interest During Construction			**(24 months)**			**$22,361,000**
Permitting and Mitigation						**$4,694,000**
TOTAL CAPITAL COST						**$550,790,000**
Annual Costs						
Debt Service (6 percent for 30 years)						$40,014,000
Purchase Water (includes all well field costs)			50,000	Ac-ft	$162.93	$8,146,000
Royalties to Land Owners (10% of sales)						$814,600
Transmission System Operation and Maintenance						$5,424,000
Transmission System Energy Costs						$8,270,000
Total Annual Cost						**$62,668,600**
Available Project Yield (ac-ft/yr)						**50,000**
UNIT COSTS (Until Amortized)						
Water Cost ($ per ac-ft)						**$1,253**
Water Cost ($ per 1,000 gallons)						**$3.85**
UNIT COSTS (After Amortization)						
Water Cost ($ per ac-ft)						**$453**
Water Cost ($ per 1,000 gallons)						**$1.39**

Table Q-57
DWU Lake of the Pines
Pump from Lake of the Pines to Lake Fork to TBR and gravity flow to East Side WTP

Probable Owner: DWU
Quantity: 89,600 AF/Y

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	72 in	525,600	LF	$516	$271,210,000
Pipeline Urban	72 in	87,200	LF	$697	$60,778,000
Right of Way Easements (Rural)		525,600	LF	$7	$3,679,000
Right of Way Easements (Urban)		87,200	LF	$41	$3,575,000
Engineering and Contingencies (30%)					$99,596,000
Subtotal of Pipeline					**$438,838,000**
Pump Station(s)					
Lake of the Pines Pump Station	9100 HP	1	LS	$14,754,600	$14,755,000
Booster Pump Station	9000 HP	1	LS	$10,965,000	$10,965,000
Booster Pump Station	9000 HP	1	LS	$10,965,000	$10,965,000
Ground Storage Tanks	6 MG	4	Ea	$1,505,000	$6,020,000
Engineering and Contingencies (35%)					$14,946,750
Subtotal of Pump Station(s)					**$57,651,750**
CONSTRUCTION TOTAL					**$496,489,750**
Permitting and Mitigation					**$4,496,000**
Interest During Construction			**(24 months)**		**$40,548,000**
TOTAL COST					**$541,533,750**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$39,342,000
Raw Water Purchase		80 MGD	$/1000 gal	$0.30	$8,752,000
Electricity ($0.09 per kWh)					$9,821,000
Operation & Maintenance					$5,265,000
Total Annual Costs					**$63,180,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot					$705
Per 1,000 Gallons					$2.16
UNIT COSTS (After Amortization)					
Per Acre-Foot					$266
Per 1,000 Gallons					$0.82

Table Q-58
NTMWD Lake of the Pines
From Lake of the Pines to New WTP at Farmersville

Probable Owner: NTMWD
Quantity: 87,900 AF/Y

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural (from LOTP to Chapma	72 in	451,700	LF	$516	$233,077,000
Pipeline Rural (end of existing Chapman line to new WTP at	72 in	11,000	LF	$516	$5,676,000
30-ft Right of Way Easements (ROW)		462,700	LF	$7	$3,239,000
Engineering and Contingencies (30%)					$71,626,000
Subtotal of Pipeline					**$313,618,000**
Pump Station(s)					
Pump at LOTP with intake & building	7500 HP	1	LS	$12,510,500	$12,511,000
Booster Pump Station	5000 HP	1	LS	$6,988,000	$6,988,000
Pump Station at Lake Chapman	12000 HP	1	LS	$18,472,200	$18,472,000
Engineering and Contingencies (35%)					$13,289,850
Subtotal of Pump Station(s)					**$51,260,850**
Ground Storage					
Ground Storage Tanks at Booster	6 MG	2	LS	$1,505,000	$3,010,000
Engineering and Contingencies (35%)					$1,053,500
Subtotal of Ground Storage					**$4,063,500**
CONSTRUCTION TOTAL					**$368,942,350**
Permitting and Mitigation					**$3,357,000**
Interest During Construction			**(24 months)**		**$30,132,000**
TOTAL COST					**$402,431,350**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$29,236,000
Electricity ($0.09 per kWh)					$8,748,000
Operation & Maintenance					$4,094,000
Raw Water Purchase					$8,593,000
Total Annual Costs					**$50,671,000**

Table Q-58, Continued

UNIT COSTS (Until Amortized)	
Per Acre-Foot of Raw water	$576
Per 1,000 Gallons	$1.77
UNIT COSTS (After Amortization)	
Per Acre-Foot	$244
Per 1,000 Gallons	$0.75

Table Q-59
TRWD Lake of the Pines
From Lake of the Pines to Rolling Hills WTP

Probable Owner: TRWD
Quantity: 87,900 AF/Y

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural (from LOTP to WTP)	72 in	869,778	LF	$516	$448,805,000
30-ft Right of Way Easements (ROW)		869,778	LF	$7	$6,088,000
Engineering and Contingencies (30%)					$134,642,000
Subtotal of Pipeline					**$589,535,000**
Pump Station(s)					
Pump at LOTP with intake & building	12500 HP	1	LS	$19,015,500	$19,016,000
Booster Pump Station #1	12500 HP	1	LS	$14,297,500	$14,298,000
Booster Pump Station #2	12500 HP	1	LS	$14,297,500	$14,298,000
Engineering and Contingencies (35%)					$16,664,200
Subtotal of Pump Station(s)					**$64,276,200**
Ground Storage					
Ground Storage Tanks at Pump Station	6 MG	4	LS	$1,505,000	$6,020,000
Engineering and Contingencies (35%)					$2,107,000
Subtotal of Ground Storage					**$8,127,000**
CONSTRUCTION TOTAL					**$661,938,200**
Permitting and Mitigation					**$6,029,000**
Interest During Construction			**(36 months)**		**$80,538,000**
TOTAL COST					**$748,505,200**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$54,378,000
Electricity ($0.09 per kWh)					$13,778,000
Operation & Maintenance					$6,995,000
Raw Water Purchase					$8,593,000
Total Annual Costs					**$83,744,000**

Table Q-59, Continued

UNIT COSTS (Until Amortized)	
Per Acre-Foot	$953
Per 1,000 Gallons	$2.92
UNIT COSTS (After Amortization)	
Per Acre-Foot	$334
Per 1,000 Gallons	$1.02

Table Q-60
Dallas Water Utilities
Lake Ray Hubbard Indirect Reuse Project

Owner	Dallas Water Utilities				
Amount	67,253 Ac-Ft/Yr				
CONSTRUCTION COSTS					
		Quantity	**Unit**	**Unit Price**	**Cost**
FILTERS AND WETLANDS FACILITIES					
Filter		1	L.S.	$6,230,000	$6,230,000
Wetlands		1	L.S.	$14,384,000	$14,384,000
Engineering & Contingencies					$7,215,000
Subtotal Filters and Wetlands					**$27,829,000**
TRANSMISSION FACILITIES					
Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
78" Pipeline - Urban	78 in.	197,400	LF	$ 799	$157,723,000
Right of Way Easements - Urban		197,400	LF	$ 55	$10,857,000
Engineering & Contingencies					$47,317,000
Subtotal Pipeline					**$215,897,000**
Pump Stations					
Pump Station 1	8472 HP	1	L.S.	$13,828,488	$13,828,000
Pump Station 2	1150 HP	1	L.S.	$4,078,750	$4,079,000
Engineering & Contingencies					$6,267,000
Subtotal Pump Stations					**$24,174,000**
ENVIRONMENTAL AND ARCHAEOLOGICAL STUDIES					**$2,355,000**
CONSTRUCTION TOTAL					**$270,255,000**
Interest During Construction	24 Months				$22,072,000
TOTAL COST					**$292,327,000**
ANNUAL COSTS (1st 30 years)					
Debt Service (6%, 30 years)					$21,237,000
Electricity ($0.09 per kWh)					$3,630,000
Operation and Maintenance					$2,876,000
Total Annual Costs					**$27,743,000**
UNIT COSTS (Average over 1st 30 years)					
Per Acre-Foot					$413
Per 1,000 Gallons					$1.27
UNIT COSTS (after 30 years)					
Per Acre-Foot					$97
Per 1,000 Gallons					$0.30

Table Q-61
Dallas Water Utilities
Lake Lewisville Indirect Reuse Project

Owner	Dallas Water Utilities				
Amount	67,253 Ac-Ft/Yr				
CONSTRUCTION COSTS					
		Quantity	**Unit**	**Unit Price**	**Cost**
Additional Wastewater Treatment					
Filtration and Phosphorous Removal		1	L.S.	$12,758,000	$12,758,000
Engineering & Contingencies					$4,465,000
Subtotal Filters and Wetlands					**$17,223,000**
TRANSMISSION FACILITIES					
Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
78" Pipeline - Urban	78 in.	209,200	LF	$ 799	$167,151,000
Right of Way Easements - Urban		209,200	LF	$ 55	$11,506,000
Engineering & Contingencies					$50,145,000
Subtotal Pipeline					**$228,802,000**
Pump Station					
Pump Station 1	7600 HP	1	L.S.	$12,639,200	$12,639,200
Engineering & Contingencies					$4,424,000
Subtotal Pump Stations					**$17,063,200**
ENVIRONMENTAL AND ARCHAEOLOGICAL STUDIES					**$2,311,000**
CONSTRUCTION TOTAL					**$265,399,200**
Interest During Construction	24 Months				$21,675,000
TOTAL COST					**$287,074,200**
ANNUAL COSTS (1st 30 years)					
Debt Service (6%, 30 years)					$20,856,000
Electricity ($0.09 per kWh)					$1,975,500
Operation and Maintenance					$2,768,000
Total Annual Costs					**$25,599,500**
UNIT COSTS (Average over 1st 30 years)					
Per Acre-Foot					$381
Per 1,000 Gallons					$1.17
UNIT COSTS (after 30 years)					
Per Acre-Foot					$71
Per 1,000 Gallons					$0.22

Table Q-62
Tarrant Regional Water District Lake Tehuacana

Owner: TRWD
Amount: 56,800 Ac-Ft/Yr
Peak 63 MGD

CONSTRUCTION COSTS

DAM & RESERVOIR	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Excavation					
Channel		2,250,000	C.Y.	$2.63	$5,922,000
Core trench & borrow		1,764,000	C.Y.	$2.63	$4,643,000
Fill Material					
Embankment		3,488,000	C.Y.	$3.29	$11,476,000
Waste Material		80,000	C.Y.	$2.63	$211,000
Filter, 1 & 2 (foundation drainage)		181,800	C.Y.	$39.48	$7,178,000
Stabilized base roadway		59,555	S.Y.	$23.69	$1,411,000
Cutoff slurry trench		514,800	S.F.	$15.79	$8,130,000
Soil cement including cement		137,800	C.Y.	$85.54	$11,788,000
Guard posts		1,680	each	$33.26	$56,000
Grassing		34	acres	$4,500	$153,000
Subtotal of Dam and Reservoir					**$50,968,000**
Conflicts					**$40,523,054**
Engineering and Contingencies (35%)					**$32,022,000**
CONSTRUCTION TOTAL					**$123,513,054**
LAND AND LIGNITE ACQUISITION		**1**	**L.S.**	**$109,682,000**	**$109,682,000**
Interest During Construction			**(36 months)**		**$15,028,000**
Permitting and Mitigation of Reservoir					**$219,364,000**
TOTAL RESERVOIR COST					**$467,587,054**

Transmission System from Richland Chambers Reservoir to Ennis

Item	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline - Rural	60 in	157,800	LF	$366	$57,755,000
Pump Station at Richland-Chambers	5200 HP	1	LS	$9,579,000	$9,579,000
Engineering and Contingencies (30% for pipelines, 35% for other items)					$20,679,000
Subtotal					**$88,013,000**

Table Q-62, Continued

Transmission System from Ennis to Balancing Reservoir

Item	Size	Quantity	Unit	Unit Price	Cost
Pipeline - Rural	60 in	158,680	LF	$366	$58,077,000
Pipeline - Urban	60 in	65,320	LF	$495	$32,333,000
Ennis Booster Pump Station	4600 HP	1	LS	$6,630,800	$6,631,000
Waxahachie Booster Pump	3400 HP	1	LS	$5,450,000	$5,450,000
Ground Storage Tanks	7 MG	2	Ea.	$1,740,000	$3,480,000
Engineering and Contingencies (30% for pipelines, 35% for other items)					$32,569,000
Subtotal					**$138,540,000**

Transmission System from Balancing Reservoir to Rolling Hills

Item	Size	Quantity	Unit	Unit Price	Cost
Pipeline - Urban	60 in	31,000	LF	$495	$15,345,000
Engineering and Contingencies (30% for pipelines, 35% for other items)					$4,604,000
Subtotal					**$19,949,000**

Interest During Construction	**(36 months)**	**$29,992,000**
Permitting and Mitigation of Transmission		**$2,264,000**
TOTAL TRANSMISSION COST		**$278,758,000**
TOTAL CAPITAL COST		**$746,345,054**

ANNUAL COSTS	
Debt Service (6% for 30 years)	$54,221,156
Operation & Maintenance - Reservoir	$917,000
Operation & Maintenance - Transmission	$2,716,000
Electricity ($0.09 per kWh)	$5,637,000
Total Annual Costs	**$63,491,156**
UNIT COSTS (During Amortization)	
Per Acre-Foot	$1,118
Per 1,000 Gallons	$3.43
UNIT COSTS (After Amortization)	
Per Acre-Foot	$163
Per 1,000 Gallons	$0.50

Table Q-63
Lake Ralph Hall and Reuse for UTRWD

Probable Owner: UTRWD
Quantity: 34,050 Ac-Ft/Yr from Ralph Hall
18,387 Ac-Ft/Yr from Reuse (60% return flows on 30645 ac-ft/yr delivered)
Peak: 38.0 MGD (1.25:1 peak)

CONSTRUCTION COSTS
Dam, Reservoir and Conflicts

	Size	Quantity	Unit	Unit Price	Cost
Mobilization and Demobilization		1	LS	$6,712,000	$6,712,000
Stormwater Prevention		1	LS	$1,201,000	$1,201,000
Clearing & Grubbing		450	AC	$2,760	$1,242,000
Roadways		23,800	LF	$283	$6,735,000
Bridges		13,080	LF	$1,890	$24,721,000
Utility Relocations		53,500	LF	$105	$5,618,000
Embankment Random Fill		2,447,520	CY	$3.95	$9,668,000
Embankment Core		1,928,515	CY	$5.26	$10,144,000
Principal Spillway Reinf. Conc.		36,835	CY	$362	$13,334,000
Emergency Spillway Reinf. Conc.		38,170	CY	$362	$13,818,000
Rock Riprap		215,000	SY	$132	$28,380,000
Miscellaneous Relocations		1	LS	$2,632,000	$2,632,000
Care of Water		1	LS	$265,000	$265,000
Engineering and Contingencies (35%)					$43,565,000
Subtotal for Dam, Reservoir and Conflicts					**$168,035,000**

TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline to Balancing	48 in	158,400	LF	$269	$42,610,000
Right of Way Easements		158,400	LF	$7	$1,109,000
Engineering and Contingencies (30%)					$12,783,000
Subtotal of Pipeline					**$56,502,000**
Intake Pump Station					
Pump Station	2400 HP	1	LS	$6,008,000	$6,008,000
Engineering and Contingencies (35%)					$2,103,000
Subtotal of Pump Station					**$8,111,000**
CONSTRUCTION TOTAL					**$232,648,000**

Table Q-63, Continued

Land Acquisition	**$22,600,000**
Mitigation	**$7,500,000**
Interest During Construction (30 months)	**$23,653,000**
TOTAL COST	**$286,401,000**
ANNUAL COSTS	**Cost**
Debt Service (6% for 30 years)	$20,807,000
Electricity ($0.09 per kWh)	$1,848,000
Operation & Maintenance	$2,099,000
Total Annual Costs	**$24,754,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot (Ralph Hall and Reuse)	$472
Per 1,000 Gallons	$1.45
UNIT COSTS (After Amortization)	
Per Acre-Foot (Ralph Hall and Reuse)	$75
Per 1,000 Gallons	$0.23

Table Q-64
DWU Lake Columbia (formerly Lake Eastex)

Probable Owner:	DWU	
Quantity:	35,800	AF/Y
Quantity:	40	MGD peak

Construction Costs					
Dam and Spillway	**Size**	**Amount**	**Unit**	**Unit Cost**	**Cost**
Mobilization		1	LS	$1,975,036	$1,975,000
Care of Water During Construction		1	LS	$1,150,514	$1,151,000
Clearing and Grubbing		78	Ac	$3,948	$309,000
Foundation Preparation		1	LS	$283,220	$283,000
Excavation		3,679,202	CY	$3	$9,684,000
Embankment, Select Fill		1,131,894	CY	$3	$3,724,000
Embankment, Random		1,872,136	CY	$3	$4,928,000
Berm Fill		475,623	CY	$3	$1,252,000
Soil Bentonite Slurry Trench		200,125	SF	$16	$3,161,000
Drains					
Sand		98	CY	$20	$2,000
Gravel		1,150	CY	$59	$68,000
Toe Drains					
Gravel		4,029	CY	$59	$239,000
Pipe		6,800	LF	$26	$179,000
Outlets		5	EA	$19,741	$99,000
Soil Cement		47,888	CY	$72	$3,466,000
Seeding for Erosion Control		163	Ac	$3,290	$536,000
Topsoil 6 inches		34,285	CY	$9	$316,000
Flex Base Roadway 8 inch		18,133	SY	$13	$239,000
Service Spillway		1	LS	$5,292,206	$5,292,000
Spillway Bridge		1	LS	$473,787	$474,000
Outlet Works two 48-inch pipes		1	LS	$1,188,154	$1,188,000
Erosion and Sediment Control		1	LS	$98,706	$99,000
Clearing		5,000	Ac	$329	$1,645,000
Instrumentation		1	LS	$484,316	$484,000
Office Building		1	LS	$394,823	$395,000
Boat Ramp		1	LS	$263,215	$263,000
Bouy System		1	LS	$26,322	$26,000
Engineering and Contingencies (35%)					$14,517,000
Subtotal for Dam & Reservoir					**$55,994,000**
Conflicts					$95,559,000
Engineering and Contingencies (35%)					$33,446,000
Subtotal for Conflicts					**$106,055,000**
Total Reservoir Construction					**$162,049,000**
DWU portion of dam (50%)					**$81,025,000**

Table Q-64, Continued

Transmission Facilities (DWU)

Pump from Lake Columbia to Lake Palestine. Assume sufficient capacity in Integrated Pipeline to deliver water from Columbia.

Pipeline					
Pipeline Columbia to Palestine (Rural)	48 in	74,000	LF	$269	$19,906,000
ROW Easements (Rural)		74,000	LF	$7	$518,000
ROW Easements (Urban)		0	LF	$69	$0
Engineering and Contingencies (30%)					$5,972,000
Subtotal of Pipeline					**$26,396,000**
Pump Station					
Lake Columbia Pump Station	1700 HP	1	LS	$5,038,500	$5,039,000
Ground Storage Tanks	5 MG	1	Ea	$1,303,000	$1,303,000
Engineering and Contingencies (35%)					$2,220,000
Subtotal of Pump Station					**$8,562,000**
CONSTRUCTION TOTAL					**$197,007,000**
CONSTRUCTION TOTAL (DWU Portion)					**$115,983,000**
Permitting and Mitigation Transmission					**$299,000**
(assume no additional costs for transmission from Palestine to WTP)					
Interest During Construction			**(36 months)**		**$23,970,000**
Interest During Construction (DWU Portion)			**(36 months)**		**$14,112,000**
Land Acquisition					**$33,034,000**
DWU Portion of Land Acquisition					**$16,517,000**
Permitting and Mitigation Reservoir (DWU Portion)					**$33,034,000**
TOTAL COST					**$287,344,000**
TOTAL COST (DWU Portion)					**$179,945,000**
DWU Annual Costs					
Debt Service (6% for 30 years)					$13,072,810
Electricity ($0.09 per kWh)					$5,317,000
Operation & Maintenance					$802,000
Total Annual Costs					**$19,191,810**

Table Q-64, Continued

UNIT COSTS (Until Amortized)	
Per Acre-Foot	**$536**
Per 1,000 Gallons	**$1.65**
UNIT COSTS (After Amortization)	
Per Acre-Foot	**$171**
Per 1,000 Gallons	**$0.52**

Table Q-65
Dallas Direct Reuse Projects

Owner:	Dallas					
Amount:	20,456	Ac-Ft/Yr				
Item No. & Description	**Qty.**	**Units**		**Unit Cost**		**Total Cost**
Construction Costs						
PIPELINE						
McCommas Bluff						
16" Reclaimed Water Line	10,700	FT	$	237	$	2,536,000
Cedar Crest						
20" Reclaimed Water Line	15,100	FT	$	267	$	4,032,000
12" Reclaimed Water Line	1,700	FT	$	208	$	354,000
White Rock Alternate						
42" Reclaimed Water Line	52,800	FT	$	356	$	18,797,000
36" Reclaimed Water Line	58,200	FT	$	326	$	18,973,000
24" Reclaimed Water Line	10,200	FT	$	297	$	3,029,000
16" Reclaimed Water Line	7,600	FT	$	237	$	1,801,000
12" Reclaimed Water Line	12,600	FT	$	208	$	2,621,000
Subtotal Piping					**$**	**52,143,000**
PUMP STATIONS						
McCommas Bluff	62	hp			$	1,423,995
Cedar Crest	181	hp			$	1,542,441
White Rock Alternate	2,478	hp			$	5,339,321
Subtotal Pump Station					**$**	**8,306,000**
Permitting and Mitigation	1%				$	604,000
Engineering, Contingency, Construction Management, Financial and Legal Costs						
Pipeline	30%				$	15,643,000
Pump Station	35%				$	2,907,000
Capital Cost Subtotal					**$**	**79,603,000**
Interest During Construction		(12 months)			$	3,317,000
Total Capital Costs					**$**	**82,920,000**

Table Q-65, Continued

Annual Costs			
Debt Service			$6,024,000
Operation and Maintenance Costs			
Pipeline	1.00%	$	626,000
Pump Station	2.50%	$	249,000
Estimated Annual Power Cost	$0.09/kWh	$	1,225,500
Total Annual Costs		**$**	**8,124,500**
UNIT COSTS (First 30 Years)			
Per Acre-Foot		$	397
Per 1,000 Gallons		$	1.22
UNIT COSTS (After 30 Years)			
Per Acre-Foot		$	103
Per 1,000 Gallons		$	0.32

Table Q-66
Lake Texoma Supply with Blending in Elm Fork

Probable Owner: DWU
Amount: 20,000 Acre-Feet/Year

CONSTRUCTION COSTS					
TRANSMISSION FACILITIES					
Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline (rural)	36 in.	187,501	LF	$184	$34,500,200
Pipeline (urban)	36 in.	0	LF	$276	$0
Right of Way Easements (Rural)		187,501	LF	$5	$937,500
Right of Way Easements (Urban)		0	LF	$28	$0
Engineering and Contingencies (30%)					$10,350,000
Subtotal of Pipeline					**$45,787,700**
Pump Station(s)					
Lakeside Pump Station	2200 HP	1	EA	$5,785,000	$5,785,000
Engineering and Contingencies (35%)					$2,025,000
Subtotal of Pump Station(s)					**$7,810,000**
Permitting and Mitigation		**1**	**LS**		**$483,400**
CONSTRUCTION TOTAL					**$54,081,100**
Interest During Construction		**(12 months)**			**$2,253,000**
TOTAL CAPITAL COST					**$56,334,100**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$4,092,611
Raw water purchase					$535,752
Electricity ($0.09 per kWh)					$896,805
Facility Operation & Maintenance					$587,552
Total Annual Costs					**$6,112,720**
UNIT COSTS (During Amortization)					
Per Acre-Foot of raw water					$306
Per 1,000 Gallons of raw water					$0.94
UNIT COSTS (After Amortization)					
Per Acre-Foot of treated water					$101
Per 1,000 Gallons of treated water					$0.31

Table Q-67
DWU Water Treatment Plant Construction and Expansion

OWNER:	Dallas Water Utilities	
	Size	**Cost**
2012 Eastside Expansion		
Construction Costs		
Eastside WTP Expansion (2012)	100 MGD	$100,200,000
Engineering and Contingencies (35%)		$35,070,000
Total Construction Cost		**$135,270,000**
Interest during Construction (24 months)		$11,048,000
Total Capital Costs		**$146,318,000**
Annual Costs		
Debt Service (30 years at 6%)		$10,630,000
Operation and Maintenance (@ $0.70 per 1000 gal)	18,262,500	$12,784,000
Total Annual Costs		**$23,414,000**
Annual Cost ($ per acre-foot)		**$418**
Annual Cost ($ per 1000 gallons)		**$1.28**
Annual Cost after Amortization ($ per acre-foot)		**$228**
Annual Cost after Amortization ($ per 1000 gallons)		**$0.70**
2018 New Water Plant		
Construction Costs		
New WTP (2018)	100 MGD	$130,200,000
Engineering and Contingencies (35%)		$45,570,000
Total Construction Cost		**$175,770,000**
Interest during Construction (24 months)		$14,355,000
Total Capital Costs		**$190,125,000**
Annual Costs		
Debt Service (30 years at 6%)		$13,812,000
Operation and Maintenance (@ $0.70 per 1000 gal)	18,262,500	$12,784,000
Total Annual Costs		**$26,596,000**

Table Q-67, Continued

Annual Cost ($ per acre-foot)		**$475**
Annual Cost ($ per 1000 gallons)		**$1.46**
Annual Cost after Amortization ($ per acre-foot)		**$228**
Annual Cost after Amortization ($ per 1000 gallons)		**$0.70**

2025, 2035, 2045, 2052 & 2058 WTP Expansions		
Construction Costs		
WTP Expansion	100 MGD	$100,200,000
Engineering and Contingencies (35%)		$35,070,000
Total Construction Cost		**$135,270,000**
Interest during Construction (24 months)		$11,048,000
Total Capital Costs		**$146,318,000**
Annual Costs		
Debt Service (30 years at 6%)		$10,630,000
Operation and Maintenance (@ $0.70 per 1000 gal)	18,262,500	$12,784,000
Total Annual Costs		**$23,414,000**
Annual Cost ($ per acre-foot)		**$418**
Annual Cost ($ per 1000 gallons)		**$1.28**
Annual Cost after Amortization ($ per acre-foot)		**$228**
Annual Cost after Amortization ($ per 1000 gallons)		**$0.70**
OVERALL TOTAL CAPITAL		**$1,068,033,000**

Table Q-68
Lake Chapman Pump Station Expansion

Owner: North Texas Municipal Water District and Irving
Amount: 0 Ac-Ft/Yr

Pump Station Expansion at Lake Chapman (225 MGD capacity)

	Quantity	Unit	Unit Price	Total Price
New 4,000 HP Vertical Centrifugal Pumps	6	EA	$ 1,300,000	$ 7,800,000
Piping, Values and Misc. Equipment	1	LS	$ 8,003,600	$ 8,003,600
Electrical and Instrumentation	1	LS	$ 3,610,000	$ 3,610,000
Ground Storage Tanks (10 MG)	2	EA	$ 2,752,000	$ 5,504,000
Subtotal				$24,917,600
Engineering & Contingencies (35%)				$8,721,000
Capital Cost Subtotal				**$33,638,600**
Interest During Construction				$729,000
Power Supply				$2,000,000
Total Capital Costs				**$36,367,600**
Irving Share (25%)				**$9,092,000**
NTMWD Share (75%)				**$27,275,600**
ANNUAL COSTS				
Debt Service				$2,642,000
Operation and Maintenance				$748,000
Total Annual Cost				**$3,390,000**
Irving Share (25%)				**$713,000**
NTMWD Share (75%)				**$2,677,000**

Table Q-69
North Texas Municipal Water District Interim Purchase from DWU

Owner: North Texas Municipal Water District
Amount: 11,210 Ac-Ft/Yr (20 years only)

Construction Cost for Meter	$1,316,000
Engineering and Contingencies	$460,600
	$1,776,600
Annual Costs	
Debt Service (6% for 20 years)	$155,000
Treated Water Purchase ($1.3689 per 1000 gallons)	$5,000,000
Operation and Maintenance	$39,000
	$5,194,000
UNIT COSTS (during Amortization)	
Per Acre-Foot	$463
Per 1,000 gallons	$1.42
UNIT COSTS (after Amortization)	
Per Acre-Foot	$450
Per 1,000 gallons	$1.38

Table Q-70
North Texas Municipal Water District Water District Lake Texoma (Interim GTUA)

Owner:	North Texas Municipal Water District (interim purchase from GTUA)
Amount:	21,900 Ac-Ft/Yr

Uses existing facilities

ANNUAL COSTS	
Electricity	$1,071,000
Raw Water	$305,000
Total Annual Costs	**$1,376,000**
UNIT COSTS (Before Amortization)	
Per Acre-Foot	$63
Per 1,000 Gallons	$0.19
UNIT COSTS (After Amortization)	
Per Acre-Foot	$63
Per 1,000 Gallons	$0.19

Table Q-71
Lake Texoma Pump Station Expansion

Owner: North Texas Municipal Water District and GTUA
Amount: 0 Ac-Ft/Yr

Pump Station Expansion at Texoma (from 90 MGD to 125 MGD)

	Quantity	Unit	Unit Price	Total Price
New 6,000 HP pumps	2	EA	$ 3,025,000	$ 6,050,000
Piping, Values and Misc. Equipment	1	LS	$ 522,000	$ 522,000
Electrical and Instrumentation	1	LS	$ 935,000	$ 935,000
Subtotal				$7,507,000
Engineering & Contingencies (35%)				$2,627,000
Capital Cost Subtotal				$10,134,000
Interest During Construction				$220,000
Total Capital Costs				**$10,354,000**
GTUA Share (20%)				**$2,071,000**
NTMWD Share (80%)				**$8,283,000**
ANNUAL COSTS				
Debt Service				$752,000
Operation and Maintenance				$225,000
Total Annual Costs				**$977,000**
GTUA Share (20%)				**$195,000**
NTMWD Share (80%)				**$782,000**

Table Q-72
NTMWD Water Treatment Plant and
Treated Water Distribution System Improvements

OWNER: NTMWD

Construction Costs (Including Engineering and Contingencies)	**Cost**
2010-2020	
Water Distribution System Improvements - Pipelines	88,961,800
Water Distribution System Improvements - Pump Stations	355,200,760
WTP Construction and Expansion (180 MGD)	61,796,420
Subtotal	**$505,958,980**
Interest during Construction (12 months)	$21,083,000
Total 2010-2020 Cost	**$527,041,980**
Annual Costs (2010-2020 Improvements)	
Debt Service (30 years at 6%)	$38,289,000
Facility Operation and Maintenance	$8,304,000
WTP Operation and Maintenance (@ $0.70/1000 gal - 2.25 Peak)	$20,454,000
Total Pre-Amortization	**$67,047,000**
Total After Amortization	**$28,758,000**
2020-2030	
Water Distribution System Improvements - Pipelines	88,350,500
Water Distribution System Improvements - Pump Stations	126,310,500
WTP Construction and Expansion (210 MGD)	308,579,000
Subtotal	**$523,240,000**
Interest during Construction (12 months)	$21,803,000
Total 2020-2030 Cost	**$545,043,000**
Annual Costs (2020-2030 Improvements)	
Debt Service (30 years at 6%)	$39,597,000
Facility Operation and Maintenance	$3,435,000
WTP Operation and Maintenance (@ $0.70/1000 gal - 2.25 Peak)	$23,863,000
Total Pre-Amortization	**$66,895,000**
Total After Amortization	**$27,298,000**

Table Q-72, Continued

2030-2040	
Water Distribution System Improvements - Pipelines	$88,350,500
Water Distribution System Improvements - Pump Stations	$126,310,500
WTP Construction and Expansion (140 MGD)	$144,400,000
	$359,061,000
Interest during Construction (12 months)	$14,962,000
Total 2030-2040 Cost	**$374,023,000**
Annual Costs (2030-2040 Improvements)	
Debt Service (30 years at 6%)	$27,172,000
Facility Operation and Maintenance	$3,435,000
WTP Operation and Maintenance (@ $0.70/1000 gal - 2.25 Peak)	$15,909,000
Total Pre-Amortization	**$46,516,000**
Total After Amortization	**$19,344,000**
2040-2050	
Water Distribution System Improvements - Pipelines	$88,350,500
Water Distribution System Improvements - Pump Stations	$126,310,500
WTP Construction and Expansion (210 MGD)	$216,600,000
	$431,261,000
Interest during Construction (12 months)	$17,971,000
Total 2040-2050 Cost	**$449,232,000**
Annual Costs (2040-2050 Improvements)	
Debt Service (30 years at 6%)	$32,636,000
Facility Operation and Maintenance	$3,435,000
WTP Operation and Maintenance (@ $0.70/1000 gal - 2.25 Peak)	$23,863,000
Total Pre-Amortization	**$59,934,000**
Total After Amortization	**$27,298,000**

Table Q-72, Continued

2050-2060	
Water Distribution System Improvements - Pipelines	$88,350,500
Water Distribution System Improvements - Pump Stations	$126,310,500
WTP Construction and Expansion (140 MGD)	$144,400,000
	$359,061,000
Interest during Construction (12 months)	$14,962,000
Total 2050-2060 Cost	**$374,023,000**

Table Q-72, Continued

Annual Costs (2050-2060 Improvements)	
Debt Service (30 years at 6%)	$27,172,000
Facility Operation and Maintenance	$3,435,000
WTP Operation and Maintenance (@ $0.70/1000 gal - 2.25 Peak)	$15,909,000
	$46,516,000
Total Capital Costs	**$2,269,362,980**

Table Q-73
Fannin County Water Supply Project

Owner:	NTMWD					
Amount:	6,744	ac-ft/yr				

Item No. & Description	**Qty.**	**Units**	**Unit Cost**		**Total Cost**
Construction Costs					
PIPELINE					
20" Water Line from Leonard to Bonham					
Pipe	70,000	FT	$ 90	$	6,300,000
ROW	70,000	FT	$ 5	$	350,000
14" Water Line from Leonard to Trenton					
Pipe	26,600	FT	$ 60	$	1,596,000
ROW	26,600	FT	$ 5	$	133,000
10" Water Line from Bonham to Honey Grove					
Pipe	86,500	FT	$ 43	$	3,720,000
ROW	86,500	FT	$ 5	$	433,000
10" Water Line from Bonham line to SW SUD					
Pipe	50,000	FT	$ 43	$	2,150,000
ROW	50,000	FT	$ 5	$	250,000
12" Water Line to Leonard					
Pipe	2,000	FT	$ 77	$	154,000
ROW	2,000	FT	$ 12	$	24,000
Subtotal Piping				**$**	**15,110,000**

Table Q-73, Continued

PUMP STATION						
Station 1						
Pump, building, & appurtances	600	hp			$	2,860,000
Storage Tank	5,833,000	gal			$	1,720,000
Subtotal Pump Station					**$**	**4,580,000**
Bonham WTP Expansion	3.00	MGD				$7,400,000
Permitting and Mitigation	1%				$	222,000
Engineering, Contingency, Construction Management, Financial and Legal Costs						
Pipeline	30%				$	4,176,000
Pump Station	35%				$	1,603,000
Plant Expansion	35%				$	2,590,000
Capital Cost Subtotal					**$**	**35,681,000**
Interest During Construction		(24 months)				$2,790,000
Total Capital Costs					**$**	**38,471,000**
Annual Costs						
Debt Service					$	2,795,000
Operation and Maintenance Costs						
Pipeline	1%				$	167,000
Pump Station	2.50%				$	137,000
Estimated Annual Power Cost	$0.09/kWh				$	176,000
WTP Operation	2,197,539	1000 gal	$	0.70	$	1,538,000
Total Annual Costs					**$**	**4,813,000**
UNIT COSTS (First 30 Years)						
Per Acre-Foot					$	714
Per 1,000 Gallons					$	2.19
UNIT COSTS (After 30 Years)						
Per Acre-Foot					$	299
Per 1,000 Gallons					$	0.92

Table Q-74
Ellis County Project

Sponsor	Ac-Ft/Yr	MGD (Avg)	MGD (Peak)
Ennis	9,655	8.6	17
Midlothian	11,999	11	21
Rockett SUD	8,232	7.3	15
Waxahachie	18,023	16	32
TRA	5,313	4.7	9.5
Total	53,222	47	95

Item & Description	**Size**	**Quantity**	**Units**	**Unit Cost**	**Total Cost**
Construction Costs					
WATER TREATMENT PLANTS					
New Midlothian WTP	9 MGD	1	LS	$20,766,667	$20,767,000
Midlothian WTP expansion 1	9 MGD	1	LS	$14,966,667	$14,967,000
Midlothian WTP expansion 2	9 MGD	1	LS	$14,966,667	$14,967,000
Midlothian WTP expansion 3	9 MGD	1	LS	$14,966,667	$14,967,000
Waxahachie/Rockett SUD Sokoll expansion 1	20 MGD	1	LS	$26,100,000	$26,100,000
Waxahachie/Rockett SUD Sokoll expansion 2	20 MGD	1	LS	$26,100,000	$26,100,000
Ennis WTP expansion 1	6 MGD	1	LS	$11,525,000	$11,525,000
Ennis WTP expansion 2	6 MGD	1	LS	$11,525,000	$11,525,000
Engineering & Contingencies (35%)					$49,321,000
Permitting and Mitigation (1%)					$1,691,000
SUBTOTAL WATER TREATMENT PLANTS					$191,930,000
PIPELINES & PUMP STATIONS					
Raw water line TRWD/TRA to Waxahachie					
Pipe	20 in.	52,800	LF	$90	$4,752,000
ROW		52,800	LF	$12	$634,000
Treated water Waxahachie to Sardis/Lone Elm					
Tap fee		1	LS	$60,000	$60,000
Pipe	30 in.	25,000	LF	$145	$3,625,000
	20 in.	40,000	LF	$90	$3,600,000
ROW		65,000	LF	$5	$325,000
Pump Station	105 HP	1	LS	$761,000	$761,000
Pump Station	203 HP	1	LS	$1,128,000	$1,128,000
Treated water Waxahachie to Buena Vista/Bethel					
Tap fee		1	LS	$60,000	$60,000
Pipe	30 in.	33,075	LF	$145	$4,796,000
ROW		33,075	LF	$5	$165,000
Pump Station	40 HP	2	LS	$623,000	$1,246,000
Pump Station	100 HP	2	LS	$742,000	$1,484,000
Treated water Waxahachie to Files Valley & Maypearl					
Tap fee		1	LS	$60,000	$60,000
Pipe	8 in.	58,080	LF	$34	$1,975,000
	6 in.	47,520	LF	$26	$1,236,000
ROW		105,600	LF	$3	$317,000
Pump Station	11 HP	1	LS	$541,000	$541,000
Pump Station	8 HP	1	LS	$529,000	$529,000
Treated water Waxahachie to Italy & Ellis Co Other					
Tap fee		1	LS	$60,000	$60,000
Pipe	12 in.	79,200	LF	$52	$4,118,000
ROW		79,200	LF	$5	$396,000
Pump Station	32 HP	1	LS	$606,000	$606,000
Treated water from Midlothian to Mountain Peak					
Pipe	10 in.	31,680	LF	$43	$1,362,000
ROW		31,680	LF	$5	$158,000
Pump Station	15 HP	1	LS	$551,000	$551,000
Treated water from Ennis to Bardwell					
Pipe	6 in.	36,960	LF	$26	$961,000
ROW		36,960	LF	$3	$111,000
Pump Station	9 HP	1	LS	$534,000	$534,000
Enigneering & Contingencies (30% pipelines, 35% for pump stations)					$10,511,000
Permitting and Mitigation (1%)					$406,000
SUBTOTAL PIPELINES & PUMP STATIONS					$47,068,000

Table Q-74, Continued

	Ennis	Midlothian	Rockett SUD	Waxahachie	TRA	Total
Capital Cost Subtotal	**$31,394,000**	**$89,440,000**	**$35,548,000**	**$35,548,000**	**$47,068,000**	**$238,998,000**
Interest During Construction (24 Months)	$2,563,900	$7,304,600	$2,903,200	$2,903,200	$3,844,100	$19,519,000
TOTAL CAPITAL COST	**$33,957,900**	**$96,744,600**	**$38,451,200**	**$38,451,200**	**$50,912,100**	**$258,517,000**
ANNUAL COSTS	**Ennis**	**Midlothian**	**Rockett SUD**	**Waxahachie**	**TRA**	**Total**
Debt Service	$2,467,100	$7,028,400	$2,793,400	$2,793,400	$3,698,700	$18,781,000
Operation and Maintenance Costs						
Pipeline (1%)					$317,000	$317,000
Pump Station (2.5%)					$221,000	$221,000
Estimated Annual Power Cost					$3,000	$3,000
Treated Water Cost	$1,534,000	$4,602,000	$2,557,000	$2,557,000		$11,250,000
Water Purchase from TRWD					$11,059,000	$11,059,000
Total Annual Costs	**$4,001,100**	**$11,630,400**	**$5,350,400**	**$5,350,400**	**$15,298,700**	**$41,631,000**
UNIT COSTS (Pre-Amortization)						
Per Acre-Foot	$ 595	$ 576	$ 477	$ 477	$ 2,879	$ 782
Per 1,000 Gallons	$ 1.83	$ 1.77	$ 1.46	$ 1.46	$ 8.84	$ 2.40
UNIT COSTS (After Amortization)						
Per Acre-Foot	$ 228	$ 228	$ 228	$ 228	$ 218	$ 429
Per 1,000 Gallons	$ 0.70	$ 0.70	$ 0.70	$ 0.70	$ 0.67	$ 1.32

Table Q-75
Trinity River Authority Las Colinas Reuse (Dallas County Irrigation)

Owner: Trinity River Authority
Amount: 7,000 Ac-Ft/Yr

	Size	Quantity	Unit	Unit Price	Cost
CAPITAL COSTS					
Cost of Additional Pipeline	24 in	44,500	LF	$ 174	$7,743,000
Engineering & Contingencie (30%)					$2,323,000
Total Pipeline Cost					**$10,066,000**
Cost of Pump Station	770 HP	1	LS	$ 2,441,600	$2,442,000
Engineering & Contingencie (35%)					$855,000
Total Pump Station Cost					**$3,297,000**
TOTAL CAPITAL COST					**$13,363,000**
Permitting and Mitigation					**$122,000**
Interest during Construction (24 months)					**$1,045,000**
TOTAL COST					**$14,530,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$1,055,589
Electricity ($0.06 kWh)					$199,418
Operation & Maintenance					$166,176
Purchase of Treated Wastewater for Reuse			$81.46/ac-ft		$570,220
Total Annual Costs					**$1,991,403**
UNIT COSTS (Pre-Amortization)					
Per Acre-Foot					$284
Per 1,000 gallons					$0.87
UNIT COSTS (After Amortization)					
Per Acre-Foot					$134
Per 1,000 gallons					$0.41

Note: Cost to purchase reuse water is assumed to be $81.46 per acre-foot.

Table Q-76
Trinity River Authority Dallas County Reuse for Steam Electric Power

Owner: Trinity River Authority
Amount: 4,500 Ac-Ft/Yr

CAPITAL COSTS	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Cost of Pipeline	20 in	52,800	LF	$ 135	$7,128,000
Right of Way Easements (ROW)		52,800	LF	$ 28	$1,478,000
Engineering & Contingencies (30%)					$2,138,000
Total Pipeline Cost					**$10,744,000**
Cost of Pump Station	830 HP	1	LS	$ 2,551,400	$2,551,000
Engineering & Contingencies (35%)					$893,000
Total Pump Station Cost					**$3,444,000**
TOTAL CAPITAL COST					**$14,188,000**
Permitting and Mitigation					**$116,000**
Interest during Construction (12 months)					**$591,000**
Total Raw Water Delivery Capital Cost					**$14,895,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$1,082,000
Electricity ($0.09 kWh)					$141,000
Operation & Maintenance					$162,000
Purchase of Reuse Water					$367,000
Total Annual Costs					**$1,752,000**
UNIT COSTS (During Amortization)					
Per Acre-Foot					$389
Per 1,000 gallons					$1.19
UNIT COSTS (During Amortization)					
Per Acre-Foot					$149
Per 1,000 gallons					$0.46

Note: Cost to purchase reuse water is assumed to be $0.25 per thousand gallons.

Table Q-77
Trinity River Authority Ellis County Reuse for Steam Electric Power

Owner: Trinity River Authority
Amount: 2,200 Ac-Ft/Yr

CAPITAL COSTS	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Cost of Pipeline	16 in	52,800	LF	$ 103	$5,438,000
Right of Way Easements (ROW)		52,800	LF	$ 12	$634,000
Engineering & Contingencies (30%)					$1,631,000
Total Pipeline Cost					**$7,703,000**
Cost of Pump Station	350 HP	1	LS	$ 1,618,000	$1,618,000
Engineering & Contingencies (35%)					$566,000
Total Pump Station Cost					**$2,184,000**
TOTAL CAPITAL COST					**$9,887,000**
Permitting and Mitigation					**$85,000**
Interest during Construction (12 months)					**$412,000**
Total Raw Water Delivery Capital Cost					**$10,384,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$754,000
Electricity ($0.09 kWh)					$64,000
Operation & Maintenance					$114,000
Purchase of Reuse Water					$179,000
Total Annual Costs					**$1,111,000**
UNIT COSTS (During Amortization)					
Per Acre-Foot					$505
Per 1,000 gallons					$1.55
UNIT COSTS (During Amortization)					
Per Acre-Foot					$162
Per 1,000 gallons					$0.50

Note: Cost to purchase reuse water is assumed to be $0.25 per thousand gallons.

Table Q-78
Trinity River Authority Freestone County Reuse for Steam Electric Power

Owner: Trinity River Authority
Amount: 6,672 ac-ft/yr

CAPITAL COSTS

Phase 1

	Size	Quantity	Units	Unit Price	Cost
Transmission Facilities					
Pipeline (Rural)	24 in.	79,200	LF	$116	$ 9,195,000
Right of Way Easements (Rural)	20 ft.	79,200.0	LF	$5	$ 396,000
Pipeline Eng &Contingencies (30%)					$ 2,759,000
Pipeline Subtotal					**$ 12,350,000**
Pump Station (Intake)	700 HP	1	LS	$3,021,000	$ 3,021,000
Engineering and Contingencies (35%)					$ 1,057,000
Pump Station Subtotal					**$ 4,078,000**
Permitting and Mitigation					**$ 147,000**
Interest During Construction			**(12 months)**		**$ 691,000**
TOTAL CAPITAL COST					**$ 17,266,000**

ANNUAL COSTS

	Cost
Debt Service (6%, 30 years)	$ 1,254,000
Pipeline O&M (1%)	$ 110,000
Pump O&M (2.5%)	$ 91,000
Electricity	$ 188,000
Purchase of Reuse Water	$ 543,768
TOTAL ANNUAL COST	**$ 2,186,768**

Phase 1 Unit Costs (Pre-Amortization)

Cost per acre-ft	$ 312
Cost per 1000 gallons	$ 0.96

Phase 1 Unit Costs (After Amortization)

Cost per acre-ft	$ 133
Cost per 1000 gallons	$ 0.41

Table Q-79
Trinity River Authority Kaufman County Reuse for Steam Electric Power

Owner: Trinity River Authority
1,000 ac-ft/yr

CAPITAL COSTS

	Size	Quantity	Units	Unit Price		Cost
Transmission Facilities						
Pipeline (Suburban)	16 in.	79,200	LF	$69	$	5,449,000
Right of Way Easements (Suburban)	20 ft.	79,200	LF	$12	$	950,000
Pipeline Eng &Contingencies (30%)					$	1,635,000
Pipeline Subtotal					**$**	**8,034,000**
Pump Station	80 HP	1	LS	$933,076	$	933,076
Engineering and Contingencies (35%)					$	327,000
Pump Station Subtotal					**$**	**1,260,076**
Permitting and Mitigation					**$**	**77,000**
Interest During Construction			**(12 months)**		**$**	**390,000**
TOTAL CAPITAL COST					**$**	**9,761,076**

ANNUAL COSTS

		Cost
Debt Service (6%, 30 years)	$	709,000
Pipeline O&M (1%)	$	65,000
Pump O&M (2.5%)	$	28,000
Electricity	$	17,000
Purchase of Reuse Water	$	82,000
TOTAL ANNUAL COST	**$**	**901,000**
Phase 1 Unit Costs (Pre-Amortization)		
Cost per acre-ft	$	901
Cost per 1000 gallons	$	2.77
Phase 1 Unit Costs (After Amortization)		
Cost per acre-ft	$	192
Cost per 1000 gallons	$	0.59

Table Q-80
Trinity River Authority - Tarrant County Water Supply Project Expansions

Owner:	Trinity River Authority		
Supply:	7,473	Ac-Ft/Yr	

WATER TREATMENT PLANT EXPANSION # 1 (2014)	**Quantity**	**Unit**	**Cost**
Cost of WTP Expansion	15	MGD	$20,900,000
Engineering & Contingencies (35%)			$7,315,000
Subtotal			**$28,215,000**
Interest During Construction	**(18 months)**		**$1,289,000**
TOTAL COST FOR EXPANSION #1			**$29,504,000**
ANNUAL COSTS FOR EXPANSION #1			
Debt Service (6% for 30 years)			$2,143,000
Raw Water Purchase ($0.68/1,000 gallons)			$1,655,000
Operation & Maintenance ($0.35/1,000 gallons)	2,433,333	1,000 gal.	$852,000
Total Annual Costs			**$4,650,000**
UNIT COSTS (Pre-Amortization)			
Per Acre-Foot			$622
Per 1,000 Gallons			$1.91
UNIT COSTS (After Amortization)			
Per Acre-Foot			$335
Per 1,000 Gallons			$1.03

WATER TREATMENT PLANT EXPANSION # 2 (2020)	**Quantity**	**Unit**	**Cost**
Cost of WTP Expansion	15	MGD	$20,900,000
Engineering & Contingencies (35%)			$7,315,000
Subtotal			**$28,215,000**
Interest During Construction	**(18 months)**		**$1,289,000**
TOTAL COST FOR EXPANSION #2			**$29,504,000**

Table Q-80, Continued

ANNUAL COSTS FOR EXPANSION #2		
Debt Service (6% for 30 years)		$2,143,000
Raw Water Purchase ($0.68/1,000 gallons)		$1,655,000
Operation & Maintenance ($0.35/1,000 gallons)	2,433,333 1,000 gal.	$852,000
Total Annual Costs		**$4,650,000**
UNIT COSTS (Pre-Amortization)		
Per Acre-Foot		$622
Per 1,000 Gallons		$1.91
UNIT COSTS (After Amortization)		
Per Acre-Foot		$335
Per 1,000 Gallons		$1.03

Table Q-81
Trinity River Authority Reuse from Denton Creek Wastewater Treatment Plant

Owner:	Trinity River Authority		
Amount:	15,000	Ac-Ft/Yr	
Irrigation	7,500	Ac-Ft/Yr	Denton and Tarrant Counties
Municipal	7,500	Ac-Ft/Yr	Tarrant County

IRRIGATION FOR DENTON AND TARRANT COUNTIES

	Size	Quantity	Unit	Unit Price	Cost
Cost of Additional Pipeline					
Main Pipeline	24 in	18,000	LF	$174	$3,132,000
Distribution Pipeline	8 in	17,500	LF	$52	$910,000
Right of Way Easements (Urban)		18,000	LF	$28	$504,000
		17,500	LF	$21	$368,000
Engineering & Contingenices (30%)					$1,213,000
Total Pipeline Cost					**$6,127,000**
Pump Station					$798,000
Chlorine Bleach Facility					$145,000
3 - 7 MG Storage Ponds					$571,000
Potable Water Supply Backup Water					$87,000
Engineering and Contingencies (35%)					$560,000
Total Pump Station & Facilities Cost					**$2,161,000**
Cost of Permitting					**$500,000**
Interest During Construction			**(24 months)**		**$718,000**
Total Capital Cost					**$9,506,000**
Denton County Capital Cost					**$6,337,000**
Tarrant County Capital Cost					**$3,169,000**
ANNUAL COSTS (Denton County)					
Debt Service (6% for 30 years)					$460,000
Electricity					86,000
Chlorine Cost					75,000
Operation & Maintenance					$58,000
Purchase of Reuse Water					$407,000
Total Annual Costs					**$1,086,000**

Table Q-81, Continued

UNIT COSTS - Denton County (With Debt Service)	
Per Acre-Foot	$217
Per 1,000 gallons	$0.67
UNIT COSTS - Denton County (Without Debt Service)	
Per Acre-Foot	$125
Per 1,000 gallons	$0.38
ANNUAL COSTS (Tarrant County)	
Debt Service (6% for 30 years)	$230,000
Electricity	
Chlorine Cost	
Operation & Maintenance	$29,000
Purchase of Reuse Water	$204,000
Total Annual Costs	**$463,000**
UNIT COSTS - Tarrant County (With Debt Service)	
Per Acre-Foot	$185
Per 1,000 gallons	$0.57
UNIT COSTS - Tarrant County (Without Debt Service)	
Per Acre-Foot	$93
Per 1,000 gallons	$0.29

MUNICIPAL REUSE TO LAKE GRAPEVINE

Assume no Capital Costs	$0.00
ANNUAL COSTS (Tarrant County)	
Purchase of Reuse Water	$611,000
UNIT COSTS - Tarrant County	
Per Acre-Foot	$81
Per 1,000 gallons	$0.25

Note: Cost to purchase reuse water is assumed to be $81.46 per acre-foot.

Table Q-82
Freestone County S. E. Power by TRA from Tarrant Regional Water District

Owner: Unknown
Amount: 3,745 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	14 in.	26,400	LF	$60	$1,589,000
Right of Way Easements (ROW)	20 ft.	26,400	LF	$5	$132,000
Engineering and Contingencies (30%)					$516,000
Subtotal of Pipeline					**$2,237,000**
Pump Station(s)					
Booster Pump Station	600 HP	1	LS	$2,150,000	$2,150,000
Engineering and Contingencies (35%)					$753,000
Subtotal of Pump Station(s)					**$2,903,000**
Permitting and Mitigation					**$45,000**
CONSTRUCTION TOTAL					**$5,185,000**
Interest During Construction			**(12 months)**		**$216,000**
TOTAL COST					**$5,401,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$392,000
Electricity ($0.09 kWh)					$181,000
Raw Water ($0.72 per 1,000 gallons)					$879,000
Operation & Maintenance					$84,000
Total Annual Costs					**$1,536,000**
UNIT COSTS (during amortization)					
Per Acre-Foot					$410
Per 1,000 Gallons					$1.26

Table Q-83
Upper Trinity Regional Water District Direct Reuse

Owner: Upper Trinity Regional Water District
Amount: 2,240 Ac-Ft/Yr

CAPITAL COSTS	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Cost of Pipeline	16 in	52,800	LF	$ 103	$5,438,000
Right of Way Easements (ROW)		52,800	LF	$ 28	$1,478,000
Engineering & Contingencies (30%)					$1,631,000
Total Pipeline Cost					**$8,547,000**
Cost of Pump Station	360 HP	1	LS	$ 1,653,400	$1,653,000
Engineering & Contingencies (35%)					$579,000
Total Pump Station Cost					**$2,232,000**
TOTAL CAPITAL COST					**$10,779,000**
Permitting and Mitigation					**$85,000**
Interest during Construction (12 months)					**$449,000**
Total Raw Water Delivery Capital Cost					**$11,313,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$822,000
Electricity ($0.09 kWh)					$66,000
Operation & Maintenance					$115,000
Purchase of Reuse Water					$183,000
Total Annual Costs					**$1,186,000**
UNIT COSTS (During Amortization)					
Per Acre-Foot					$529
Per 1,000 gallons					$1.62
UNIT COSTS (During Amortization)					
Per Acre-Foot					$163
Per 1,000 gallons					$0.50

Note: Cost to purchase reuse water is assumed to be $0.25 per thousand gallons.

Table Q-84
UTRWD Water Treatment Plant and
Treated Water Distribution System Water Management Strategies

OWNER: UTRWD

Project	Date	Capital Budget (Including E&C and Interest)
2010-2019 Projects		
Southwest Pipeline Phase 3	2010	$5,680,000
RTWS Improvements (Power/Communications)	2010	$300,000
Eval of RTWS Hypo-Gen/Ozone System	2010	$1,850,000
Equipment/Vehicle Storage Building	2010	$600,000
Assist Flower Mound-Activate SW Pipeline	2011	$665,000
Northlake Pipeline Point of Delivery	2011	$190,000
Southwest Pipeline Phase 2 Sec 3A	2012	$3,890,000
Southwest Pipeline Phase 2 Sec 3B	2012	$8,000,000
Southwest Pumpstation / Ground Storage	2012	$5,540,000
Lake Chapman Improvements Dredging	2012	$250,000
Harpool Additional Raw Water Storage Lake	2013	$2,205,000
Raw Water Pipeline from Harpool Additional Storage to Harpool WTP	2013	$4,500,000
Harpool Disinfection / Ozone	2013	$3,500,000
Ray Roberts Raw Water Alignment Study / ROW	2014	$18,350,000
Harpool In-Line Booster PS at N.E. Pipeline	2015	$550,000
Aubrey Pipeline	2016	$4,500,000
West Loop, Ponder	2017	$5,610,000
Parallel Pipeline RWTP to Stone Hill PS	2018	$15,100,000
Harpool WTP Expansion - Ph 2 to 30 MGD	2019	$20,000,000
Pilot Point Pipeline (NE Denton Co. Finshed Water Pipeline	2019	$16,600,000
Raw Water Pipeline from Ray Roberts	2019	$25,000,000
Total, 2010-2019 Projects		**$142,880,000**
Annual Costs for 2010-2019 Projects		
Debt Service (6% interest, 30 year bonds)		$10,380,000
Power (Estimated)		$3,004,500
Water Treatment Plant Operation (5,000,000 gallons at $0.70 per 1,000 gallons)		$3,500,000
Operation and Maintenance		$1,074,000
Total Pre-Amortization		**$17,958,500**
Total After Amortization		**$7,578,500**

Table Q-84, Continued

2020-2029 Projects		
Northeast Loop to Sanger (Denton)	2020	$5,000,000
West Loop, Ponder-Krum	2021	$5,860,000
RTWP Expansion (from 70 MGD to 82 MGD)	2021	$28,000,000
Parallel Raw Water Line from Intake	2121	$10,000,000
North Pipeline (PH3) (Harpool WTP to Celina)	2023	$3,820,000
NE Loop - Aubrey to Sanger Pipeline (Denton)	2024	$6,000,000
Parallel Line under Lewisville Lake	2025	$18,000,000
NE Pump Station (Aubrey/Pilot Point/Colonial/Sanger)	2029	$6,000,000
NE Pump Station (Northlake/Ponder/Krum/Sanger)	2029	$6,000,000
Total, 2020-2029 Projects		**$88,680,000**
Annual Costs for 2020-2029 Projects		
Debt Service (6% interest, 30 year bonds)		$6,443,000
Power (Estimated)		$3,000,000
Water Treatment Plant Operation (6,000,000 gallons at $0.70 per 1,000 gallons)		$4,200,000
Operation and Maintenance		$787,000
Total Pre-Amortization		**$14,430,000**
Total After Amortization		**$3,787,000**
2030-2040 Projects		
Water Treatment Plant Expansion (60 MGD)		$63,500,000
Other Pipeline Projects (estimated)		$26,400,000
Other Pump Station Projects (estimated)		$6,600,000
Engineering and Contingencies (30% for Pipelines, 35% for others)		$32,455,000
Interest during Contruction (18 months)		$7,953,000
Total, 2030-2040 Projects		**$136,908,000**
Annual Costs for 2030-2040 Projects		
Debt Service (6% interest, 30 year bonds)		$9,946,000
Power (Estimated)		$3,489,000
Water Treatment Plant Operation (10,950,000 gallons at $0.70 per 1,000 gallons)		$7,665,000
Operation and Maintenance		$515,000
Total Pre-Amortization		**$21,615,000**
Total After Amortization		**$11,669,000**

Table Q-84, Continued

2040-2050 Projects	
Water Treatment Plant Expansion (40 MGD)	$45,500,000
Other Pipeline Projects (estimated)	$26,400,000
Other Pump Station Projects (estimated)	$6,600,000
Engineering and Contingencies (30% for Pipelines, 35% for others)	$26,155,000
Interest during Contruction (18 months)	$6,454,000
Total, 2040-2050 Projects	**$111,109,000**
Annual Costs for 2040-2050 Projects	
Debt Service (6% interest, 30 year bonds)	$8,072,000
Power (Estimated)	$3,489,000
Water Treatment Plant Operation (7,300,000 gallons at $0.70 per 1,000 gallons)	$5,110,000
Operation and Maintenance	$515,000
Total Pre-Amortization	**$17,186,000**
Total After Amortization	**$9,114,000**
2050-2060 Projects	
Water Treatment Plant Expansion (40 MGD)	$45,500,000
Other Pipeline Projects (estimated)	$26,400,000
Other Pump Station Projects (estimated)	$6,600,000
Engineering and Contingencies (30% for Pipelines, 35% for others)	$26,155,000
Interest during Contruction (18 months)	$6,454,000
Total, 2050-2060 Projects	**$111,109,000**
Annual Costs for 2050-2060 Projects	
Debt Service (6% interest, 30 year bonds)	$8,072,000
Power (Estimated)	$2,310,000
Water Treatment Plant Operation (7,300,000 gallons at $0.70 per 1,000 gallons)	$5,110,000
Operation and Maintenance	$515,000
Total Pre-Amortization	**$16,007,000**
Total After Amortization	**$7,935,000**
TOTAL CAPITAL COST	**$590,686,000**

Table Q-85
Upper Trinity Regional Water District Alternative Strategy Costs

Capital Costs

Strategy		Basis for Cost		UTRWD Cost	
	User	Amount	Capital Cost	Amount	Capital Cost
Toledo Bend	NTMWD	200,000	$1,239,762,000	48,000	$297,543,000
Wright Patman - System	DWU	130,000	$1,020,655,000	38,000	$298,345,000
Wright Patman - Raise Flood Pool	DWU	112,100	$896,478,000	38,000	$303,891,000
Wright Patman - Texarkana	DWU	100,000	$759,568,000	38,000	$288,636,000
Texoma - Blend	All	113,000	$531,378,300	25,000	$117,562,000
George Parkhouse North	NTMWD	118,960	$516,585,000	35,000	$151,988,000
George Parkhouse South	NTMWD	108,480	$645,810,000	35,000	$208,364,000
Additional Reuse	Permitting	N/A	N/A	15,000	$1,000,000

Annual Costs

Strategy		Basis for Cost		
	User	Amount	Pre-Am	Post-Am
Toledo Bend	NTMWD	200,000	$146,037,689	$55,970,089
Wright Patman - System	DWU	130,000	$109,153,000	$35,003,000
Wright Patman - Raise Flood Pool	DWU	112,100	$85,415,000	$20,287,000
Wright Patman - Texarkana	DWU	100,000	$82,292,000	$27,110,000
Texoma - Blend	All	113,000	$50,301,000	$11,697,000
George Parkhouse North	NTMWD	118,960	$50,926,000	$13,397,000
George Parkhouse South	NTMWD	108,480	$60,572,000	$13,655,000
Additional Reuse	Permitting	N/A		

Strategy		Basis for Cost		
	UTRWD Amount	Pre-Am	Post-Am	Comments
Toledo Bend	48,000	$36,613,000	$14,997,000	Add $0.10 per thousand gal to pump to Lewisville
Wright Patman - System	38,000	$31,906,000	$10,232,000	DWU delivered to Lewisville
Wright Patman - Raise Flood Pool	38,000	$28,954,000	$6,877,000	
Wright Patman - Texarkana	38,000	$31,271,000	$10,302,000	
Texoma - Blend	25,000	$11,129,000	$2,588,000	
George Parkhouse North	35,000	$16,124,000	$5,082,000	Add $0.10 per thousand gal to pump to Lewisville
George Parkhouse South	35,000	$20,683,000	$5,546,000	
Additional Reuse	15,000	$72,649	$0.00	No annual costs

Table Q-85, Continued

Unit Costs

	UTRWD Amount	Pre-Am	Post-Am
Toledo Bend	48,000	$2.34	$0.96
Wright Patman - System	38,000	$2.58	$0.83
Wright Patman - Raise Flood Pool	38,000	$2.34	$0.56
Wright Patman - Texarkana	38,000	$2.53	$0.83
Texoma - Blend	25,000	$1.37	$0.32
George Parkhouse North	35,000	$1.41	$0.45
George Parkhouse South	35,000	$1.81	$0.49
Additional Reuse	15,000	$0.01	$0.00

Table Q-86
Grayson County Water Supply Project

Owner: GTUA
Amount: 24,640 Ac-Ft/Yr
44 MGD peak

TRANSMISSION FACILITIES							
Pipeline(s)	**Size**	**Qty.**	**Units**	**Unit Cost**	**Cost**	**GTUA Share of Costs**	**Sherman Share of Costs**
16" Water Line							
Pipe	16 in.	181,000	LF	$ 103	$ 18,643,000	$ 18,643,000	
ROW		181,000	LF	$ 12	$ 2,172,000	$ 2,172,000	
12" Water Line							
Pipe	12 in.	124,000	LF	$ 77	$ 9,548,000	$ 9,548,000	
ROW		124,000	LF	$ 12	$ 1,488,000	$ 1,488,000	
8" Water Line							
Pipe	8 in.	259,000	LF	$ 52	$ 13,468,000	$ 13,468,000	
ROW		259,000	LF	$ 9	$ 2,331,000	$ 2,331,000	
Engineering and Contingencies		30%			$ 14,295,000	$ 14,295,000	
Subtotal of Pipeline(s)					**$ 61,945,000**	**$ 61,945,000**	
Pump Station(s)							
Station 1							
Pump, building, & appurtances	300 HP	1	LS	$ 1,441,000	$ 1,441,000	$ 1,441,000	
Storage Tank	2.5 MG	1	LS	$ 1,086,000	$ 1,086,000	$ 1,086,000	
Station 2							
Pump, building, & appurtances	400 HP	1	LS	$ 1,795,000	$ 1,795,000	$ 1,795,000	
Storage Tank	4.0 MG	1	LS	$ 1,505,000	$ 1,505,000	$ 1,505,000	
Engineering and Contingencies		35%			$ 2,039,000	$ 2,039,000	
Subtotal of Pump Station(s)					**$ 7,866,000**	**$ 7,866,000**	
WATER TREATMENT FACILITIES							
New Treatment Plants							
Sherman	10 MGD	1	LS	$ 32,200,000	$ 32,200,000		$ 32,200,000
North Plant	1 MGD	1	LS	$ 7,400,000	$ 7,400,000	$ 7,400,000	
Northwest Plant	2 MGD	1	LS	$ 10,600,000	$ 10,600,000	$ 10,600,000	
Water Treatment Plant Expansions							
Sherman 1	10 MGD	1	LS	$ 25,800,000	$ 25,800,000		$ 25,800,000
Sherman 2	5 MGD	1	LS	$ 15,350,000	$ 15,350,000		$ 15,350,000
New Sherman 1	10 MGD	1	LS	$ 25,800,000	$ 25,800,000		$ 25,800,000
North Plant	3 MGD	1	LS	$ 10,600,000	$ 10,600,000	$ 10,600,000	
Northwest Plant 1	1 MGD	1	LS	$ 4,500,000	$ 4,500,000	$ 4,500,000	
Northwest Plant 2	2 MGD	1	LS	$ 7,550,000	$ 7,550,000	$ 7,550,000	
Engineering and Contingencies		35%			$ 48,930,000	$ 14,227,500	$ 34,702,500
Subtotal of Water Treatment Plant					**$ 188,730,000**	**$ 54,877,500**	**$ 133,852,500**
PERMITTING AND MITIGATION					**$ 2,247,000**	**$ 1,057,500**	**$ 1,189,500**
CONSTRUCTION TOTAL					**$ 260,788,000**	**$ 125,746,000**	**$ 135,042,000**

Table Q-86, Continued

Interest During Construction		(24 months)				**$ 21,299,000**		**$ 10,270,000**		**$ 11,029,000**
TOTAL CAPITAL COST						**$ 282,087,000**		**$ 136,016,000**		**$ 146,071,000**
ANNUAL COSTS										
Debt Service						$ 20,493,000		$ 9,881,000		$ 10,612,000
Operation and Maintenance Costs										
Pipeline	1%					$ 500,000		$ 500,000		
Pump Station	2.50%					$ 175,000		$ 175,000		
Estimated Annual Power Cost	$0.09/kWh					$ 206,000		$ 206,000		
WTP Operation - conventional	4,015,000	1000 gal	$	0.70		$ 2,811,000		$ 575,000		$ 2,236,000
WTP Operation - RO	4,015,000	1000 gal	$	1.24		$ 4,979,000		$ 1,018,500		$ 3,960,500
WTP Brine Disposal	1,003,750	1000 gal	$	0.35		$ 351,000		$ 72,000		$ 279,000
Raw Water Cost	27,720	Ac-Ft	$	163		$ 4,518,000		$ 924,000		$ 3,594,000
Subtotal Annual Costs						**$ 34,033,000**		**$ 13,351,500**		**$ 20,681,500**
UNIT COSTS (Until Amortized)										
Cost per ac-ft						$1,381		$542		$839
Cost per 1000 gallons						$4.24		$1.66		$2.58
UNIT COSTS (After Amortization)										
Cost per ac-ft						$550		$141		$409
Cost per 1000 gallons						$1.69		$0.43		$1.25

Note: Raw water is assumed to cost $163 per acre-foot.

Table Q-87
GTUA Collin-Grayson Municipal Alliance East-West Water Line

Owner:	GTUA (water from NTMWD)	
2060 Amount:	11,400	Ac-Ft/Yr

Transmission Facilities Estimate provided by GTUA

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Description	**Qty.**	**Units**	**Unit Cost**	**Total Cost**
18" Water Line (urban)	11,418	LF	$116	$1,324,488
18" Water Line by Boring (U.S. 75)	316	LF	$475	$150,100
18" Water Line by Boring (City Streets)	180	LF	$400	$72,000
18" Line Valves	5	EA	$10,500	$52,500
Air Release Valves	8	EA	$6,500	$52,000
Blow-off Assemblies	7	EA	$7,000	$49,000
Cathodic Test Stations	4	EA	$2,000	$8,000
Class G Embedment	80	LF	$60	$4,800
Crushed Stone for Trench Stabilization	50	CY	$40	$2,000
Replace Asphalt Pavement	100	SY	$45	$4,500
Replace Gravel Driveways	100	SY	$25	$2,500
Raise or Lower Waterline	30	LF	$100	$3,000
Replace Sewer Line	20	LF	$100	$2,000
Trench Safety	11,418	LF	$2	$22,836
SWPPP	11,418	LF	$1	$11,418
Clearing	34	STA	$500	$17,000
36" Water Line (rural)	2,930	LF	$184	$539,120
Total Construction Cost				$2,317,262
Engineering & Contingencies (20%)				$463,452
Inflation (5%)				$139,036
TRANSMISSION SUBTOTAL				$2,919,750
Easements	14,348	LF	$12	$172,000
Permitting & Mitigation				$29,000
Construction Total				**$3,120,750**
Interest During Construction (12 months)				$130,000
TOTAL CAPITAL COST				**$3,250,750**

Table Q-87, Continued

ANNUAL COSTS					
Debt Service					$236,000
Operation and Maintenance	1%				$23,000
Estimated Annual Power Cost	$0.09/kWh				$364,000
Treated Water Cost	3,714,701	1000 gal	$	2.50	$9,287,000
Total Annual Cost					$9,910,000
UNIT COSTS (First 30 Years)					
Cost per ac-ft					$869
Cost per 1000 gallons					$2.67
UNIT COSTS (After 30 Years)					
Cost per ac-ft					$849
Cost per 1000 gallons					$2.60

Table Q-88
GTUA Collin-Grayson Municipal Alliance Water Transmission System - Phase 2

Probable Owner: GTUA (water from NTMWD)
Quantity: 24,200 AF/Y

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline		**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
McKinney to Melissa Pipeline	Urban	42 in.	18,000	LF	$323	$5,814,000
McKinney to Melissa Pipeline	Rural	42 in.	15,000	LF	$215	$3,225,000
Melissa to Anna Pipeline	Rural	36 in.	23,000	LF	$184	$4,232,000
Anna to Weston Pipeline	Rural	30 in.	37,000	LF	$145	$5,365,000
Right of Way Easements Rural (ROW)			75,000	LF	$5	$375,000
Right of Way Easements Urban (ROW)			540,000	LF	$41	$22,140,000
Engineering and Contingencies (30%)						$5,591,000
Subtotal of Pipeline						**$46,742,000**
Pump Station(s)						
McKinney Pump Station		2200 HP	1	LS	$4,349,600	$4,350,000
Melissa Booster Pump Station		1800 HP	1	LS	$3,919,600	$3,920,000
Anna Booster Pump Station		1400 HP	2	LS	$3,394,800	$6,790,000
Engineering and Contingencies (35%)						$5,271,000
Subtotal of Pump Station(s)						**$20,331,000**
Ground Storage						
Ground Storage Tank at Melissa		5 MG	1	LS	$1,720,000	$1,720,000
Ground Storage Tank at Anna		3 MG	1	LS	$1,215,000	$1,215,000
Engineering and Contingencies (35%)						$1,027,250
Subtotal of Ground Storage						**$3,962,250**
CONSTRUCTION TOTAL						**$71,035,250**
Permitting and Mitigation						**$120,000**
Interest During Construction				**(12 months)**		**$2,960,000**
TOTAL COST						**$74,115,250**
ANNUAL COSTS						
Debt Service (6% for 30 years)						$5,384,000
Electricity ($0.09 kWh)						$1,058,000
Operation & Maintenance						$764,000
Treated Water Purchase			7,889,200	1000 gal	$ 2.50	$19,723,000
Total Annual Costs						**$26,929,000**

Table Q-88, Continued

UNIT COSTS (Until Amortized)	
Per Acre-Foot of treated water	$1,113
Per 1,000 Gallons	$3.41
UNIT COSTS (After Amortization)	
Per Acre-Foot	$890
Per 1,000 Gallons	$2.73

Table Q-89
Athens MWA - New Wells in Carrizo-Wilcox Aquifer
Henderson County, Carrizo-Wilcox Aquifer

Supply	1400	Ac-ft/yr	868 gpm
Depth to Water	106		
Well Depth	490		
Well Yield	434	gpm	
Well Size	12	in	
Wells Needed	4		

Construction Costs

	Number	Unit Cost	Total Cost
Water Wells	4	$250,000	$1,000,000
Connection to Transmission System	4	$50,000	$200,000
Engineering and Contingencies (30%)			$360,000
Subtotal of Well(s)			**$1,560,000**

Transmission System	Size	Quantity	Unit	Unit Cost	Total Cost
Pipeline - Rural	14 in.	15,840	LF	$60	$950,000
Pump Station	66 HP	1	EA	$500,000	$500,000
Ground Storage Tank	0.25MG	1	EA	$219,000	$219,000
Easement - Rural (assume 40% on MWA prop)					$15,000
Engineering and Contingencies (30% for pipelines, 35% for other items)					$460,000
Subtotal for Transmission					**2,144,000**

Permitting and Mitigation			$14,000
Construction Total			$3,718,000
Interest During Construction	6	months	$81,000
Total Capital Cost			**$3,799,000**
Debt Service - Total Capital			$276,000
O&M			
Transmission	1%		$14,000
Well(s) and Pump Station	2.5%		$45,000
Add Chemicals etc.	456,191	$0.30 per 1000 gal	$136,900
Pumping Costs			$42,000
		Total Annual Cost	**$513,900**

UNIT COSTS (First 30 Years)	
Cost per ac-ft	$367
Cost per 1000 gallons	$1.13
UNIT COSTS (After 30 Years)	
Cost per ac-ft	$170
Cost per 1000 gallons	$0.52

Table Q-90
Augmentation of Lake Athens with Reclaimed Water
Athens Municipal Water Authority

Treatment Scenario Number:	7
Lake Athens Limiting Factor:	50% Maximum Blend (Limiting Condition 4)
Polishing Treatment Choice:	Wetlands B

							Total Project
Annual Supply (ac-ft/yr)							1,938
CONSTRUCTION COSTS							
RECLAIMED WATER TREATMENT FACILITIES							
Wetlands B		**Qty.**	**Units**		**Unit Cost**		**Total Cost**
Facilities		82.0	acres	$	30,000	$	2,460,000
Land		82.0	acres	$	5,000	$	410,000
Engineering and Contingencies		35%				$	861,000
Subtotal of Wetlands B						**$**	**3,731,000**
TRANSMISSION FACILITIES							
Pipeline(s)	**Name**	**Qty.**	**Units**		**Unit Cost**		**Total Cost**
10" Water Line	B-1						
Pipeline		19,395	ea	$	65	$	1,261,000
ROW		19,395	lf	$	28	$	543,000
14" Water Line	B-2-a						
Pipeline		17,000	ea	$	90	$	1,530,000
ROW		17,000	lf	$	28	$	476,000
14" Water Line	B-2-b						
Pipeline		32,643	ft	$	60	$	1,959,000
ROW		32,643	lf	$	5	$	163,000
14" Water Line	B-3						
Pipeline		14,128	ea	$	60	$	848,000
ROW		14,128	lf	$	5	$	71,000
Discharge Structure		1.73	mgd			$	36,000
Engineering and Contingencies		30%				$	1,690,000
Subtotal of Pipeline(s)						**$**	**11,363,000**
Pump Station(s)		**Qty.**	**Units**		**Unit Cost**		**Total Cost**
West WWTP							
Pump, Building, & Appurtenances		37	hp				$617,000
North WWTP							
Pump, Building, & Appurtenances		110	hp				$780,000
Storage Tank		0.3	mg			$	311,000
Wetlands B							
Pump, Building, & Appurtenances		47	hp				$639,000
Engineering and Contingencies		35%				$	821,000
Subtotal of Pump Station(s)						**$**	**3,168,000**

Q-90, Continued

PERMITTING AND MITIGATION					
Pipelines	1%			$	108,000
Wetlands	3%			$	89,000
Water Rights and TPDES Discharge				$	100,000
Deep Well Injection				$	-
Subtotal of Permitting and Mitigation				**$**	**297,000**
CONSTRUCTION TOTAL				**$**	**18,559,000**
Interest During Construction		(24 months)		**$**	**1,516,000**
TOTAL CAPITAL COST				**$**	**20,075,000**
ANNUAL COSTS	**Qty.**	**Units**	**Unit Cost**		**Total Cost**
Debt Service				$	1,458,000
Treatment Facilities O&M Costs					
Wetlands B	82	acres	$ 1,000	$	82,000
Transmission Facilities O&M Costs					
Pipeline	1%			$	80,000
Pump Station	2.50%			$	70,000
Power	168	hp	$ 0.090	$	99,000
Brine Disposal Facilities O&M Costs					
Well	1.00%			$	-
Chemicals	0	1000 gal	$ 0.11	$	-
Power	0	hp	$ 0.09	$	-
TOTAL ANNUAL COST (First 30 Years)				**$**	**1,789,000**
TOTAL ANNUAL COST (After 30 Years)				**$**	**331,000**

UNIT COSTS	
Cost per Acre-Foot	**Full Project**
First 30 Years	$923
After 30 Years	$171
Cost per 1,000 Gallons	
First 30 Years	$2.83
After 30 Years	$0.52

Table Q-91

Obtain Water from Forest Grove Reservoir and Transport to New 4 MGD WTP West side of Athens with 4 MGD WTP expansion in 2060

Probable Owner:	Athens MWA	Year:	2040	
Amount:	4,480 Acre-Feet/Year		8.0	MGD design for pipeline
Initial WTP	2240 ac-ft/yr		4.0	MGD design
WTP Expansion	2240 ac-ft/yr		4.0	MGD design

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	24 in.	21,120	LF	$116	$2,450,000
Pipeline Urban	24 in.	5,280	LF	$174	$919,000
Right of Way Easements (Rural)		21,120	LF	$5	$106,000
Right of Way Easements (Urban)		5,280	LF	$28	$148,000
Engineering and Contingencies (30%)					$1,011,000
Subtotal of Pipeline					**$4,634,000**
Pump Station(s)					
Intake and Pump Station	450 HP	1	EA	$2,540,000	$2,540,000
Engineering and Contingencies (35%)					$889,000
Subtotal of Pump Station(s)					**$3,429,000**
Water Treatment Plant					
Cost of WTP			4	MGD	$12,325,000
Engineering & Contingencies (35%)					$4,314,000
Subtotal					**$16,639,000**
Permitting and Mitigation		1	LS		$182,000
CONSTRUCTION TOTAL					**$24,884,000**
Interest During Construction		**(18 months)**			**$1,535,000**
Permitting associated with Water Rights Transfer					$200,000
TOTAL CAPITAL COST					**$26,619,000**
ANNUAL COSTS TREATED WATER					
Debt Service (6% for 30 years)					$1,934,000
Raw water purchase					$0
Electricity ($0.09 kWh)					$58,000
Treatment, Operation & Maintenance					$627,562
Total Annual Costs					**$2,619,562**

Table Q-91, Continued

UNIT COSTS - (During Amortization)	
Per Acre-Foot of water	$585
Per 1,000 Gallons of raw water	$1.79
UNIT COSTS - (After Amortization)	
Per Acre-Foot of water	$153
Per 1,000 Gallons of raw water	$0.47

Table Q-92
Water Treatment Plant Expansion at City of Athens - Forest Grove

Probable Owner: Athens MWA
Amount: 2,240 Acre-Feet/Year

CONSTRUCTION COSTS					
WATER TREATMENT FACILITIES					
New Treatment Plant at City	4.0 MGD	1	LS	$12,325,000	$12,325,000
Engineering and Contingencies (35%)					$4,314,000
Subtotal of Treatment					**$16,639,000**
Permitting of treatment plant					$147,900
CONSTRUCTION TOTAL					**$16,786,900**
Interest During Construction			**(18 months)**		**$1,035,000**
TOTAL CAPITAL COST					**$17,821,900**
ANNUAL COSTS TREATED WATER					
Debt Service (6% for 30 years)					$1,294,700
Electricity ($0.09 kWh)					$58,000
Facility Operation & Maintenance					$0
Water Treatment ($.70/1,000 gal finished water)		2,240	af/y		$510,900
Total Annual Costs					**$1,863,600**
UNIT COSTS (During Amortization)					
Per Acre-Foot of treated water					$832
Per 1,000 Gallons of treated water					$2.55
UNIT COSTS (After Amortization)					
Per Acre-Foot of treated water					$254
Per 1,000 Gallons of treated water					$0.78

Table Q-93

Obtain Water from Cedar Creek and Transport Portion to New 4 MGD WTP West side of Athens with 4 MGD WTP expansion in 2060

Probable Owner:	Athens MWA	Year:	2040	
Amount:	4,480 Acre-Feet/Year		8.0	MGD design for pipeline
Initial WTP	2240 ac-ft/yr		4.0	MGD design
WTP Expansion	2240 ac-ft/yr		4.0	MGD design

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	24 in.	55,440	LF	$116	$6,431,000
Pipeline Urban	24 in.	5,280	LF	$174	$918,700
Right of Way Easements (Rural)		55,440	LF	$5	$277,200
Right of Way Easements (Urban)		5,280	LF	$28	$147,800
Engineering and Contingencies (30%)					$2,205,000
Subtotal of Pipeline					**$9,979,700**
Pump Station(s)					
Intake and Pump Station	690 HP	1	EA	$3,000,000	$3,000,000
Engineering and Contingencies (35%)					$1,050,000
Subtotal of Pump Station(s)					**$4,050,000**
Water Treatment Plant					
Cost of WTP			4	MGD	$12,325,000
Engineering & Contingencies (35%)					$4,313,750
Subtotal					**$16,638,750**
Permitting and Mitigation		1	LS		$226,700
CONSTRUCTION TOTAL					**$30,895,150**
Interest During Construction		**(18 months)**			**$1,905,000**
Permitting associated with Water Rights Transfer					$200,000
TOTAL CAPITAL COST					**$33,000,150**
ANNUAL COSTS RAW WATER					
Debt Service (6% for 30 years)					$2,397,400
Raw water purchase					$1,007,000
Electricity ($0.09 kWh)					$123,000
Treatment, Operation & Maintenance					$1,200,065
Total Annual Costs					**$4,727,465**

Table Q-93, Continued

UNIT COSTS - (During Amortization)	
Per Acre-Foot of treated water	$1,055
Per 1,000 Gallons of treated water	$3.24
UNIT COSTS - (After Amortization)	
Per Acre-Foot of treated water	$520
Per 1,000 Gallons of treated water	$1.60

Table Q-94
Purchase water from Lake Palestine for Athens MWA

Probable Owner: Athens MWA
Amount: 4,000 Acre-Feet/Year 4.46 MGD design

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	24 in.	80,000	LF	$116	$9,280,000
Pipeline Urban	24 in.	0	LF	$174	$0
Right of Way Easements (Rural)		80,000	LF	$5	$400,000
Right of Way Easements (Urban)		0	LF	$28	$0
Engineering and Contingencies (30%)					$2,784,000
Subtotal of Pipeline					**$12,464,000**
Pump Station(s)					
Intake and Pump Station at Lake Palestine	210 HP	1	EA	$1,527,000	$1,527,000
Engineering and Contingencies (35%)					$534,000
Subtotal of Pump Station(s)					**$2,061,000**
Permitting and Mitigation		1	LS		$108,100
CONSTRUCTION TOTAL					**$14,633,100**
Interest During Construction		**(12 months)**			**$610,000**
UNRMWA Buy-in Cost					$100,000
TOTAL CAPITAL COST					**$15,343,100**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$1,114,660
Raw water purchase					$195,511
Electricity ($0.09 kWh)					$91,000
Facility Operation & Maintenance					$157,170
Total Annual Costs					**$1,558,341**
UNIT COSTS (During Amortization)					
Per Acre-Foot of raw water					$390
Per 1,000 Gallons of raw water					$1.20
UNIT COSTS (After Amortization)					
Per Acre-Foot of raw water					$111
Per 1,000 Gallons of raw water					$0.34

Table Q-95
Purchase Water from DWU for Athens MWA

Probable Owner: Athens MWA
Amount: 4,000 Acre-Feet/Year 4.46 MGD design

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	24 in.	2,000	LF	$116	$232,000
Pipeline Urban	24 in.	0	LF	$174	$0
Incremental cost for DWU pipeline					$1,115,125
Right of Way Easements (Rural)		2,000	LF	$5	$10,000
Right of Way Easements (Urban)		0	LF	$28	$0
Engineering and Contingencies (30%)					$70,000
Subtotal of Pipeline					**$1,427,125**
Pump Station(s)					
Assume sufficient head at junction to reach Lake Athens					$0
Engineering and Contingencies (35%)					$0
Subtotal of Pump Station(s)					**$0**
Permitting and Mitigation		1	LS		$16,200
CONSTRUCTION TOTAL					**$1,443,325**
Interest During Construction		**(6 months)**			**$31,000**
TOTAL CAPITAL COST					**$1,474,325**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$107,100
Raw water purchase					$536,700
Electricity ($0.09 kWh)					$0
Facility Operation & Maintenance					$16,200
Total Annual Costs					**$660,000**
UNIT COSTS (During Amortization)					
Per Acre-Foot of raw water					$165
Per 1,000 Gallons of raw water					$0.51
UNIT COSTS (After Amortization)					
Per Acre-Foot of raw water					$138
Per 1,000 Gallons of raw water					$0.42

Table Q-96
Corsicana WTP Expansion at Navarro Mills Lake - Alternative Strategy

Owner: Corsicana

WATER TREATMENT PLANT		**Quantity**	**Unit**	**Cost**
Cost of WTP Expansion		5	MGD	$10,150,000
Engineering & Contingencies (35%)				$3,552,500
Subtotal				**$13,702,500**
Interest During Construction	**(18 months)**			**$845,000**
TOTAL COST FOR EXPANSION				**$14,547,500**
ANNUAL COSTS FOR EXPANSION				
Debt Service (6% for 30 years)				$1,057,000
Operation & Maintenance ($0.70/1,000 gal)		912,500	1,000 gal	$639,000
Total Annual Costs				**$1,696,000**
UNIT COSTS (1st 30 years)				
Per Acre-Foot				$605
Per 1,000 Gallons				$1.86
UNIT COSTS (after 30 years)				
Per Acre-Foot				$228
Per 1,000 Gallons				$0.70

Table Q-97
Corsicana WTP at Lake Halbert
(To replace existing 4 MGD WTP)

Owner: Corsicana
Amount: 4,480 acre-feet/year

Pump Station(s)	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pump Station at Richland-Chambers	500 HP	1	LS	$2,698,000	$2,698,000
Engineering and Contingencies (30%)					$809,400
Subtotal of Pump Station(s)					**$3,507,400**
WATER TREATMENT FACILITIES					
New Water Treatment Plant (2020)					
Cost of WTP		8	MGD		$20,000,000
Engineering & Contingencies (35%)					$7,000,000
Subtotal					**$27,000,000**
Interest During Construction		**(18 months)**			**$1,881,000**
TOTAL COST FOR NEW WATER TREATMENT PLANT (2020)					**$32,388,400**
ANNUAL COSTS FOR NEW WATER TREATMENT PLANT					
Debt Service (6% for 30 years)					$2,353,000
Electricity ($0.09 kWh)					$62,000
Operation & Maintenance (pump station)					$81,000
Total Annual Costs					**$2,496,000**
UNIT COSTS (first 30 years)					
Per Acre-Foot					$557
Per 1,000 Gallons					$1.71
UNIT COSTS (after 30 years)					
Per Acre-Foot					$32
Per 1,000 Gallons					$0.10

Table Q-97, Continued

2040 EXPANSION			
WATER TREATMENT PLANT EXPANSIONS	**Quantity**	**Unit**	**Cost**
Cost of WTP Expansions	8	MGD	$13,933,000
Engineering & Contingencies (35%)			$4,876,550
Subtotal			**$18,809,550**
Interest During Construction	**(18 months)**		**$1,160,000**
TOTAL COST FOR 2040 EXPANSION			**$19,969,550**
ANNUAL COSTS FOR YEAR 2040 EXPANSION			
Debt Service (6% for 30 years)			$1,451,000
Operation & Maintenance ($0.70/1,000 gal)	1,460,000	1,000 gal	$1,022,000
Total Annual Costs			**$2,473,000**
UNIT COSTS			
Per Acre-Foot			$552
Per 1,000 Gallons			$1.69

Table Q-98
GTUA Reuse for Grayson County Steam Electric Power

Owner: Greater Texoma Utility Authority
Amount: 6,726 Ac-Ft/Yr

CAPITAL COSTS	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Cost of Pipeline	24 in	79,200	LF	$ 174	$13,781,000
Right of Way Easements (ROW)		79,200	LF	$ 12	$950,000
Engineering & Contingencies (30%)					$4,134,000
Total Pipeline Cost					**$18,865,000**
Cost of Pump Station	1480 HP	1	LS	$ 3,499,760	$3,500,000
Engineering & Contingencies (35%)					$1,225,000
Total Pump Station Cost					**$4,725,000**
TOTAL CAPITAL COST					**$23,590,000**
Permitting and Mitigation					**$207,000**
Interest during Construction (12 months)					**$983,000**
Total Raw Water Delivery Capital Cost					**$24,780,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$1,800,000
Electricity ($0.09 kWh)					$234,000
Operation & Maintenance					$270,000
Purchase of Reuse Water					$548,000
Total Annual Costs					**$2,852,000**
UNIT COSTS (During Amortization)					
Per Acre-Foot					$424
Per 1,000 gallons					$1.30
UNIT COSTS (During Amortization)					
Per Acre-Foot					$156
Per 1,000 gallons					$0.48

Note: Cost to purchase reuse water is assumed to be $0.25 per thousand gallons.

Table Q-99
Cooke County Water Supply Project

Probable Owner:	Cooke County		
Quantity:	2,242	AF/Y	2020
	4,484	AF/Y	2040

CONSTRUCTION COSTS

TRANSMISSION FACILITIES				**2020**	**2040**	
Pipeline(s)	**Qty.**	**Units**	**Unit Cost**	**Phase I Cost**	**Phase II Cost**	**Total Cost**
24" Water Line to Gainesville						
Pipe	66,000	FT	$ 116	$7,656,000	$0	$7,656,000
ROW	66,000	FT	$5	$330,000	$0	$330,000
14" Water Line to Valley View						
Pipe	56,760	FT	$ 60	$3,406,000	$0	$3,406,000
ROW	56,760	FT	$5	$284,000	$0	$284,000
8" Water Line to Lindsay						
Pipe	21,120	FT	$ 34	$718,000	$0	$718,000
ROW	21,120	FT	$3	$63,000	$0	$63,000
8" Water Line (Kiowa, Woodbine, Bolivar)						
Pipe	43,560	FT	$ 34	$1,481,000	$0	$1,481,000
ROW	43,560	FT	$3	$131,000	$0	$131,000
Engineering and Contingencies	30%			$3,978,000	$0	$3,978,000
Subtotal of Pipeline(s)				**$18,047,000**	**$0**	$18,047,000
Pump Station(s)						
Station 1						
Pump, bldg, & appurtenances	400	hp		$2,387,000	$0	$2,387,000
Storage Tank		gal		$1,355,000	$0	$1,355,000
Engineering and Contingencies	35%			$1,310,000	$0	$1,310,000
Subtotal of Pump Station(s)				**$5,052,000**	**$0**	$5,052,000
WATER TREATMENT FACILITIES						
Water Treatment Plant						
Phase 1 Plant Expansion	4.00	MGD		$8,775,000	$0	$8,775,000
Phase 2 Plant Expansion	2.00	MGD		$0	$5,150,000	$5,150,000
Phase 3 Plant Expansion	2.00	MGD		$0	$5,150,000	$5,150,000
Engineering and Contingencies	35%			$3,071,000	$1,803,000	$4,874,000
Subtotal of Water Treatment Plant				**$11,846,000**	**$12,103,000**	$23,949,000
PERMITTING AND MITIGATION	1%			**$220,000**	**$0**	$220,000
CONSTRUCTION TOTAL				**$35,165,000**	**$12,103,000**	$47,268,000
Interest During Construction						
Phase 1		(24 months)		**$2,750,000**	**$0**	**$3,012,000**
Phase 2		(6 months)		**$0**	**$262,000**	
TOTAL CAPITAL COST				**$37,915,000**	**$12,365,000**	**$50,280,000**

Table Q-99, Continued

ANNUAL COSTS					
Debt Service			$2,754,000	$898,000	$3,652,000
Operation and Maintenance Costs					
Pipeline	1%		$159,000	$0	$159,000
Pump Station	2.50%		$112,000	$0	$112,000
Estimated Annual Power Cost	$0.09/kWh		$59,000	$59,000	$118,000
WTP					
Phase 1	730,558 1000 gal	$0.70	$511,000	$0	$1,022,000
Phase 2	730,558 1000 gal	$0.70	$0	$511,000	
Raw Water Cost			$119,000	$299,000	$418,000
Total Annual Costs			**$3,714,000**	**$1,767,000**	**$5,481,000**
UNIT COSTS (During Amortization)					
Per Acre-Foot of treated water			$1,657	$788	$1,222
Per 1,000 Gallons of treated water			$5.09	$2.42	$3.75
UNIT COSTS (After Amortization)					
Per Acre-Foot of treated water			$428	$388	$408
Per 1,000 Gallons of treated water			$1.31	$1.19	$1.25

Note: Raw water is assumed to cost $163 per acre-foot. Raw water costs are only applied to wholesale customers, not Gainesville.

Table Q-100
Muenster: Pipeline from Gainesville to Muenster

Owner:	Muenster					
Amount:	200	ac-ft/yr				
CONSTRUCTION COSTS						
TRANSMISSION FACILITIES						
Pipeline(s)	**Qty.**	**Units**	**Unit Cost**		**Total Cost**	
8" Water Line from Lindsay to Muenster						
Pipe	40,920	FT	$	34	$	1,391,000
ROW	40,920	FT	$	3	$	123,000
Engineering and Contingencies	30%				$	417,000
Upsize to 12" Water Line from Gainesville to Lindsay						
Pipe	19,800	FT	$	52	$	1,030,000
ROW	19,800	FT	$	5	$	99,000
Subtotal					$	1,129,000
Muenster Cost Share					$	903,000
Engineering and Contingencies	30%				$	247,000
Subtotal of Pipeline(s)					$	3,081,000
PERMITTING AND MITIGATION	**1.0%**				**$**	**31,000**
CONSTRUCTION TOTAL					**$**	**3,017,833**
Interest During Construction		(24 months)				$236,000
TOTAL CAPITAL COST					**$**	**3,253,833**
ANNUAL COSTS						
Debt Service					$	236,000
Operation and Maintenance Costs						
Pipeline	1.0%				$	23,000
Treated Water Cost		ac-ft	$	815	$	163,000
Total Annual Costs					**$**	**422,000**
UNIT COSTS (First 30 Years)						
Per Acre-Foot					$	2,110
Per 1,000 Gallons					$	6.48
UNIT COSTS (After 30 Years)						
Per Acre-Foot					$	930
Per 1,000 Gallons					$	2.85

Table Q-101
Gainesville Direct Reuse

Owner: City of Gainesville
Amount: 169 Ac-Ft/Yr

CAPITAL COSTS	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Cost of Pipeline	6 in	15,840	LF	$ 39	$618,000
Right of Way Easements (ROW)		15,840	LF	$ 12	$190,000
Engineering & Contingencies (30%)					$185,000
Total Pipeline Cost					**$993,000**
Cost of Pump Station	16 HP	1	LS	$ 553,600	$554,000
Engineering & Contingencies (35%)					$194,000
Total Pump Station Cost					**$748,000**
TOTAL CAPITAL COST					**$1,741,000**
Permitting and Mitigation					**$14,000**
Interest during Construction (12 months)					**$73,000**
Total Raw Water Delivery Capital Cost					**$1,828,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$133,000
Electricity ($0.09 kWh)					$4,000
Operation & Maintenance					$24,000
Purchase of Reuse Water					$14,000
Total Annual Costs					**$175,000**
UNIT COSTS (During Amortization)					
Per Acre-Foot					$1,036
Per 1,000 gallons					$3.18
UNIT COSTS (During Amortization)					
Per Acre-Foot					$249
Per 1,000 gallons					$0.76

Note: Cost to purchase reuse water is assumed to be $0.25 per thousand gallons.

Table Q-102
City of Fort Worth Parallel Pipeline to Eagle Mountain Lake
with Raw Water Pump Station Expansion

Owner: Fort Worth
Amount: 0 Ac-Ft/Yr
Zero additional supply is provided by this strategy.

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	72 in.	19,100	LF	$516	$9,855,600
Contingencies (20%)					$1,971,100
Subtotal of Pipeline					**$11,826,700**
Pump Station(s)					
Pump Station Expansion	35 MGD	1	LS	$11,634,000	$11,634,000
Contingencies (20%)					$2,326,800
Subtotal of Pump Station(s)					**$13,960,800**
Subtotal					**$25,787,500**
Engineering (10%)					**$2,578,750**
TOTAL COST					**$28,366,250**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$2,061,000
Electricity ($0.09 kWh)					$0
Operation & Maintenance					$467,000
Total Annual Costs					**$2,528,000**

Costs provided by City of Fort Worth - CIP Master Plan

Table Q-103
City of Fort Worth Pipeline to New Southwest Water Treatment Plant

Owner: Fort Worth
Amount: 0 Ac-Ft/Yr
Zero additional supply provided by this strategy.

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	42 in.	53,000	LF	$215	$11,395,000
Right of Way Easements (ROW)		53,000	LF	$ 7	$371,000
Engineering and Contingencies (30%)					$3,530,000
Subtotal of Pipeline					**$15,296,000**
Pump Station(s)					
Booster Pump Station	3500 HP	1	LS	$5,557,500	$5,557,500
Engineering and Contingencies (35%)					$1,945,000
Subtotal of Pump Station(s)					**$7,502,500**
Permitting and Mitigation					**$203,000**
CONSTRUCTION TOTAL					**$23,001,500**
Interest During Construction			**(12 months)**		**$958,000**
TOTAL COST					**$23,959,500**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$1,741,000
Electricity ($0.09 kWh)					$547,000
Operation & Maintenance					$304,000
Total Annual Costs					**$2,592,000**

Table Q-104
Fort Worth Future Direct Reuse*

Owner:	Fort Worth	
Amount:	7,979	Ac-Ft/Yr

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipeline(s)	**Qty.**	**Units**	**Unit Cost****		**Total Cost****
Water Line					
36" Pipe	36,900	LF	$245.40	$	9,055,000
ROW	6,300	LF	$14.81	$	93,000
30" Pipe	28,000	LF	$213.39	$	5,975,000
ROW	13,200	LF	$14.81	$	195,000
24" Pipe	38,700	LF	$181.38	$	7,019,000
ROW	38,700	LF	$14.81	$	573,000
20" Pipe	5,100	LF	$148.41	$	757,000
ROW	5,100	LF	$14.81	$	76,000
18" Pipe	16,900	LF	$132.30	$	2,236,000
ROW	16,900	LF	$14.81	$	250,000
16" Pipe	65,400	LF	$110.96	$	7,257,000
ROW	65,400	LF	$14.81	$	969,000
14" Pipe	1,100	LF	$90.96	$	100,000
ROW	1,100	LF	$14.81	$	16,000
12" Pipe	11,700	LF	$85.86	$	1,005,000
ROW	11,700	LF	$14.81	$	173,000
10" Pipe	13,900	LF	$71.48	$	994,000
ROW	13,900	LF	$14.81	$	206,000
8" Pipe	12,600	LF	$48.01	$	605,000
ROW	12,600	LF	$11.66	$	147,000
6" Pipe	12,500	LF	$41.61	$	520,000
ROW	12,500	LF	$11.66	$	146,000
Engineering and Contingencies	30%			$	11,510,000
Subtotal of Pipeline(s)				**$**	**49,877,000**

Table Q-104, Continued

Pump Station(s)				
Station 1				
Pump, building, & appurt.	70	HP	$	543,826
Storage Tank	2	MG	$	895,777
Station 2				
Pump, building, & appurt.	1,785	HP	$	3,638,233
Storage Tank	0	MG	$	-
Station 3				
Pump, building, & appurt.	1,483	HP	$	3,247,059
Storage Tank	0	MG	$	-
Station 4				
Pump, building, & appurt.	1,196	HP	$	2,896,169
Storage Tank	2	MG	$	895,777
Station 5				
Pump, building, & appurt.	2,078	HP	$	3,936,840
Storage Tank	4	MG	$	1,844,400
Station 6				
Pump, building, & appurt.	99	HP	$	681,580
Storage Tank	2	MG	$	895,777
Station 7				
Pump, building, & appurt.	624	HP	$	2,034,140
Storage Tank	0	MG	$	-
Engineering and Contingencies	35%		$	7,528,000
Subtotal of Pump Station(s)			**$**	**29,037,578**
WASTEWATER TREATMENT FACILITIES				
Satellite Wastewater Treament Plant 1	6	MGD	$	28,746,000
Satellite Wastewater Treament Plant 2	4	MGD	$	13,662,340
Engineering and Contingencies	35%		$	14,843,000
Subtotal of Wastewater Treatment Plant			**$**	**57,251,340**
PERMITTING AND MITIGATION			**$**	**729,444**
CONSTRUCTION TOTAL			**$**	**136,895,362**
Interest During Construction		(18 months)	**$**	**7,884,000**
TOTAL CAPITAL COST			**$**	**144,779,362**

Table Q-104, Continued

ANNUAL COSTS					
Debt Service				$	10,518,000
Operation and Maintenance Costs					
Pipeline	1%			$	499,000
Pump Station	2.50%			$	726,000
Estimated Annual Power Cost	$0.09/kWh			$	452,000
WWTP Operation		1000 gal	$0.35	$	1,303,050
Total Annual Costs				**$**	**13,498,050**
UNIT COSTS (First 30 Years)					
Per Acre-Foot				$	1,692
Per 1,000 Gallons				$	5.19
UNIT COSTS (After 30 Years)					
Per Acre-Foot				$	373
Per 1,000 Gallons				$	1.14

*The cost information reflected in this strategy incorporates the following reuse systems: Central Business District, Mary's Creek, and Southern Business District.

**These costs are from the Fort Worth Reclaimed Water Master Plan (2006) and the Draft Mary's Creek Water Reuse Feasibility Study (2004) and have been updated to 2008 Dollars

Table Q-105
Fort Worth Direct Reuse
Alliance Corridor

Owner:	Fort Worth	
Amount:	4,694	Ac-Ft/Yr

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipeline(s)	**Qty.**	**Units**	**Unit Cost***		**Total Cost***
Water Line					
30" Pipe	7,800	LF	$213.39	$	1,664,000
ROW	7,800	LF	$14.81	$	116,000
20" Pipe	12,200	LF	$148.41	$	1,811,000
ROW	12,200	LF	$14.81	$	181,000
18" Pipe	25,600	LF	$132.30	$	3,387,000
ROW	25,600	LF	$14.81	$	379,000
16" Pipe	25,300	LF	$110.96	$	2,807,000
ROW	25,300	LF	$14.81	$	375,000
12" Pipe	4,000	LF	$85.86	$	343,000
ROW	4,000	LF	$14.81	$	59,000
10" Pipe	15,200	LF	$71.08	$	1,080,000
ROW	15,200	LF	$14.81	$	225,000
8" Pipe	8,300	LF	$48.01	$	398,000
ROW	8,300	LF	$11.66	$	97,000
6" Pipe	300	LF	$41.61	$	12,000
ROW	0	LF	$11.66	$	-
Engineering and Contingencies	30%			$	3,880,000
Subtotal of Pipeline(s)				**$**	**16,814,000**

Pump Station(s)				
Station 1				
Pump, building, & appurt.	743	HP	$	2,198,629
Storage Tank	0.5	MG	$	530,045
Engineering and Contingencies	35%		$	955,000
Subtotal of Pump Station(s)			**$**	**3,683,674**

Table Q-105, Continued

PERMITTING AND MITIGATION			**$**	**140,992**
CONSTRUCTION TOTAL			**$**	**20,638,666**
Interest During Construction		(18 months)	**$**	**1,189,000**
TOTAL CAPITAL COST			**$**	**21,827,666**
ANNUAL COSTS				
Debt Service			$	1,586,000
Operation and Maintenance Costs				
Pipeline	1%		$	168,000
Pump Station	2.50%		$	92,000
Estimated Annual Power Cost	$0.09/kWh		$	93,000
Total Annual Costs			**$**	**1,939,000**
UNIT COSTS (First 30 Years)				
Per Acre-Foot			$	413
Per 1,000 Gallons			$	1.27
UNIT COSTS (After 30 Years)				
Per Acre-Foot			$	75
Per 1,000 Gallons			$	0.23

* These costs are from the Fort Worth Reclaimed Water Master Plan (2006) and have been updated to 2008 Dollars

Table Q-106
Fort Worth Direct Reuse
Village Creek*

Owner:	Fort Worth				
Amount:	3,526	Ac-Ft/Yr			

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipeline(s)	**Qty.**	**Units**	**Unit Cost**		**Total Cost**
Parts 1 and 4				$	2,331,119
Part 2				$	4,762,729
Part 3				$	3,287,350
Subtotal of Pipeline(s)				**$**	**10,381,198**
Pump Station				**$**	**3,167,580**
CONSTRUCTION TOTAL				**$**	**13,548,778**
Design/Permitting Rate Study				**$**	**1,805,486**
Construction Administration				**$**	**570,000**
ARRA Administration				**$**	**170,388**
Interest During Construction (Zero Interest Loan)				**$**	**-**
TOTAL CAPITAL COST				**$**	**16,094,652**
ANNUAL COSTS					
Debt Service (Zero Interest, 20 Year loan)				$	805,000
Operation and Maintenance Costs					
Pipeline	1%			$	104,000
Pump Station	2.50%			$	79,000
Estimated Annual Power Cost	$0.09/kWh			$	85,000
Total Annual Costs				**$**	**1,073,000**
UNIT COSTS (First 20 Years)					
Per Acre-Foot				$	304
Per 1,000 Gallons				$	0.93
UNIT COSTS (After 20 Years)					
Per Acre-Foot				$	76
Per 1,000 Gallons				$	0.23

* This project is currenlty under construction. These costs came directly from the "Bid Tab" for this construction project.

Table Q-107
Walnut Creek SUD (Parallel) Pipeline to Rhome

Owner: Walnut Creek SUD
Amount: 1,996 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price		Cost
Pipeline						
Pipeline - Segment 1	16 in.	15,840	LF	$	69	$1,093,000
Right of Way - Segment 1		15,840	LF	$	5	$79,000
Pipeline - Segment 2	16 in.	15,840	LF	$	69	$1,093,000
Right of Way - Segment 2		15,840	LF	$	5	$79,000
Pipeline - Segment 3	16 in.	15,840	LF	$	69	$1,093,000
Right of Way - Segment 3		15,840	LF	$	5	$79,000
Pipeline - Segment 4	16 in.	15,840	LF	$	69	$1,093,000
Right of Way - Segment 4		15,840	LF	$	5	$79,000
Pipeline - Segment 5	16 in.	15,840	LF	$	69	$1,093,000
Right of Way - Segment 5		15,840	LF	$	5	$79,000
Engineering and Contingencies (30%)						$1,758,000
Subtotal of Pipeline						**$7,618,000**
Pump Station(s)						
Booster Pump Station	200 HP	1	LS	$1,118,000		$1,118,000
Ground Storage at Rhome	0.40 MG	1	LS	$374,250		$374,000
Engineering and Contingencies (35%)						$522,000
Subtotal of Pump Station(s)						**$2,014,000**
Permitting and Mitigation						**$57,000**
CONSTRUCTION TOTAL						**$9,689,000**
Interest During Construction			**(12 months)**			**$404,000**
TOTAL COST						**$10,093,000**
ANNUAL COSTS						
Debt Service (6% for 30 years)						$733,000
Electricity ($0.09 kWh)						$28,000
Operation & Maintenance						$47,000
Total Annual Costs						**$808,000**
UNIT COSTS (Pre-Amort.)						
Per Acre-Foot						$405
Per 1,000 Gallons						$1.24
UNIT COSTS (Post-Amort.)						
Per Acre-Foot						$38
Per 1,000 Gallons						$0.12

Table Q-108
Walnut Creek - Pipeline from Bridgeport with 12 MGD WTP

Owner: Walnut Creek SUD
Amount: 6,726 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	30 in.	52,800	LF	$ 145	$7,656,000
Right of Way Easements (ROW)		52,800	LF	$ 5	$264,000
Engineering and Contingencies (30%)					$2,376,000
Subtotal of Pipeline					**$10,296,000**
Pump Station(s)					
Booster Pump Station	500 HP	1	LS	$2,032,000	$2,032,000
Engineering and Contingencies (35%)					$711,000
Subtotal of Pump Station(s)					**$2,743,000**
Water Treatment Plant					
New Water Treatment Plant		12	MGD	$25,080,000	**$25,080,000**
Engineering and Contingencies		35%			**$8,778,000**
Subtotal of Water Treatment Plant					**$33,858,000**
Permitting and Mitigation					**$116,000**
CONSTRUCTION TOTAL					**$47,013,000**
Interest During Construction					**$1,959,000**
TOTAL COST					**$48,972,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$3,558,000
Electricity ($0.09 kWh)					$116,000
Raw Water Purchase ($1.25 per 1,000 gallons)					$2,740,000
Treatment, Operation & Maintenance					$1,686,000
Total Annual Costs					**$8,100,000**
UNIT COSTS (Pre-Amort.)					
Per Acre-Foot					$1,204
Per 1,000 Gallons					$3.70
UNIT COSTS (Post-Amort.)					
Per Acre-Foot					$675
Per 1,000 Gallons					$2.07

Table Q-109
Walnut Creek SUD - Azle pipeline to Rhome

Owner: Walnut Creek SUD
Amount: 6,726 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	30 in.	79,200	LF	$ 145	$11,484,000
Right of Way		79,200	LF	$ 5	$396,000
Engineering and Contingencies (30%)					$3,564,000
Subtotal of Pipeline					**$15,444,000**
Pump Station(s)					
Booster Pump Station	500 HP	1	LS	$2,032,000	$2,032,000
Ground Storage at Rhome	1.25 MG	1	LS	$715,000	$715,000
Engineering and Contingencies (35%)					$961,000
Subtotal of Pump Station(s)					**$3,708,000**
Permitting and Mitigation					**$176,000**
CONSTRUCTION TOTAL					**$19,328,000**
Interest During Construction			**(12 months)**		**$805,000**
TOTAL COST					**$20,133,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$1,463,000
Electricity ($0.09 kWh)					$148,000
Treated Water Purchase ($2.50 per 1,000 gallons)					$5,479,000
Operation & Maintenance					$199,000
Total Annual Costs					**$7,289,000**
UNIT COSTS (Pre-Amort.)					
Per Acre-Foot					$1,084
Per 1,000 Gallons					$3.33
UNIT COSTS (Post-Amort.)					
Per Acre-Foot					$866
Per 1,000 Gallons					$2.66

Table Q-110
Walnut Creek SUD Intake and Pipeline from Eagle Mountian Lake to New WTP

Owner: Walnut Creek SUD
Amount: 6,700 Ac-Ft/Yr (When new WTP is built-out at 12 MGD)

CAPITAL COSTS	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline					
Pipeline	24 in.	5,000	LF	$ 116	$580,000
Right of Way Easements (ROW)		5,000	LF	$ 5	$25,000
Engineering and Contingencies (30%)					$182,000
Subtotal of Pipeline					**$787,000**
Pump Station(s)					
Intake Pump Station	230 HP	1	LS	$1,613,000	$1,613,000
Engineering and Contingencies (35%)					$565,000
Subtotal of Pump Station(s)					**$2,178,000**
Permitting and Mitigation					**$26,000**
CONSTRUCTION TOTAL					**$2,991,000**
Interest During Construction			**(12 months)**		**$125,000**
TOTAL COST					**$3,116,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$226,000
Electricity ($0.09 kWh)					$57,000
Operation & Maintenance					$55,000
Total Annual Costs					**$338,000**
UNIT COSTS (Pre-Amort.)					
Per Acre-Foot					$50
Per 1,000 Gallons					$0.15
UNIT COSTS (Post-Amort.)					
Per Acre-Foot					$17
Per 1,000 Gallons					$0.05

Table Q-111
Walnut Creek SUD Pipeline from Eagle Mountain Lake to Boyd and Rhome

Owner: Walnut Creek SUD
Amount: 6,700 Ac-Ft/Yr (When new WTP is built-out at 12 MGD)

CAPITAL COSTS	**Size**	**Quantity**	**Unit**	**Unit Price**		**Cost**
Pipeline						
Pipeline	24 in.	53,000	LF	$	174	$9,222,000
Right of Way Easements (ROW)		53,000	LF	$	12	$636,000
Engineering and Contingencies (30%)						$2,957,000
Subtotal of Pipeline						**$12,815,000**
Permitting and Mitigation						**$111,000**
CONSTRUCTION TOTAL						**$12,926,000**
Interest During Construction			**(12 months)**			**$539,000**
TOTAL COST						**$13,465,000**
ANNUAL COSTS						
Debt Service (6% for 30 years)						$978,000
Electricity ($0.09 kWh)						$115,000
Operation & Maintenance						$111,000
Total Annual Costs						**$1,204,000**
UNIT COSTS (Pre-Amort.)						
Per Acre-Foot						$180
Per 1,000 Gallons						$0.55
UNIT COSTS (Post-Amort.)						
Per Acre-Foot						$34
Per 1,000 Gallons						$0.10

Table Q-112
Dallas Supply to Ellis County Customers - Rockett SUD, Red Oak, and Waxahachie

Owners:	Rockett SUD, Red Oak, Waxahachie	**Cost Distribution (%)**		
Total Amount:	19,186 Ac-Ft/Yr	61.6%	19.6%	18.8%
		Projected Supply Distribution (Ac-Ft/Yr)		
		11,301	1,159	6,726

CONSTRUCTION COSTS

TRANSMISSION FACILITIES	**Qty.**	**Units**	**Unit Cost**	**Total Cost**	**Rockett SUD Total Cost**	**Red Oak Total Cost**	**Waxahachie Total Cost**
System Pipeline							
60" Water Line							
Pipe	35,000	LF	$ 495	$ 17,325,000			
ROW	35,000	LF	$ 41	$ 1,435,000			
54" Water Line							
Pipe	8,200	LF	$ 317	$ 2,599,000			
ROW	8,200	LF	$ 7	$ 57,000			
48" Water Line							
Pipe	32,700	LF	$ 269	$ 8,796,000			
ROW	32,700	LF	$ 7	$ 229,000			
Engineering and Contingencies	30%			$ 8,616,000	$ 5,307,000	$ 1,690,000	$ 1,619,000
Subtotal of System Pipeline				**$ 39,057,000**	**$ 24,055,000**	**$ 7,663,000**	**$ 7,339,000**
Waxahachie Pipeline							
36" Water Line							
Pipe	26,200	FT	$ 184	$ 4,821,000			
ROW	26,200	FT	$ 5	$ 131,000			
Engineering and Contingencies	30%			$ 1,446,000			$ 1,446,000
Subtotal of Waxahachie Pipeline				**$ 6,398,000**			**$ 6,398,000**
PERMITTING AND MITIGATION							
System Pipeline	1%			**$ 345,000**	**$ 212,000**	**$ 68,000**	**$ 65,000**
Waxahachie Pipeline	1%			**$ 58,000**			**$ 58,000**
CONSTRUCTION TOTAL				**$ 45,858,000**	**$ 24,267,000**	**$ 7,731,000**	**$ 13,860,000**
Interest During Construction		(18 months)		**$ 2,828,000**	**$ 882,000**	**$ 281,000**	**$ 471,000**
TOTAL CAPITAL COST				**$ 48,686,000**	**$ 25,149,000**	**$ 8,012,000**	**$ 14,331,000**
ANNUAL COSTS							
Debt Service				$ 3,537,000	$ 1,827,000	$ 582,000	$ 1,041,000
Operation and Maintenance Costs							
System Pipeline	1%			$ 345,000	$ 212,000	$ 68,000	$ 65,000
Waxahachie Pipeline	1%			$ 58,000			$ 58,000
Estimated Annual Power Cost	$0.06/kWh			$ -	$ -	$ -	$ -
Treated Water Demand Charge	26	MGD	$ 123,190	$ 3,203,000	$ 1,973,000	$ 628,000	$ 602,000
Treated Water Volume Charge	6,251,796	1000 gal	$ 0.70	$ 4,376,000	$ 2,695,000	$ 859,000	$ 822,000
Total Annual Costs				**$ 11,519,000**	**$ 6,707,000**	**$ 2,137,000**	**$ 2,588,000**
UNIT COSTS (First 30 Years)							
Per Acre-Foot				$ 600	$ 568	$ 568	$ 718
Per 1,000 Gallons				$ 1.84	$ 1.74	$ 1.74	$ 2.20
UNIT COSTS (After 30 Years)							
Per Acre-Foot				$ 416	$ 413	$ 413	$ 429
Per 1,000 Gallons				$ 1.28	$ 1.27	$ 1.27	$ 1.32

Table Q-113
Waxahachie Additional TRA/Waxahachie Indirect Reuse

Owner:	TRA				
Amount:	3,112	Ac-Ft/Yr			
CONSTRUCTION COSTS					
TRANSMISSION FACILITIES					
Pipeline(s)	**Qty.**	**Units**	**Unit Cost**		**Total Cost**
20" Water Line					
Pipe	15,420	LF	$ 90	$	1,388,000
ROW	15,420	LF	$ 5	$	77,000
Engineering and Contingencies	30%			$	416,000
Subtotal Piping				**$**	**1,881,000**
Pump Station(s)					
Station 1					
Pump, building, & appurtenances	107	hp		$	767,000
Storage Tank	0	gal		$	-
Engineering and Contingencies	35%			$	268,000
Subtotal of Pump Station(s)				**$**	**1,035,000**
WATER TREATMENT FACILITIES					
Water Treatment Plant Expansion	12.00	MGD		$	17,960,000
Plant Expansion	35%			$	6,286,000
Subtotal of Water Treatment Plant				**$**	**24,246,000**
PERMITTING AND MITIGATION	1%			**$**	**26,000**
CONSTRUCTION TOTAL				**$**	**27,188,000**
Interest During Construction		(18 months)		**$**	**1,677,000**
TOTAL CAPITAL COST				**$**	**28,865,000**

Table Q-113, Continued

ANNUAL COSTS						
Debt Service					$	2,097,000
Operation and Maintenance Costs						
Pipeline	1%				$	17,000
Pump Station	2.50%				$	23,000
Estimated Annual Power Cost	$0.09/kWh				$	55,000
WTP Operation	1,013,940	1000 gal	$	0.35	$	355,000
Raw Water Cost	3,112	ac-ft		$0	$	-
Total Annual Costs					**$**	**2,547,000**
UNIT COSTS (First 30 Years)						
Per Acre-Foot					$	819
Per 1,000 Gallons					$	2.51
UNIT COSTS (After 30 Years)						
Per Acre-Foot					$	132
Per 1,000 Gallons					$	0.41

Note: Assumes no raw water cost.

Table Q-114
Weatherford Increase Pump Station Capacity by 7 MGD

Probable Owner:	Weatherford	
Quantity:	6,278	AF/Y

Existing Infrastructure

Pipeline	36	in.
Distance	100,000	LF
Pump Capacity	15	MGD
Pump Station Can Accommodate	22	MGD

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pump Station(s)	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Add Pump to Existing Pump Station		1	LS	$395,000	$395,000
Engineering and Contingencies (35%)					$138,000
Subtotal of Pump Station(s)					**$533,000**
CONSTRUCTION TOTAL					**$533,000**
Permitting and Mitigation					**$0**
Interest During Construction			**(6 months)**		**$12,000**
TOTAL COST					**$545,000**

ANNUAL COSTS

Debt Service (6% for 30 years)	$40,000
Electricity ($0.09 kWh)	$67,000
Raw water purchase ($0.68/ kgal)	$1,391,000
Operation & Maintenance	$12,000
Total Annual Costs	**$1,510,000**

UNIT COSTS - (With Debt Service)

Per Acre-Foot	$241
Per 1,000 gallons	$0.74

UNIT COSTS - (After Debt Service)

Per Acre-Foot	$234
Per 1,000 gallons	$0.72

Table Q-115
City of Celina Purchase Treated Water from North Texas MWD

Owner: Celina
Amount: 5,000 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	36 in.	46,000	LF	$184	$8,464,000
Right of Way Easements (ROW)		46,000	LF	$12	$552,000
Engineering and Contingencies (30%)					$2,705,000
Subtotal of Pipeline					**$11,721,000**
Pump Station(s)					
Pump station	275 HP	1	LS	$1,360,250	$1,360,250
Ground Storage with Roof	1.5 MG	1	LS	$796,000	$796,000
Engineering and Contingencies (35%)					$755,000
Subtotal of Pump Station(s)					**$2,911,250**
Permitting and Mitigation					**$127,000**
CONSTRUCTION TOTAL					**$14,759,250**
Interest During Construction			**(18 months)**		**$910,000**
TOTAL COST					**$15,669,250**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$1,138,000
Treated Water ($1.30 per 1,000 gallons)					$2,118,000
Electricity ($0.09 kWh)					$73,000
Operation & Maintenance					$167,000
Total Annual Costs					**$3,496,000**
UNIT COSTS (2010-2030)					
Per Acre-Foot					$699
Per 1,000 Gallons					$2.15
UNIT COSTS (2040-2060)					
Per Acre-Foot					$48
Per 1,000 Gallons					$0.15

Table Q-116
Blue Ridge Connection to NTMWD

Owner: NTMWD
Amount: 2,800 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline from Farmersville to Blue Ridge	24 in.	5,000	LF	$116	$580,000
Right of Way Easements (ROW)	20 ft.	5,000	LF	$5	$25,000
Engineering and Contingencies (30%)					$182,000
Subtotal of Pipeline					**$787,000**
New 24" Tap & Metering Facilities					
New 24" Tap & Metering Facilities		1	LS	$400,000	$400,000
Ground Storage with Roof	1 MG	1	LS	$634,000	$634,000
Engineering and Contingencies (35%)					$362,000
Subtotal of Tap and Metering					**$1,396,000**
Permitting and Mitigation					**$19,000**
CONSTRUCTION TOTAL					**$2,202,000**
Interest During Construction			**(12 months)**		**$92,000**
TOTAL COST					**$2,294,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$167,000
Treated Water ($1.30 per 1,000 gallons)					$1,186,000
Operation & Maintenance					$38,000
Total Annual Costs					**$1,391,000**
UNIT COSTS (2010-2030)					
Per Acre-Foot					$497
Per 1,000 Gallons					$1.52
UNIT COSTS (2040-2060)					
Per Acre-Foot					$437
Per 1,000 Gallons					$1.34

Table Q-117
Frisco Direct Reuse

Owner: Frisco
Amount: 5,650 Ac-ft/yr

CAPITAL COSTS*	Description	Size	Quantity	Unit	Unit Price	Cost
Cost of Pipeline	20" line on Main St, Teel to DNT; 12" line on Legacy, Main to Eldorado	20 in	7,500	LF	$ 120	$900,000
Cost of Pipeline		12 in	8,800	LF	$ 72	$633,600
Pavement Repair			1,250	LF	$ 40	$50,000
Cost of Pipeline	8"/12"/16" line in Lebanon from 4th Army to Legacy and in Legacy from Lebanon to Chippeewa	16 in	1,000	LF	$ 96	$96,000
Cost of Pipeline		12 in	8,200	LF	$ 72	$590,400
Cost of Pipeline		8 in	3,500	LF	$ 48	$168,000
16" Boring and Casing		16 in	100	LF	$ 195	$19,500
Pavement Repair			1,270	LF	$ 40	$50,800
Cost of Pipeline	16"/24" line on Gary Burns and Hutson Dr. from Main St to Frisco #2	16 in	1,800	LF	$ 96	$172,800
Cost of Pipeline		24 in	5,200	LF	$ 144	$748,800
36" Boring and Casing		36 in	100	LF	$ 432	$43,200
Pavement Repair			6,000	LF	$ 40	$240,000
Reuse Pump Station	P.S. at Panther Creek WWTP		1	LS	$ 2,500,000	$2,500,000
Cost of Pipeline	24" line from Panther Creek WWTP along Teel Pkwy to existing 24" reuse line	24 in	17,600	LF	$ 144	$2,534,400
36" Boring and Casing		36 in	400	LF	$ 432	$172,800
Pavement Repair			9,000	LF	$ 40	$360,000
Cost of Pipeline	12" line in John W. Elliot Dr. from Main St. to Senior Center**	12 in	1,600	LF	$ 72	$115,200
Pavement Repair			160	LF	$ 40	$6,400
Cost of Pipeline	Eldorado Pkwy from Frisco St. to Preston Rd, in Preston Rd. to Main St.	24 in	19,500	LF	$ 144	$2,808,000
36" Boring and Casing		36 in	350	LF	$ 432	$151,200
Pavement Repair			3,000	LF	$ 40	$120,000
Yard Pipe	Piping Changes at Frisco 2 Site		1	LS	$ 70,000	$70,000
Cost of Pipeline	16" line in Hutson Dr. from Preston Rd. to Frisco #2 and in Preson Rd. from Hutson Dr. to Stonebrook Pkwy; 0.5 MG Reuse Elevated Storage Tank	16 in	5,500	LF	$ 96	$528,000
Cost of Pipeline		12 in	4,300	LF	$ 72	$309,600
30" Boring and Casing		30 in	100	LF	$ 360	$36,000
24" Boring and Casing		24 in	100	LF	$ 288	$28,800
Pavement Repair			980	LF	$ 40	$39,200
Elevated Tank		.5 MG	1	LS	$ 600,000	$600,000
Cost of Pipeline	24" line in Eldorado Pkwy. From Tell Pkwy. To Frisco St.	24 in.	11,800	LF	$ 144	$1,699,200
36" Boring and Casing		36 in.	100	LF	$ 432	$43,200
Pavement Repair			1,180	LF	$ 40	$47,200
Cost of Pipeline	20" line in Main St. from Frisco #2 to Coit Rd, in Coit Rd to Southeast Community Park	20 in.	10,300	LF	$ 120	$1,236,000
30" Boring and Casing		30 in.	200	LF	$ 360	$72,000
Pavement Repair			1,030	LF	$ 40	$41,200

Table Q-117, Continued

Cost of Pipeline	12" line in Coit Rd from 20" line to Rolater Rd, 8" line in Rolater Rd. to Hillcrest Rd.	12 in.	4,500	LF	$	72	$324,000
Cost of Pipeline		8 in.	5,700	LF	$	48	$273,600
24" Boring and Casing		24 in.	200	LF	$	288	$57,600
Pavement Repair			1,020	LF	$	40	$40,800
Cost of Pipeline	8" line in Stonebrook Pkwy from Preston Rd. to Dallas Pkwy.	8 in.	8,600	LF	$	48	$412,800
16" Boring and Casing		16 in.	100	LF	$	195	$19,500
Pavement Repair			860	LF	$	40	$34,400
Cost of Pipeline	12" line in Preston Rd from Stonebrook/Rolater to Wade Blvd	12 in.	4,300	LF	$	72	$309,600
24" Boring and Casing		24 in.	300	LF	$	288	$86,400
Pavement Repair			430	LF	$	40	$17,200
Cost of Pipeline	8" line in Wade Blvd from Preston Rd to Ohio Dr.	8 in.	4,500	LF	$	48	$216,000
16" Boring and Casing		16 in.	100	LF	$	195	$19,500
Pavement Repair			450	LF	$	40	$18,000
Cost of Pipeline	8" line in Ohio Dr. from Wade Blvd to Hillcrest Rd; 8" in Hillcrest from Ohio Dr. to Rolater Rd.**	8 in.	5,900	LF	$	48	$283,200
Pavement Repair			285	LF	$	40	$11,400
Cost of Pipeline	12" line in Preston Rd from Wade Blvd to Lebanon Rd; 8" line in Lebanon, Preston to Colby Drive	12 in.	2,900	LF	$	72	$208,800
Cost of Pipeline		8 in.	4,500	LF	$	48	$216,000
Pavement Repair			600	LF	$	40	$24,000
Cost of Pipeline	12" line in Rogers Rd from the Warren Sports Complex to existing 12" in McKinney Rd	12 in.	7,800	LF	$	72	$561,600
24" Boring and Casing		24 in.	200	LF	$	288	$57,600
Pavement Repair			780	LF	$	40	$31,200
Cost of Pipeline	8" line in College Parkway to Plantation Golf Course	8 in.	3,600	LF	$	48	$172,800
16" Boring and Casing		16 in.	100	LF	$	195	$19,500
Pavement Repair			300	LF	$	40	$12,000
Cost of Pipeline	16" line in Coit Road to Eldorado Pkwy & 12" line in Coit Road and Panther Creek to Northeast Community Park	16 in.	8,200	LF	$	96	$787,200
Cost of Pipeline		12 in.	8,300	LF	$	72	$597,600
24" Boring and Casing		24 in.	400	LF	$	288	$115,200
Pavement Repair			1,500	LF	$	40	$60,000
Cost of Pipeline	8" line in High Shoals Dr from 24" in Teel Pkwy to Pioneer Heritage Middle School	8 in.	4,200	LF	$	48	$201,600
16" Boring and Casing		16 in.	100	LF	$	195	$19,500
Pavement Repair			300	LF	$	40	$12,000
Subtotal							$22,452,100
Contingencies (20%)							$4,490,420
Total Construction Cost							$26,942,520
Engineering, Surveying & Geotech (12%)							$3,248,086
Construction Total							**$30,190,606**
Interest during Construction (12 months)							**$1,258,000**
Total Capital Costs							**$31,448,606**

Table Q-117, Continued

ANNUAL COSTS	
Debt Service (6% for 30 years)	$2,285,000
Operation & Maintenance	$299,000
Purchase of Reuse Water	$460,000
Total Annual Costs	**$3,044,000**
UNIT COSTS (During Amortization)	
Per Acre-Foot	$539
Per 1,000 gallons	$1.65
UNIT COSTS (After Amortization)	
Per Acre-Foot	$134
Per 1,000 gallons	$0.41

*Costs obtained from Frico's Reuse Master Plan
**Engineering, Surveying & Geotech for this project are 15%

Table Q-118
Additional Water from North Texas MWD

Owner: Prosper
Amount: 4,272 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
					$0

ANNUAL COSTS	
Treated Water ($1.30 per 1,000 gallons)	$1,810,000
Electricity ($0.09 kWh)	$0
Total Annual Costs	**$1,810,000**

UNIT COSTS	
Per Acre-Foot	$424
Per 1,000 Gallons	$1.30

Table Q-119
City of Weston Purchase Treated Water from North Texas MWD

PHASE I
Owner: Weston
Amount: 4,300 Ac-Ft/Yr

CAPITAL COSTS	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline					
Pipeline	30 in.	45,000	LF	$145	$6,525,000
Right of Way Easements (ROW)		45,000	LF	$12	$540,000
Engineering and Contingencies (30%)					$2,120,000
Subtotal of Pipeline					**$9,185,000**
Pump Station(s)					
Pump station	300 HP	1	LS	$1,441,000	$1,441,000
Ground Storage with Roof	1.5 MG	1	LS	$796,000	$796,000
Engineering and Contingencies (35%)					$783,000
Subtotal of Pump Station(s)					**$3,020,000**
Permitting and Mitigation					**$105,000**
CONSTRUCTION TOTAL					**$12,310,000**
Interest During Construction			**(18 months)**		**$759,000**
TOTAL COST					**$13,069,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$949,000
Treated Water ($1.30 per 1,000 gallons)					$1,822,000
Electricity ($0.09 kWh)					$76,000
Operation & Maintenance					$145,000
Total Annual Costs					**$2,992,000**
UNIT COSTS (2010-2030)					
Per Acre-Foot					$696
Per 1,000 Gallons					$2.14
UNIT COSTS (2040-2060)					
Per Acre-Foot					$51
Per 1,000 Gallons					$0.16

Table Q-119, Continued
PHASE II
Owner: Weston
Amount: 8,400 Ac-Ft/Yr (For a total of 12,700 Ac-Ft/Yr)

CAPITAL COSTS	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline					
Pipeline	42 in.	45,000	LF	$145	$6,525,000
Right of Way Easements (ROW)		45,000	LF	$17	$765,000
Engineering and Contingencies (30%)					$2,187,000
Subtotal of Pipeline					**$9,477,000**
Pump Station(s)					
Pump station	500 HP	1	LS	$2,032,000	$2,032,000
Ground Storage with Roof	2.5 MG	1	LS	$1,086,000	$1,086,000
Engineering and Contingencies (35%)					$1,091,000
Subtotal of Pump Station(s)					**$4,209,000**
Permitting and Mitigation					**$116,000**
CONSTRUCTION TOTAL					**$13,802,000**
Interest During Construction			**(18 months)**		**$851,000**
TOTAL COST					**$14,653,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$1,065,000
Treated Water ($1.30 per 1,000 gallons)					$3,558,000
Electricity ($0.09 kWh)					$146,000
Operation & Maintenance					$172,000
Total Annual Costs					**$4,941,000**
UNIT COSTS (2010-2030)					
Per Acre-Foot					$588
Per 1,000 Gallons					$1.81
UNIT COSTS (2040-2060)					
Per Acre-Foot					$38
Per 1,000 Gallons					$0.12

Table Q-120
Collin County Mining - Additional NTMWD

Owner: Unknown
Amount: 68 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
TOTAL COST					**$0**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$0
Electricity ($0.09 kWh)					$0
Raw Water ($0.68 per 1,000 gallons)					$15,000
Operation & Maintenance					$0
Total Annual Costs					**$15,000**
UNIT COSTS					
Per Acre-Foot					$221
Per 1,000 Gallons					$0.68

Table Q-121
Collin County Steam Electric Power - Additional NTMWD

Owner: Unknown
Amount: 932 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
CONSTRUCTION TOTAL					**$0**
Interest During Construction					**$0**
TOTAL COST					**$0**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$0
Electricity ($0.09 kWh)					$0
Raw Water ($0.68 per 1,000 gallons)					$207,000
Operation & Maintenance					$0
Total Annual Costs					**$207,000**
UNIT COSTS					
Per Acre-Foot					$222
Per 1,000 Gallons					$0.68

Table Q-122
Navarro County Steam Electric Power Pipeline from Corsicana by 2020

Owner:
Amount: 8,000 AF/Y

CAPITAL COSTS

	Size	Quantity	Units	Unit Price	Cost
Transmission Facilities					
Pipeline (Rural)	30 in.	52,800	LF	$ 145	$7,663,000
Right of Way Easements		52,800	LF	$ 5	$264,000
Pipeline Eng &Contingencies (30%)					$2,378,000
Pipeline Subtotal					**$10,305,000**
Pump Station	740 HP	1	LS	$ 3,149,800	$3,149,800
Engineering and Contingencies (35%)					$1,102,000
Pump Station Subtotal					**$4,251,800**
Permitting and Mitigation					**$130,000**
Interest During Construction			**(12 months)**		**$612,000**
TOTAL CAPITAL COST					**$15,298,800**

ANNUAL COSTS

	Cost
Debt Service (6%, 30 years)	$1,111,000
Pipeline O&M (1%)	$92,000
Pump O&M (2.5%)	$94,000
Electricity ($0.09 kWh)	$148,000
Raw Water ($0.72 per 1,000 gallons)	$1,877,760
TOTAL ANNUAL COST	**$3,322,760**
Unit Costs (First 30 years)	
Cost per acre-ft	$415
Cost per 1000 gallons	$1.27
Unit Costs (After 30 years)	
Cost per acre-ft	$276
Cost per 1000 gallons	$0.85

Table Q-123
Navarro County Steam Electric Power Pipeline from Corsicana by 2030

Owner:
Amount: 5,440 AF/Y

CAPITAL COSTS

	Size	Quantity	Units	Unit Price	Cost
Transmission Facilities					
Pipeline (Rural)	24 in.	52,800	LF	$ 116	$6,130,000
Right of Way Easements		52,800	LF	$ 5	$264,000
Pipeline Eng &Contingencies (30%)					$1,918,000
Pipeline Subtotal					**$8,312,000**
Pump Station	630 HP	1	LS	$ 2,908,300	$2,908,300
Engineering and Contingencies (35%)					$1,018,000
Pump Station Subtotal					**$3,926,300**
Permitting and Mitigation					**$108,000**
Interest During Construction			**(12 months)**		**$514,000**
TOTAL CAPITAL COST					**$12,860,300**

ANNUAL COSTS	**Cost**
Debt Service (6%, 30 years)	$934,000
Pipeline O&M (1%)	$74,000
Pump O&M (2.5%)	$87,000
Electricity ($0.09 kWh)	$111,000
Raw Water ($0.72 per 1,000 gallons)	$1,276,877
TOTAL ANNUAL COST	**$2,482,877**
Unit Costs (First 30 years)	
Cost per acre-ft	$456
Cost per 1000 gallons	$1.40
Unit Costs (After 30 years)	
Cost per acre-ft	$285
Cost per 1000 gallons	$0.87

Table Q-124
Muenster Additional Water from Lake Muenster

Owner:	Muenster					
Amount:	280	ac-ft/yr				
WATER TREATMENT FACILITIES						
Water Treatment Plant(s)	**Qty.**	**Units**	**Unit Cost**			**Total Cost**
New Water Treatment Plant	1.00	MGD			$	5,800,000
Engineering and Contingencies	35%				$	2,030,000
Subtotal of Water Treatment Plant					**$**	**7,830,000**
PERMITTING AND MITIGATION	1.0%				**$**	**58,000**
CONSTRUCTION TOTAL					**$**	**7,888,000**
Interest During Construction		(12 months)			**$**	**329,000**
TOTAL CAPITAL COST					**$**	**8,217,000**
ANNUAL COSTS						
Debt Service					$	597,000
Operation and Maintenance Costs						
Estimated Annual Power Cost	$0.09/kWh				$	10,000
WTP Operation	91,238	1000 gal	$	0.70	$	64,000
Raw Water Cost		ac-ft	$	163	$	46,000
Total Annual Costs					**$**	**717,000**
UNIT COSTS (First 30 Years)						
Per Acre-Foot					$	2,561
Per 1,000 Gallons					$	7.86
UNIT COSTS (After 30 Years)						
Per Acre-Foot					$	429
Per 1,000 Gallons					$	1.32

NOTE: Assume raw water costs $163 per acre-foot.

Table Q-125
Cooke County Irrigation - Overdraft Trinity Aquifer with Existing Wells in 2010
Cooke County, Trinity Aquifer

Need	140	Af/Y	87	gpm
Depth to Water	413			
Well Depth	969			
Well Yield	180	gpm	290	ac-ft (peak)
			145	ac-ft (average)

Annual Costs	
Annual Cost of Pumping Existing Wells	$8,000
Annual Chemical Costs	$14,200
Total Annual Cost	**$22,200**
UNIT COSTS	
Per Acre-Foot	$153
Per 1,000 Gallons	$0.47

Table Q-126
Cooke County Mining - Overdraft Trinity Aquifer with New Wells in 2010
Cooke County, Trinity Aquifer

Need	75	ac-ft/yr	
Water Depth	413	ft	
Well Depth	969	ft	
Well Yield	100	gpm	161 ac-ft (peak)
Well Size	6	in	80.5 ac-ft (average)
Wells Needed	1		

WELLS					
Well(s)	**Number**		**Unit Cost**		
Water Wells	1		$ 201,000	$	201,000
Connection to Transmission System	0		$ 160,000	$	-
Engineering and Contingencies				$	60,000
Subtotal of Well(s)				**$**	**261,000**
PERMITTING AND MITIGATION	1%			**$**	**2,000**
CONSTRUCTION TOTAL				**$**	**263,000**
Interest During Construction		(6 months)		**$**	**6,000**
TOTAL CAPITAL COST				**$**	**269,000**
ANNUAL COSTS					
Debt Service - Total Capital				$	20,000
O&M					
Transmission	1%			$	-
Well(s)	2.5%			$	6,000
Add Chemicals, Etc.	24,439	1000 gal	$ 0.30	$	7,000
Pumping Costs			$ 0.09	$	4,000
Total Annual Cost				**$**	**37,000**
UNIT COSTS (First 30 Years)					
Cost per ac-ft				$	493
Cost per 1000 gallons				$	1.51
UNIT COSTS (After 30 Years)					
Cost per ac-ft				$	227
Cost per 1000 gallons				$	0.70

Table Q-127
Gainesville - Overdraft Trinity Aquifer in Red Basin with Existing Wells in 2010
Cooke County, Trinity Aquifer, Red Basin

Need	103	ac-ft/yr		
Water Depth	413	ft		
Well Depth	969	ft		
Well Yield	100	gpm	161	ac-ft (peak)
Well Size	6	in	80.5	ac-ft (average)
Wells Needed	2			

Annual Costs	
Annual Cost of Pumping Existing Wells	$4,400
Annual Chemical Costs	$7,900
Total Annual Cost	**$12,300**
UNIT COSTS	
Per Acre-Foot	$153
Per 1,000 Gallons	$0.47

Table Q-128
Addison - Aquifer Storage and Recovery

Owner: Addison
Amount: 0 AF/Y

No.	Description	Quantity	Units	Unit Price	Amount
1	Mobilization & Demobilization	1	Ls	$65,804	$65,804
2	Drill 30-Inch Borehole	50	Ft	$230	$11,500
3	Drill 22-Inch Borehole	2050	Ft	$197	$403,850
4	Drill 15-Inch Borehole	300	Ft	$428	$128,400
5	24-Inch Steel Casing	50	Ft	$230	$11,500
6	16-Inch SS304L Casing 0.5" Wall Thickness	2100	Ft	$329	$690,900
7	Neat Cement	2100	Ft	$41	$86,100
8	Pilot Hole to 2100 ft	1	Ls	$11,845	$11,845
9	Reamed Borehole to 2100 ft	1	Ls	$13,161	$13,161
10	Cemented Casing to 2100 ft	1	Ls	$3,948	$3,948
11	15" Hole to 2400 ft	1	Ls	$11,845	$11,845
12	Well Screen	1	Ls	$2,632	$2,632
13	Screen Assembly Complete	200	Ft	$428	$85,600
14	Well Development	80	Hours	$1,152	$92,160
15	Pump Setup	1	Ls	$32,902	$32,902
16	Pumping test	48	Hours	$263	$12,624
17	Disinfection	1	Ls	$19,741	$19,741
18	Standby Time	16	Hours	$329	$5,264
19	Set/Pull 200 GPM Pump	1	Ls	$12,898	$12,898
20	Rent Interim Pump	4	Months	$3,948	$15,792
21	2000 GPM Vertical Turbine Pump	1	Ls	$288,616	$288,616
22	Piping, Valves & Flowmeter	1	Ls	$151,086	$151,086
23	Chlorine & Ammonia System	1	Ls	$120,289	$120,289
24	Chlorine, Ammonia & Electrical Building	1	Ls	$57,776	$57,776
25	Electrical	1	Ls	$153,718	$153,718
26	Instrumentation & Control	1	Ls	$84,624	$84,624
27	Painting & Misc.	1	Ls	$11,187	$11,187
28	Allowance	1	Ls	$65,804	$65,804
	Total				**$2,651,566**

Note: Item No. 8 thru 12 is for Geophysical Logging
Costs provided by The Colony for *2006 Region C Water Plan*. Increased unit costs using ENR Index.

Table Q-129
Dallas/Denton Counties - Pipeline from DWU to Carrollton, Lewisville and The Colony

Owner:	Various				
Amount:	22,420	Ac-Ft/Yr	Carrollton1	32%	
	7,735	Ac-Ft/Yr	Carrollton 2	11%	16%
	6,280	Ac-Ft/Yr	Carrollton 3	9%	13%
	16,815	Ac-Ft/Yr	Lewisville	24%	35%
	16,815	Ac-Ft/Yr	The Colony	24%	35%
	70,065	Ac-Ft/Yr	Total		

CAPITAL COSTS	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline					
Pipeline (everyone)	54 in.	1,000	LF	$317	$317,000
Right of Way Easements (ROW)		1,000	LF	$7	$7,000
Engineering and Contingencies (30%)					$97,000
Permitting and Mitigation					$4,000
Subtotal of Pipeline (everyone)					**$425,000**
Pipeline (20MGD Carrollton)	36 in.	15,840	LF	184	$2,915,000
Right of Way Easements (ROW)		15,840	LF	$5	$79,000
Engineering and Contingencies (30%)					$898,000
Permitting and Mitigation					$35,000
Subtotal of Pipeline (20MGD to Carrolton)					**$3,927,000**
Pipeline (junction to Lewisville)	48 in.	20,000	LF	290	$5,800,000
Right of Way Easements (ROW)		20,000	LF	$14	$276,000
Engineering and Contingencies (30%)					$1,823,000
Permitting and Mitigation					$70,000
Subtotal of Pipeline (junction to Lewisville)					**$7,969,000**
Pipeline (Hebron Pkwy)	42 in.	10,000	LF	237	$2,370,000
Right of Way Easements (ROW)		10,000	LF	$14	$138,000
Engineering and Contingencies (30%)					$752,000
Permitting and Mitigation					$28,000
Subtotal of Pipeline (Hebron Pkwy)					**$3,288,000**
Pipeline (Josey Ln)	36 in.	7,500	LF	202	$1,515,000
Right of Way Easements (ROW)		7,500	LF	$10	$75,000
Engineering and Contingencies (30%)					$477,000
Permitting and Mitigation					$18,000
Subtotal of Pipeline (Josey Ln)					**$2,085,000**

Table Q-129, Continued

Pipeline (Lewisville)	30 in.	21,850	LF	159	$3,474,000
Right of Way Easements (ROW)		21,850	LF	$10	$219,000
Engineering and Contingencies (30%)					$1,108,000
Permitting and Mitigation					$42,000
Subtotal of Pipeline (Lewisville)					**$4,843,000**
Pipeline (The Colony)	36 in.	15,400	LF	202	$3,111,000
Right of Way Easements (ROW)		15,400	LF	$10	$154,000
Engineering and Contingencies (30%)					$980,000
Permitting and Mitigation					$37,000
Subtotal of Pipeline (The Colony)					**$4,282,000**
Total of Pipeline Cost					**$26,819,000**
Carrolton portion of pipelines	*52% of 54 in,100% 36 in, 30% of 48 in, 45% of 42 in, 27% of 36 in*				*$8,581,250*
Lewisville portion of pipelines	*24% of 52in, 35% of 48in,100% of 30in*				*$7,734,150*
The Colony portion of pipelines	*24% of 52in, 35% of 48in,55% of 42in,73% of 36in and 100% of 36in*				*$10,503,600*
					$26,819,000
Pump Stations					
Booster Pump Station 1	4300 HP	1	LS	$6,363,000	$6,363,000
Engineering and Contingencies (35%)					$2,227,000
Permitting and Mitigation					$76,000
Subtotal of Pump Station 1					**$8,666,000**
Booster Pump Station 2	650 HP	1	LS	$2,209,000	$2,209,000
Engineering and Contingencies (35%)					$773,000
Permitting and Mitigation					$27,000
Subtotal of Pump Station 2					**$3,009,000**
Booster Pump Station 3	350 HP	1	LS	$1,618,000	$1,618,000
Engineering and Contingencies (35%)					$566,000
Permitting and Mitigation					$19,000
Subtotal of Pump Station 3					**$2,203,000**
Total of Pump Stations					**$13,878,000**

Table Q-129, Continued

Carrolton portion of P.S	*52% of P.S 1*	*$4,506,000*
Lewisville portion of P.S	*24% of P.S 1, 100% of P.S2*	*$5,089,000*
The Colony portion of P.S	*24% of P.S 1, 100% of P.S 3*	*$4,283,000*
		$13,878,000
CONSTRUCTION TOTAL		**$40,697,000**
Interest During Construction		**$ 2,510,000**
TOTAL COST		**$43,207,000**
Carrolton		*$13,894,400*
Lewisville		*$13,614,000*
The Colony		*$15,699,000*
		$43,207,400
ANNUAL COSTS		
Carrolton		
Debt Service (6% for 30 years)		$1,009,000
Electricity ($0.09 kWh)		$629,000
Operation & Maintenance		$116,000
Total Annual Costs		**$1,754,000**
Lewisville		
Debt Service (6% for 30 years)		$989,000
Electricity ($0.09 kWh)		$481,000
Operation & Maintenance		$112,000
Total Annual Costs		**$1,582,000**
The Colony		
Debt Service (6% for 30 years)		$1,141,000
Electricity ($0.09 kWh)		$662,000
Operation & Maintenance		$130,000
Total Annual Costs		**$1,933,000**

Table Q-129, Continued

TOTAL ANNUAL COSTS

Debt Service (6% for 30 years)	$3,139,000
Electricity ($0.09 kWh)	$1,772,000
Operation & Maintenance	$358,000
Total Annual Costs	**$5,269,000**

UNIT COSTS

Carrollton	
Per Acre-Foot	$48
Per 1,000 Gallons	$0.15
Lewisville	
Per Acre-Foot	$94
Per 1,000 Gallons	$0.29
The Colony	
Per Acre-Foot	$115
Per 1,000 Gallons	$0.35

Note: As of July 2010, Carrollton portion of this project is complete; Lewisville portion is underway; and The Colony portion is in the future.

Table Q-130
Dallas/Kaufman County Combine WSC - Parallel Pipeline to Seagoville

Owner: Combine WSC
Amount: 912 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	10 in.	2,640	LF	$65	$172,000
Right of Way Easements (ROW)		2,640	LF	$28	$74,000
Engineering and Contingencies (30%)					$74,000
Subtotal of Pipeline					**$320,000**
Pump Station(s)					
Booster Pump Station	50 HP	1	LS	$645,000	$645,000
Engineering and Contingencies (35%)					$226,000
Subtotal of Pump Station(s)					**$871,000**
Permitting and Mitigation					**$10,000**
CONSTRUCTION TOTAL					**$1,201,000**
Interest During Construction					**$50,000**
TOTAL COST					**$1,251,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$91,000
Electricity ($0.09 kWh)					$14,000
Operation & Maintenance					$21,000
Total Annual Costs					**$126,000**
UNIT COSTS					
Per Acre-Foot					$138
Per 1,000 Gallons					$0.42

Table Q-131
Dallas/Ellis/Tarrant Counties Grand Prairie - Pipeline from Mansfield

Owner: Grand Prairie
Amount: 6,726 Ac-Ft/Yr

CAPITAL COSTS	**Size**			**Unit Cost***	**Cost**
Pipeline					
Pipeline (Grand Priaire Portion only)	36 in.	1	LS	$3,800,000	$3,800,000
Future Parallel Pipeline (GP Portion O	36 in.	1	LS	$3,800,000	$3,800,000
Engineering (12%)					$912,000
Subtotal of Pipeline					**$8,512,000**
Pump Station & Ground Storage					
6 MGD Pump Station & 3 MG Ground Storage		1	LS	$5,500,000	$5,500,000
Engineering (12%)					$660,000
Subtotal of Pump Station(s)					**$6,160,000**
Permitting and Mitigation					**$157,000**
CONSTRUCTION TOTAL					**$14,829,000**
Interest During Construction (12 month)					**$618,000**
TOTAL COST					**$15,447,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$1,122,000
Electricity ($0.09 kWh)					$55,000
Treated Water ($2.50 per 1,000 gallons)					$5,479,000
Operation & Maintenance					$256,000
Total Annual Costs					**$6,912,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot					$1,028
Per 1,000 Gallons					$3.15
UNIT COSTS (After Amortization)					
Per Acre-Foot					$861
Per 1,000 Gallons					$2.64

* Unit costs for this project provided by Grand Prairie's Engineers. Unit Costs includes only Grand Prairie's portion of the project. Unit Cost included 20% for Contingencies but not Engineering cost.

Table Q-132
Dallas/Ellis/Tarrant Counties Grand Prairie - Pipeline from Midlothian

Owner: Grand Prairie
Amount: 7,287 Ac-Ft/Yr

CAPITAL COSTS	Size			Unit Cost*	Cost
Pipeline					
Pipeline (Grand Priaire Portion only)	36 in.	1	LS	$3,500,000	$3,500,000
Future Parallel Pipeline (GP Portion O	36 in.	1	LS	$3,500,000	$3,500,000
Engineering (12%)					$840,000
Subtotal of Pipeline					**$7,840,000**
Pump Station & Ground Storage					
5 MGD Pump Station & 3 MG Ground Storage		1	LS	$5,000,000	$5,000,000
Engineering (12%)					$600,000
Subtotal of Pump Station(s)					**$5,600,000**
Permitting and Mitigation					**$144,000**
CONSTRUCTION TOTAL					**$13,584,000**
Interest During Construction (12 months)					**$566,000**
TOTAL COST					**$14,150,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$1,028,000
Electricity ($0.09 kWh)					$61,000
Treated Water ($2.50 per 1,000 gallons)					$5,936,000
Operation & Maintenance					$234,000
Total Annual Costs					**$7,259,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot					$996
Per 1,000 Gallons					$3.06
UNIT COSTS (After Amortization)					
Per Acre-Foot					$855
Per 1,000 Gallons					$2.62

* Unit costs for this project provided by Grand Prairie's Engineers. Unit Costs includes only Grand Prairie's portion of the project. Unit Cost included 20% for Contingencies but not Engineering cost.

Table Q-133
Dallas/Ellis/Tarrant Counties Grand Prairie - Pipeline from Arlington

Owner: Grand Prairie
Amount: 4,484 Ac-Ft/Yr

CAPITAL COSTS	Size			Unit Cost*	Cost
Pipeline					
Pipeline	20 in.	1	LS	$1,000,000	$1,000,000
Future Parallel Pipeline	20 in.	1	LS	$1,000,000	$1,000,000
Engineering (12%)					$240,000
Subtotal of Pipeline					**$2,240,000**
Pump Station					
4 MGD In-line Pump Station		1	LS	$1,500,000	$1,500,000
Engineering (12%)					$180,000
Subtotal of Pump Station(s)					**$1,680,000**
Permitting and Mitigation					**$42,000**
CONSTRUCTION TOTAL					**$3,962,000**
Interest During Construction (12 months)					**$165,000**
TOTAL COST					**$4,127,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$300,000
Electricity ($0.09 kWh)					$11,000
Treated Water ($2.50 per 1,000 gallons)					$3,653,000
Operation & Maintenance					$69,000
Total Annual Costs					**$4,033,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot					$899
Per 1,000 Gallons					$2.76
UNIT COSTS (After Amortization)					
Per Acre-Foot					$833
Per 1,000 Gallons					$2.55

* Unit costs for this project provided by Grand Prairie's Engineers. Unit Cost included 20% for Contingencies but not Engineering cost.

Table Q-134
Princeton Pump Station Improvements

Owner: Irving
Amount: 0 Ac-Ft/Yr

	Quantity	Unit	Unit Price	Total Price
Pump Station Improvements	1	LS	$ 9,338,000	$ 9,338,000
Engineering & Contingencies (35%)				$3,268,000
Capital Cost Subtotal				**$12,606,000**
Interest During Construction				$273,000
Total Capital Costs				**$12,879,000**
ANNUAL COSTS				
Debt Service				$936,000
Operation and Maintenance				$280,000
Total Annual Cost				**$1,216,000**

Table Q-135
Dallas County Irving - Indirect Reuse from Trinity River Authority

Owner: Irving
Amount: 26,000 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Transmission from WWTP to confluence of Elm Fork River and Denton Creek					
Pipeline					
Pipeline	54 in.	88,000	LF	$435	$38,280,000
Right of Way Easements (ROW)		88,000	LF	$41	$3,608,000
Engineering and Contingencies (30%)					$12,566,000
Subtotal of Pipeline from WWTP					**$54,454,000**
Pump Station(s)					
Booster Pump Station	2000 HP	1	LS	$4,182,000	$4,182,000
Pump Station to WTP	3150 HP	1	LS	$6,892,000	$6,892,000
Engineering and Contingencies (35%)					$3,876,000
Subtotal of Pump Station(s)					**$14,950,000**
Water treatment plant at loop 12 and Elm Fork River					
Water Treatment Plant	46 MGD	1	LS	$67,560,000	$67,560,000
Engineering and Contingencies (35%)					$23,646,000
Subtotal of Water Treatment Plants					**$91,206,000**
Transmission from WTP to Irving					
Pipeline					
Pipeline	54 in.	26,200	LF	$435	$11,397,000
Right of Way Easements (ROW)		26,200	LF	$41	$1,074,000
Engineering and Contingencies (30%)					$3,741,000
Subtotal of Pipeline from WTP to Irving					**$16,212,000**
Pump Station(s)					
Booster Pump Station	1400 HP	1	LS	$3,395,000	$3,395,000
Engineering and Contingencies (35%)					$1,188,000
Subtotal of Pump Station(s)					**$4,583,000**

Table Q-135, Continued

Permitting and Mitigation	**$1,498,000**
CONSTRUCTION TOTAL	**$182,903,000**
Interest During Construction	**$11,280,000**
TOTAL COST	**$194,183,000**
ANNUAL COSTS	
Debt Service (6% for 30 years)	$14,107,000
Electricity ($0.09 kWh)	$741,000
Reuse water ($0.25 per 1,000 gallons)	$2,118,000
Water treatment ($0.70 per 1,000 gallons)	$5,930,000
Operation & Maintenance	$1,030,000
Total Annual Costs	**$23,926,000**
UNIT COSTS	
Per Acre-Foot	$920
Per 1,000 Gallons	$2.82

Table Q-136
Irving - Direct Reuse

Owner: Irving
Amount: 12,000 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Phase I - Using existing DCURD Pipeline		**Amount: 6,000 acre-feet per year**			
Pipeline					
Pipeline (urban)	6 in.	10,264	LF	$39	$400,000
Pipeline (urban)	8 in.	12,018	LF	$52	$625,000
Pipeline (urban)	12 in.	10,796	LF	$77	$831,000
Pipeline (urban)	14 in.	6,239	LF	$90	$562,000
Pipeline (urban)	24 in.	17,783	LF	$174	$3,094,000
Right of Way Easements (ROW)		34,818	LF	$28	$975,000
Right of Way Easements (ROW)		22,282	LF	$21	$468,000
Engineering and Contingencies (30%)					$1,654,000
Subtotal of Pipeline					**$8,209,000**
Pump Station and Storage Tanks					
DCURD Pump Station Improvements		1	LS	$250,000	$250,000
Pump Stations (4)		1	LS	$2,646,000	$2,646,000
Ground Storage Tanks (4)		1	LS	$1,731,000	$1,731,000
Elevated Storage Tanks (2)		1	LS	$1,247,500	$1,247,500
Land Acquisition for Storage Tanks		2	LS	$70,000	$70,000
Engineering and Contingencies (35%)					$2,056,000
Subtotal of Pump Station(s) and Storage Tanks (s)					**$8,000,500**
Permitting and Mitigation					**$1,318,000**
CONSTRUCTION TOTAL - Phase 1					**$17,527,500**
Interest During Construction (12 months)					**$730,000**
TOTAL COST - Phase 1					**$18,257,500**

Table Q-136, Continued

Phase II - New Parallel Pipeline to DCURD Pipeline			**Amount = 6,000 acre-feet per year**		
Pipeline					
Parallel pipeline	36 in.	57,832	LF	$276	$15,962,000
Pipeline	24 in.	15,339	LF	$174	$2,669,000
Pipeline	16 in.	3,301	LF	$103	$340,000
Pipeline	12 in.	10,344	LF	$77	$796,000
Right of Way Easements (ROW)		28,984	LF	$28	$812,000
Engineering and Contingencies (30%)					$6,174,000
Subtotal of Pipeline from WTP to Irving					**$26,753,000**
Pump Station(s)					
Pump Stations (4)		1	LS	$7,348,000	$7,348,000
Ground Storage Tanks (3)		1	LS	$754,000	$754,000
Engineering and Contingencies (35%)					$2,836,000
Subtotal of Pump Station(s)					**$10,938,000**
Permitting and Mitigation					**$334,000**
CONSTRUCTION TOTAL - Phase II					**$38,025,000**
Interest During Construction					**$2,345,000**
TOTAL COST - Phase II					**$40,370,000**
TOTAL COST - Phase I and Phase II					**$58,627,500**
ANNUAL COSTS - Phase I					
Debt Service (6% for 30 years)					$1,326,000
Electricity ($0.09 kWh)		2477620	kWh		$223,000
Reuse water ($0.25 per 1,000 gallons)					$489,000
Operation & Maintenance					$242,000
Total Annual Costs					**$2,280,000**
ANNUAL COSTS - Phase II					
Debt Service (6% for 30 years)					$2,933,000
Electricity ($0.09 kWh)		11907395	kWh		$1,072,000
Reuse water ($0.25 per 1,000 gallons)					$489,000
Operation & Maintenance					$480,000
Total Annual Costs					**$4,974,000**
UNIT COSTS - Phase I and II					
Per Acre-Foot					$605
Per 1,000 Gallons					$1.86

Table Q-137
Irving Oklahoma Water
From Hugo to Lake Lewisville

Probable Owner: Irving
Quantity: 25,000 AF/Y

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline	42 in.	600,000	LF	$215	$129,000,000
30-ft Right of Way Easements (ROW)		600,000	LF	$7	$4,200,000
Red River Tunnel		1,000	LF	$1,000	$1,000,000
Engineering and Contingencies (30%)					$39,000,000
Subtotal of Pipeline					**$173,200,000**
Pump Station(s)					
Lake Hugo Pump Station	4230 HP	1	LS	$8,379,000	$8,379,000
Booster 1	4230 HP	1	LS	$6,300,126	$6,300,000
Engineering and Contingencies (35%)					$5,138,000
Subtotal of Pump Station(s)					**$19,817,000**
CONSTRUCTION TOTAL					**$193,017,000**
Permitting and Mitigation					**$1,736,000**
Interest During Construction			**(12 months)**		**$72,000**
TOTAL COST					**$194,825,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$14,154,000
Electricity ($0.09 kWh)					$2,881,000
Operation & Maintenance					$2,000,000
Raw Water Purchase					$1,222,000
Total Annual Costs					**$20,257,000**
UNIT COSTS (2020-2040)					
Per Acre-Foot					$810
Per 1,000 Gallons					$2.49
UNIT COSTS (2050-2060)					
Per Acre-Foot					$244
Per 1,000 Gallons					$0.75

Note: Cost for buying raw water is assumed to be $0.15 per 1,000 gallons

Table Q-138
City of Irving Alternative Strategy Costs

Capital Costs

Strategy	Basis for Cost			Irving Cost	
	User	Amount	Capital Cost	Amount	Capital Cost
Marvin Nichols Reservoir	UTRWD	35,000	$225,628,000	50,000	$322,326,000
Parkhouse North	DWU	112,000	$521,636,000	50,000	$232,873,000
Parkhouse South	DWU	115,260	$692,921,000	50,000	$300,590,000
Ralph Hall and Reuse	UTRWD	52,437	$286,401,000	26,219	$143,201,000
Wright Patman - System	DWU	180,000	$992,334,000	50,000	$275,648,000
Wright Patman - Raise Flood Pool	DWU	112,100	$896,478,000	50,000	$399,856,000
Wright Patman - Texarkana	DWU	100,000	$759,568,000	50,000	$379,784,000

Cost associated with additional transmission from DWU east side WTP to Lake Lewisville

	size	Quantity	Unit	Unit Cost	Total Cost
Pipeline (urban)	60 in	175,000	LF	$495	$86,625,000
Pipeline ROW		175,000	LF	$41	$7,175,000
Additional pumping capacity	2920 HP	1	EA	$4,953,000	$4,953,000
Engineering and Contingencies					$27,721,000
Permitting and mitigation (1%)					$1,265,000
Subtotal additional capital cost for DWU base strategies					**$127,739,000**

Summary of Capital Costs - Irving Alternatives

	Amount	Total Capital Cost
Marvin Nichols Reservoir	50,000	$322,326,000
Parkhouse North	50,000	$360,612,000
Parkhouse South	50,000	$428,329,000
Ralph Hall	26,219	$143,201,000
Wright Patman - System	50,000	$403,387,000
Wright Patman - Raise Flood Pool	50,000	$527,595,000
Wright Patman - Texarkana	50,000	$507,523,000

Annual Costs

Strategy	Basis for Cost			
	User	Amount	Pre-Am	Post-Am
Marvin Nichols Reservoir	UTRWD	35,000	$22,752,000	$6,360,000
Parkhouse North	DWU	112,000	$51,281,000	$13,385,000
Parkhouse South	DWU	115,260	$65,435,000	$15,095,000
Ralph Hall and Reuse	UTRWD	52,437	$24,754,000	$3,947,000
Wright Patman - System	DWU	180,000	$101,169,000	$29,077,000
Wright Patman - Raise Flood Pool	DWU	112,100	$85,415,000	$20,287,000
Wright Patman - Texarkana	DWU	100,000	$82,292,000	$27,110,000

Table Q-138, Irving Alternative Strategies (continued)

Annual Costs associated with additional transmission	
Debt Service	$9,280,000
Electricity ($0.09 kWh)	$1,131,000
Operation & Maintenance	$1,188,000
Subtotal of additional annual costs for DWU base strategies	**$11,599,000**

Strategy	**Summary of Annual Costs**		
	Irving Amount	**Pre-Am**	**Post-Am**
Marvin Nichols Reservoir	50,000	$32,503,000	$9,086,000
Parkhouse North	50,000	$34,492,000	$8,294,000
Parkhouse South	50,000	$39,985,000	$8,867,000
Ralph Hall and Reuse	26,219	$12,377,000	$1,974,000
Wright Patman - System	50,000	$39,702,000	$10,396,000
Wright Patman - Raise Flood Pool	50,000	$49,697,000	$11,368,000
Wright Patman - Texarkana	50,000	$52,745,000	$15,874,000

Unit Costs

	Irving Amount	**Pre-Am**	**Post-Am**
Marvin Nichols Reservoir	50,000	$1.99	$0.56
Parkhouse North	50,000	$2.12	$0.51
Parkhouse South	50,000	$2.45	$0.54
Ralph Hall and Reuse	26,219	$1.45	$0.23
Wright Patman - System	50,000	$2.44	$0.64
Wright Patman - Raise Flood Pool	50,000	$3.05	$0.70
Wright Patman - Texarkana	50,000	$3.24	$0.97

Table Q-139
Irving Oklahoma Water
From Hugo to Lake Chapman

Probable Owner: City of Irving
Quantity: 25,000 AF/Y

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	42 in	274,560	LF	$215	$59,030,000
30-ft Right of Way Easements (ROW)		274,560	LF	$7	$1,922,000
Red River Tunnel		1,000	LF	$1,000	$1,000,000
Engineering and Contingencies (30%)					$18,009,000
Subtotal of Pipeline					**$79,961,000**
Pump Station(s)					
Pumps with intake & building	3950 HP	1	LS	$8,035,500	$8,035,500
Chapman Pump Station Expansion					$567,000
Booster on Chapman-Lavon Line					$6,813,000
Engineering and Contingencies (35%)					$5,395,425
Subtotal of Pump Station(s)					**$20,810,925**
CONSTRUCTION TOTAL					**$100,771,925**
Permitting and Mitigation					**$905,000**
Interest During Construction			**(18 months)**		**$6,215,000**
TOTAL COST					**$107,891,925**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$7,838,000
Electricity ($0.09 per kWh)					$6,269,000
Operation & Maintenance					$1,182,000
Raw Water Purchase					$1,222,000
Total Annual Costs					**$16,511,000**
UNIT COSTS (During Amortization)					
Per Acre-Foot					$660
Per 1,000 Gallons					$2.03
UNIT COSTS (After Amortization)					
Per Acre-Foot					$347
Per 1,000 Gallons					$1.06

Note: Cost for buying raw water is assumed to be $0.15 per 1,000 gallons

Table Q-140
Ovilla Additional Water from Dallas

Owner:	Ovilla				
Amount:	1,111	Ac-Ft/Yr			
CONSTRUCTION COSTS					
TRANSMISSION FACILITIES					
Pipeline(s)	**Qty.**	**Units**	**Unit Cost**		**Total Cost**
14" Water Line					
Pipe	45,778	LF	$ 69	$	3,159,000
ROW	45,778	LF	$ 5	$	229,000
Engineering and Contingencies	30%			$	948,000
Subtotal of Pipeline(s)				**$**	**4,336,000**
Pump Station(s)					
Station 1					
Pump, building, & appurtenances	98	HP		$	738,000
Storage Tank	0.31	MG		$	317,000
Engineering and Contingencies	35%			$	369,000
Subtotal of Pump Station(s)				**$**	**1,424,000**
PERMITTING AND MITIGATION	1%			**$**	**51,000**
CONSTRUCTION TOTAL				**$**	**5,811,000**
Interest During Construction		(12 months)		**$**	**358,000**
TOTAL CAPITAL COST				**$**	**6,169,000**
ANNUAL COSTS					
Debt Service				$	448,000
Operation and Maintenance Costs					
Pipeline	1%			$	38,000
Pump Station	2.50%			$	32,000
Estimated Annual Power Cost	$0.09/kWh			$	4,000
Treated Water Demand Charge	2	MGD	$ 123,190	$	246,000
Treated Water Volume Charge	362,020	1000 gal	$ 0.70	$	253,000
Total Annual Costs				**$**	**1,021,000**

Table Q-140, Continued

UNIT COSTS (First 30 Years)		
Per Acre-Foot	$	919
Per 1,000 Gallons	$	2.82
UNIT COSTS (After 30 Years)		
Per Acre-Foot	$	288
Per 1,000 Gallons	$	0.88

Table Q-141
Sardis-Lone Elm WSC Purchase Water from Rockett SUD

Owner:	Sardis-Lone Elm WSC				
Amount:	2,456	Ac-Ft/Yr			
CONSTRUCTION COSTS					
TRANSMISSION FACILITIES					
Pipeline(s)	**Qty.**	**Units**	**Unit Cost**		**Total Cost**
18" Water Line					
Pipe	48,200	LF	$ 90	$	4,338,000
ROW	48,200	LF	$ 5	$	241,000
Engineering and Contingencies	30%			$	1,301,000
Subtotal of Pipeline(s)				**$**	**5,880,000**
Pump Station(s)					
Station 1					
Pump, building, & appurtenances	384	HP		$	1,738,000
Storage Tank	0.54	MG		$	454,000
Engineering and Contingencies	35%			$	767,000
Subtotal of Pump Station(s)				**$**	**2,959,000**
PERMITTING AND MITIGATION	1%			**$**	**78,000**
CONSTRUCTION TOTAL				**$**	**8,917,000**
Interest During Construction		(12 months)		**$**	**550,000**
TOTAL CAPITAL COST				**$**	**9,467,000**
ANNUAL COSTS					
Debt Service				$	688,000
Operation and Maintenance Costs					
Pipeline	1%			$	52,000
Pump Station	2.50%			$	66,000
Estimated Annual Power Cost	$0.09/kWh			$	13,000
Treated Water Cost	800,290	1000 gal	$ 1.21	$	969,000
Total Annual Costs				**$**	**1,788,000**

Table Q-141, Continued

UNIT COSTS (First 30 Years)		
Per Acre-Foot	$	728
Per 1,000 Gallons	$	2.23
UNIT COSTS (After 30 Years)		
Per Acre-Foot	$	448
Per 1,000 Gallons	$	1.37

Table Q-142
City of Lancaster - New Delivery Point for DWU

Owner: Lancaster
Amount: 3,733 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	16 in.	1,000	LF	$103	$103,000
Right of Way Easements (ROW)	20 ft.	1,000	LF	$28	$28,000
Engineering and Contingencies (30%)					$39,000
Subtotal of Pipeline					**$170,000**
Pump Station(s)					
Ground Storage Tank	0.8 MG	1	LS	$555,600	$555,600
New metering facilities		1	LS	$1,000,000	$1,000,000
Engineering and Contingencies (35%)					$544,000
Subtotal of Pump Station(s)					**$2,099,600**
Permitting and Mitigation					**$8,000**
CONSTRUCTION TOTAL					**$2,277,600**
Interest During Construction (12 months)					**$95,000**
TOTAL COST					**$2,372,600**
ANNUAL COSTS					
Debt Service (6%, 30 years)					$172,000
Pipeline O&M (1%)					$1,000
Storage and Metering O&M (2.5%)					$47,000
Treated Water Volume Charge ($0.38/1000 gal)		1,216,958	1000 gal		$462,444
Treated Water Demand Charge ($179,991/mgd)		3.0	mgd		$539,973
TOTAL ANNUAL COST					**$1,222,417**
UNIT COSTS (Until Amortized)					
Per Acre-Foot of treated water					$327
Per 1,000 Gallons					$1.00
UNIT COSTS (After Amortization)					
Per Acre-Foot					$281
Per 1,000 Gallons					$0.86

Table Q-143
Dallas County Irrigation - Pipeline for Reuse

Owner: Unknown
Amount: 2,700 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	16 in.	15,840	LF	$103	$1,632,000
Right of Way Easements (ROW)		15,840	LF	$28	$444,000
Engineering and Contingencies (30%)					$623,000
Subtotal of Pipeline					**$2,699,000**
Pump Station(s)					
Booster Pump Station	230 HP	1	LS	$1,215,000	$1,215,000
Engineering and Contingencies (35%)					$425,000
Subtotal of Pump Station(s)					**$1,640,000**
Permitting and Mitigation					**$34,000**
CONSTRUCTION TOTAL					**$4,373,000**
Interest During Construction					**$182,000**
TOTAL COST					**$4,555,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$331,000
Electricity ($0.09 kWh)					$48,000
Reuse Water ($.25 per 1,000 gallons)					$220,000
Operation & Maintenance					$56,000
Total Annual Costs					**$655,000**
UNIT COSTS					
Per Acre-Foot					$243
Per 1,000 Gallons					$0.74

Table Q-144
Dallas County Mining - Pipeline

Owner: Unknown
Amount: 300 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	8 in.	15,840	LF	$52	$824,000
Right of Way Easements (ROW)		15,840	LF	$21	$333,000
Engineering and Contingencies (30%)					$347,000
Subtotal of Pipeline					**$1,504,000**
Pump Station(s)					
Booster Pump Station	12 HP	1	LS	$543,000	$543,000
Engineering and Contingencies (35%)					$190,000
Subtotal of Pump Station(s)					**$733,000**
Permitting and Mitigation					**$16,000**
CONSTRUCTION TOTAL					**$2,253,000**
Interest During Construction					**$94,000**
TOTAL COST					**$2,347,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$171,000
Electricity ($0.09 kWh)					$5,000
Raw Water ($.49 per 1,000 gallons for DWU)					$48,000
Operation & Maintenance					$26,000
Total Annual Costs					**$250,000**
UNIT COSTS					
Per Acre-Foot					$833
Per 1,000 Gallons					$2.56

Table Q-145
Dallas County S. E. Power - Direct Reuse

Owner: Unknown
Amount: 4,600 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	24 in.	52,800	LF	$116	$6,125,000
Right of Way Easements (ROW)		52,800	LF	$28	$1,478,000
Engineering and Contingencies (30%)					$2,281,000
Subtotal of Pipeline					**$9,884,000**
Pump Station(s)					
Booster Pump Station	250 HP	1	LS	$1,280,000	$1,280,000
Engineering and Contingencies (35%)					$448,000
Subtotal of Pump Station(s)					**$1,728,000**
Permitting and Mitigation					**$89,000**
CONSTRUCTION TOTAL					**$11,701,000**
Interest During Construction			**(12 months)**		**$488,000**
TOTAL COST					**$12,189,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$886,000
Electricity ($0.09 kWh)					$86,000
Reuse Water ($0.25 per 1,000 gallons)					$375,000
Operation & Maintenance					$112,000
Total Annual Costs					**$1,459,000**
UNIT COSTS (Pre-Amortization)					
Per Acre-Foot					$317
Per 1,000 Gallons					$0.97
UNIT COSTS (Post Amortization)					
Per Acre-Foot					$125
Per 1,000 Gallons					$0.38

Table Q-146
City of Hackberry Purchase Additional Treated Water from North Texas MWD

Owner: Hackberry
Amount: 98 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline					$0
Right of Way Easements (ROW)					$0
Engineering and Contingencies (30%)					$0
Subtotal of Pipeline					**$0**
Pump Station(s)					
Pump station					$0
Ground Storage with Roof					$0
Engineering and Contingencies (35%)					$0
Subtotal of Pump Station(s)					**$0**
Permitting and Mitigation					**$0**
CONSTRUCTION TOTAL					**$0**
Interest During Construction			**(12 months)**		**$0**
TOTAL COST					**$0**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$0
Treated Water ($1.30 per 1,000 gallons)					$42,000
Electricity ($0.09 kWh)					$0
Operation & Maintenance					$0
Total Annual Costs					**$42,000**
UNIT COSTS (2010-2030)					
Per Acre-Foot					$429
Per 1,000 Gallons					$1.30
UNIT COSTS (2040-2060)					
Per Acre-Foot					$0
Per 1,000 Gallons					$0.00

Table Q-147
Denton County-Other
Denton County, Woodbine Aquifer

Need	100	ac-ft/yr		
Water Depth	450	ft		
Well Depth	500	ft		
Well Yield	100	gpm	161	ac-ft (peak)
Well Size	6	in	80.5	ac-ft (average)
Wells Needed	2			

WELLS					
Well(s)	**Number**		**Unit Cost**		
Water Wells	2		$ 142,500	$	285,000
Connection to Distribution System	2		$ 160,000	$	320,000
Engineering and Contingencies				$	182,000
Subtotal of Well(s)				**$**	**787,000**
PERMITTING AND MITIGATION	1%			**$**	**7,000**
CONSTRUCTION TOTAL				**$**	**794,000**
Interest During Construction		(6 months)		**$**	**17,000**
TOTAL CAPITAL COST				**$**	**811,000**
ANNUAL COSTS					
Debt Service - Total Capital				$	59,000
O&M					
Transmission	1%			$	3,840
Well(s)	2.5%			$	8,600
Add Chemicals, Etc.	32,585	1000 gal	$ 0.30	$	9,800
Pumping Costs				$	6,200
Total Annual Cost				**$**	**87,440**
UNIT COSTS (First 30 Years)					
Cost per ac-ft				$	874
Cost per 1000 gallons				$	2.68
UNIT COSTS (After 30 Years)					
Cost per ac-ft				$	284
Cost per 1000 gallons				$	0.87

Table Q-148
Denton County-Other
Denton County, Trinity Aquifer

Need	100	ac-ft/yr		
Water Depth	500	ft		
Well Depth	550	ft		
Well Yield	100	gpm	161	ac-ft (peak)
Well Size	6	in	80.5	ac-ft (average)
Wells Needed	2			

WELLS					
Well(s)	**Number**		**Unit Cost**		
Water Wells	2		$ 148,800	$	298,000
Connection to Distribution System	2		$ 160,000	$	320,000
Engineering and Contingencies				$	185,000
Subtotal of Well(s)				**$**	**803,000**
PERMITTING AND MITIGATION	1%			**$**	**7,000**
CONSTRUCTION TOTAL				**$**	**810,000**
Interest During Construction		(6 months)		**$**	**18,000**
TOTAL CAPITAL COST				**$**	**828,000**
ANNUAL COSTS					
Debt Service - Total Capital				$	60,000
O&M					
Transmission	1%			$	3,840
Well(s)	2.5%			$	8,900
Add Chemicals, Etc.	32,585	1000 gal	$ 0.30	$	9,800
Pumping Costs				$	6,800
Total Annual Cost				**$**	**89,340**
UNIT COSTS (First 30 Years)					
Cost per ac-ft				$	893
Cost per 1000 gallons				$	2.74
UNIT COSTS (After 30 Years)					
Cost per ac-ft				$	293
Cost per 1000 gallons				$	0.90

Table Q-149
Pilot Point - New Wells in the Trinity Aquifer
Denton County, Trinity Aquifer

Need	167	ac-ft/yr	
Water Depth	444	ft	
Well Depth	521	ft	
Well Yield	210	gpm	338 ac-ft (peak)
Well Size	8	in	169.0 ac-ft (average)
Wells Needed	1		

WELLS					
Well(s)	**Number**		**Unit Cost**		
Water Wells	1		$ 171,200	$	171,000
Connection to Distribution System	1		$ 160,000	$	160,000
Engineering and Contingencies				$	99,000
Subtotal of Well(s)				**$**	**430,000**
PERMITTING AND MITIGATION	1%			**$**	**4,000**
CONSTRUCTION TOTAL				**$**	**434,000**
Interest During Construction		(6 months)		**$**	**9,000**
TOTAL CAPITAL COST				**$**	**443,000**
ANNUAL COSTS					
Debt Service - Total Capital				$	32,000
O&M					
Transmission	1%			$	1,920
Well(s)	2.5%			$	5,100
Add Chemicals, Etc.	54,417	1000 gal	$ 0.30	$	16,300
Pumping Costs				$	10,300
Total Annual Cost				**$**	**65,620**
UNIT COSTS (First 30 Years)					
Cost per ac-ft				$	393
Cost per 1000 gallons				$	1.21
UNIT COSTS (After 30 Years)					
Cost per ac-ft				$	201
Cost per 1000 gallons				$	0.62

Table Q-150
Northlake, Roanoke, and Trophy Club to Fort Worth (Share of Cost to connect to Fort Worth)

Probable Owner: Northlake/Roanoke/Trophy Club/Fort Worth
Amount: 4,600 acre-ft/year

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipelines*	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline (24 in.)	24 in.	5,000	LF	$158	$790,000
Pipeline (36 in.)	36 in.	30,000	LF	$237	$7,110,000
ROW Easements		35,000	LF	$28	$980,000
48" Boring and casing		263	LF	$632	$166,000
Engineering and Contingencies (30%)					$2,714,000
Subtotal of Pipelines					**$11,760,000**
Permitting and mitigation					$95,000
CONSTRUCTION TOTAL					**$11,760,000**
Interest During Construction	**(18 months)**				**$725,000**
TOTAL COST					**$12,580,000**
Fort Worth's Share (50%)					**$6,290,000**
Northlake's Share (30%)					**$3,774,000**
Roanoke's Share (10%)					**$1,258,000**
Trophy Club (10%)					**$1,258,000**
ANNUAL COSTS FOR NORTHLAKE					
Debt Service (6% for 30 years)					$274,000
Electricity ($0.06 kWh)					$39,000
Operation & Maintenance					$95,000
Total Annual Costs					**$408,000**
ANNUAL COSTS FOR ROANOKE					
Debt Service (6% for 30 years)					$91,000
Electricity ($0.09 kWh)					$26,000
Operation & Maintenance					$95,000
Total Annual Costs					**$212,000**
ANNUAL COSTS FOR TROPHY CLUB					
Debt Service (6% for 30 years)					$91,000
Electricity ($0.09 kWh)					$39,000
Operation & Maintenance					$95,000
Total Annual Costs					**$225,000**

Notes:
* Pipeline and storage tank information and costs based on information provided in Fort Worth Master Plan.

Table Q-151
Southlake to Fort Worth (Share of Cost to Connect to Fort Worth)

Probable Owner: Southlake/Fort Worth

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipelines*	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline (30 in.)	30 in.	25,000	LF	$215	$5,375,000
ROW Easements		25,000	LF	$12	$300,000
54" Boring and casing		263	LF	$711	$187,000
Miscellaneous Improvements		1	LS	$921,000	$921,000
Engineering and Contingencies (30%)					$2,035,000
Subtotal of Pipelines					**$8,818,000**
Permitting and mitigation					$65,000
CONSTRUCTION TOTAL					**$8,818,000**
Interest During Construction	**(18 months)**				**$544,000**
TOTAL COST					**$9,427,000**

ANNUAL COSTS FOR SOUTHLAKE	
Debt Service (6% for 30 years)	$685,000
Operation & Maintenance	$65,000
Total Annual Costs	**$750,000**

Notes:
* Pipeline and storage tank information and costs based on information provided in Fort Worth Master Plan; Westlake may pay for small portion of line

Table Q-152
The Colony - Aquifer Storage and Recovery

Owner: The Colony
Amount: 0 AF/Y

No.	Description	Quantity	Units	Unit Price	Amount
1	Mobilization & Demobilization	1	Ls	$66,000	**$66,000**
2	Drill 30-Inch Borehole	50	Ft	$230	**$12,000**
3	Drill 22-Inch Borehole	2050	Ft	$200	**$410,000**
4	Drill 15-Inch Borehole	300	Ft	$430	**$129,000**
5	24-Inch Steel Casing	50	Ft	$230	**$12,000**
6	16-Inch SS304L Casing 0.5" Wall Thickness	2100	Ft	$330	**$693,000**
7	Neat Cement	2100	Ft	$41	**$86,000**
8	Pilot Hole to 2100 ft	1	Ls	$12,000	**$12,000**
9	Reamed Borehole to 2100 ft	1	Ls	$13,000	**$13,000**
10	Cemented Casing to 2100 ft	1	Ls	$4,000	**$4,000**
11	15" Hole to 2400 ft	1	Ls	$12,000	**$12,000**
12	Well Screen	1	Ls	$3,000	**$3,000**
13	Screen Assembly Complete	200	Ft	$430	**$86,000**
14	Well Development	80	Hours	$1,200	**$96,000**
15	Pump Setup	1	Ls	$33,000	**$33,000**
16	Pumping test	48	Hours	$260	**$12,000**
17	Disinfection	1	Ls	$20,000	**$20,000**
18	Standby Time	16	Hours	$330	**$5,000**
19	Set/Pull 200 GPM Pump	1	Ls	$13,000	**$13,000**
20	Rent Interim Pump	4	Months	$3,900	**$16,000**
21	2000 GPM Vertical Turbine Pump	1	Ls	$289,000	**$289,000**
22	Piping, Valves & Flowmeter	1	Ls	$151,000	**$151,000**
23	Chlorine & Ammonia System	1	Ls	$120,000	**$120,000**
24	Chlorine, Ammonia & Electrical Building	1	Ls	$58,000	**$58,000**
25	Electrical	1	Ls	$154,000	**$154,000**
26	Instrumentation & Control	1	Ls	$85,000	**$85,000**
27	Painting & Misc.	1	Ls	$11,000	**$11,000**
28	Allowance	1	Ls	$66,000	**$66,000**
	Total				**$2,667,000**

Note: Item No. 8 thru 12 is for Geophysical Logging Costs provided by The Colony.

Table Q-153
Denton County Mining - New Wells in Woodbine Aquifer
Denton County, Woodbine Aquifer

Need	202	Ac-ft/yr	125	gpm
Depth to Water	104			
Well Depth	300			
Well Yield	300	gpm	483	ac-ft (peak)
Well Size	10	in	242	ac-ft (average)
Wells Needed	2			

Construction Costs

Water Wells	2	$145,000	$290,000
Connection to Transmission System	2	$160,000	$320,000
Storage tank	1	$183,000	$183,000
Subtotal			$793,000
Engineering and Contingencies			$238,000
Mitigation and Permitting			$10,000
Subtotal			$1,041,000
Interest During Construction			$23,000
	Total Capital		**$1,064,000**
Debt Service - Total Capital			$77,000
O&M			
Transmission			$10,000
Well(s)			$10,000
Add Chemicals etc.		0.3	$47,000
Pumping Costs			$14,000
	Total Annual Cost		**$158,000**

UNIT COSTS

Cost per ac-ft	$327
Cost per 1000 gallons	$1.00

Table Q-154
Denton County Manufacturing - New Well in Trinity Aquifer
Denton County, Trinity Aquifer

Need	200	Ac-ft/yr	124	gpm
Depth to Water	473			
Well Depth	1450			
Well Yield	260	gpm	419	ac-ft (peak)
Well Size	10	in	210	ac-ft (average)
Wells Needed	1			

Construction Costs

	Number		Unit Cost	Total Cost
Water Wells	1		$375,000	$375,000
Connection to Transmission System	1		$160,000	$160,000
Engineering and Contingencies (30%)				$161,000
Subtotal of Well(s)				**$696,000**
Permitting and Mitigation				$6,000
Construction Total				$702,000
Interest During Construction	6	months		$15,000
Total Capital Cost				**$717,000**
Debt Service - Total Capital				$52,000
O&M				
Transmission	1%			$2,000
Well(s)	2.5%			$11,000
Add Chemicals etc.	65,170	$0.30	per 1000 gal	$19,600
Pumping Costs				$13,000
			Total Annual Cost	**$97,600**
UNIT COSTS (First 30 Years)				
Cost per ac-ft				$488
Cost per 1000 gallons				$1.50
UNIT COSTS (After 30 Years)				
Cost per ac-ft				$228
Cost per 1000 gallons				$0.70

Table Q-155
Denton County Steam Electric Power - New Well in Trinity Aquifer
Denton County, Trinity Aquifer

Need	200	Ac-ft/yr	124	gpm
Depth to Water	473			
Well Depth	1450			
Well Yield	260	gpm	419	ac-ft (peak)
Well Size	10	in	210	ac-ft (average)
Wells Needed	1			

Construction Costs

	Number		Unit Cost	Total Cost
Water Wells	1		$375,000	$375,000
Connection to Transmission System	1		$160,000	$160,000
Engineering and Contingencies (30%)				$161,000
Subtotal of Well(s)				**$696,000**
Permitting and Mitigation				$6,000
Construction Total				$702,000
Interest During Construction	6	months		$15,000
Total Capital Cost				**$717,000**
Debt Service - Total Capital				$52,000
O&M				
Transmission	1%			$2,000
Well(s)	2.5%			$11,000
Add Chemicals etc.	65,170	$0.30	per 1000 gal	$19,600
Pumping Costs				$13,000
			Total Annual Cost	**$97,600**

UNIT COSTS (First 30 Years)

Cost per ac-ft	$488
Cost per 1000 gallons	$1.50

UNIT COSTS (After 30 Years)

Cost per ac-ft	$228
Cost per 1000 gallons	$0.70

Table Q-156
Denton County Irrigation - New Well in Trinity Aquifer
Denton County, Trinity Aquifer

Need	200	Ac-ft/yr	124	gpm
Depth to Water	473			
Well Depth	1450			
Well Yield	260	gpm	419	ac-ft (peak)
Well Size	10	in	210	ac-ft (average)
Wells Needed	1			

Construction Costs

	Number		Unit Cost	Total Cost
Water Wells	1		$375,000	$375,000
Connection to Transmission System	1		$160,000	$160,000
Engineering and Contingencies (30%)				$161,000
Subtotal of Well(s)				**$696,000**
Permitting and Mitigation				$6,000
Construction Total				$702,000
Interest During Construction	6	months		$15,000
Total Capital Cost				**$717,000**
Debt Service - Total Capital				$52,000
O&M				
Transmission	1%			$2,000
Well(s)	2.5%			$11,000
Add Chemicals etc.	65,170	$0.30	per 1000 gal	$19,600
Pumping Costs				$13,000
			Total Annual Cost	**$97,600**
UNIT COSTS (First 30 Years)				
Cost per ac-ft				$488
Cost per 1000 gallons				$1.50
UNIT COSTS (After 30 Years)				
Cost per ac-ft				$228
Cost per 1000 gallons				$0.70

Table Q-157

Buena Vista-Bethel SUD - Cost of Overdrafting
Trinity Aquifer Using Existing Pumps
Ellis County, Trinity Aquifer

Need	366	Ac-ft/yr	227	gpm
Depth to Water	839			
Well Depth	2579			
Well Yield	455	gpm	733	ac-ft (peak)
			366.5	ac-ft (average)

Annual Cost		
Pumping Costs		$40,162
Chemical Costs	0.13	$15,525
Total Annual Cost		**$55,687**
UNIT COSTS		
Cost per ac-ft		$152
Cost per 1000 gallons		$0.47

Table Q-158
Buena Vista - Bethel SUD Purchase Water from Rockett SUD

Owner:	Buena Vista - Bethel SUD					
Amount:	658	Ac-Ft/Yr				
CONSTRUCTION COSTS						
TRANSMISSION FACILITIES						
Pipeline(s)	**Qty.**	**Units**	**Unit Cost**			**Total Cost**
14" Water Line						
Pipe	96,860	LF	$	60	$	5,812,000
ROW	96,860	LF	$	5	$	484,000
Engineering and Contingencies	30%				$	1,744,000
Subtotal of Pipeline(s)					**$**	**8,040,000**
Pump Station(s)						
Station 1						
Pump, building, & appurtenances	60	HP			$	665,000
Storage Tank	0.20	MG			$	247,000
Engineering and Contingencies	35%				$	319,000
Subtotal of Pump Station(s)					**$**	**1,231,000**
PERMITTING AND MITIGATION	1%				**$**	**81,000**
CONSTRUCTION TOTAL					**$**	**9,352,000**
Interest During Construction		(18 months)			**$**	**577,000**
TOTAL CAPITAL COST					**$**	**9,929,000**
ANNUAL COSTS						
Debt Service					$	721,000
Operation and Maintenance Costs						
Pipeline	1%				$	70,000
Pump Station	2.50%				$	27,000
Estimated Annual Power Cost	$0.09/kWh				$	2,000
Treated Water Cost	214,472	1000 gal	$	1.21	$	260,000
Total Annual Costs					**$**	**1,080,000**

Table Q-158, Continued

UNIT COSTS (First 30 Years)		
Per Acre-Foot	$	1,641
Per 1,000 Gallons	$	5.04
UNIT COSTS (After 30 Years)		
Per Acre-Foot	$	545
Per 1,000 Gallons	$	1.67

Table Q-159
Buena Vista - Bethel SUD Parallel Pipeline from Waxahachie

Owner:	Buena Vista - Bethel SUD			
Amount:	2,280	Ac-Ft/Yr		
CONSTRUCTION COSTS				
TRANSMISSION FACILITIES				
Pipeline(s)	**Qty.**	**Units**	**Unit Cost**	**Total Cost**
18" Water Line				
Pipe	52,800	LF	$77	$4,066,000
ROW	52,800	LF	$12	$634,000
Engineering and Contingencies	30%			$1,220,000
Subtotal of Pipeline(s)				**$5,920,000**
Pump Station(s)				
Station 1				
Pump, building, & appurtenances	245	HP		$1,264,000
Storage Tank	0.50	MG		$438,000
Engineering and Contingencies	35%			$596,000
Subtotal of Pump Station(s)				**$2,298,000**
PERMITTING AND MITIGATION	1%			**$69,000**
CONSTRUCTION TOTAL				**$8,287,000**
Interest During Construction		(18 months)		**$511,000**
TOTAL CAPITAL COST				**$8,798,000**
ANNUAL COSTS				
Debt Service				$639,000
Operation and Maintenance Costs				
Pipeline	1%			$49,000
Pump Station	2.50%			$51,000
Estimated Annual Power Cost	$0.09/kWh			$11,000
Treated Water Cost	742,940	1000 gal	$ 0.72	$535,000
Total Annual Costs				**$1,285,000**

Table Q-159, Continued

UNIT COSTS (First 30 Years)	
Per Acre-Foot	$564
Per 1,000 Gallons	$1.73
UNIT COSTS (After 30 Years)	
Per Acre-Foot	$283
Per 1,000 Gallons	$0.87

Table Q-160
Community Water Co. Additional Water from Ennis

Owner:	Community Water Co.				
Amount:	204 Ac-Ft/Yr				
Item No. & Description	**Qty.**	**Units**	**Unit Cost**		**Total Cost**
TOTAL CAPITAL COST				**$**	**-**
ANNUAL COSTS					
Debt Service				$	-
Operation and Maintenance Costs					
Pipeline	1%			$	-
Pump Station	2.50%			$	-
Estimated Annual Power Cost	$0.09/kWh			$	-
Treated Water Cost	66,474	1000 gal	$ 2.67	$	177,000
Total Annual Costs				**$**	**177,000**
UNIT COSTS (First 30 Years)					
Per Acre-Foot				$	868
Per 1,000 Gallons				$	2.66
UNIT COSTS (After 30 Years)					
Per Acre-Foot				$	868
Per 1,000 Gallons				$	2.66

Table Q-161
Ennis WWTP Indirect Reuse

Owner:	Ennis	
Indirect Reuse Amount:	3,696	Ac-Ft/Yr

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipeline(s)	**Qty.**	**Units**		**Unit Cost**		**Total Cost**
20" Reclaimed Water Line						
Pipe	32,855	LF	$	90	$	2,957,000
ROW	32,855	LF	$	5	$	164,000
20" Raw Water Line						
Pipe	4,752	LF	$	90	$	428,000
ROW	4,752	LF	$	5	$	24,000
Engineering and Contingencies	30%				$	1,016,000
Subtotal of Pipeline(s)					**$**	**4,589,000**
Pump Station(s)						
Station 1						
Pump, building, & appurtenances	65	HP			$	674,000
Storage Tank	0	MG			$	-
Station 2						
Pump, building, & appurtenances	385	HP			$	2,317,000
Storage Tank	0	MG			$	-
Engineering and Contingencies	35%				$	1,047,000
Subtotal of Pump Station(s)					**$**	**4,038,000**

WATER TREATMENT FACILITIES

Wastewater Treatment Plant Expansion				
Advanced Wastewater Treatment	4.00	MGD	$	4,200,000
Engineering and Contingencies	35%		$	1,470,000
Subtotal of Wastewater Treatment Plant			**$**	**5,670,000**
Water Treatment Plant Expansion				
Water Treatment Plant Expansion	6.00	MGD	$	11,525,000
Engineering and Contingencies	35%		$	4,034,000
Subtotal of Water Treatment Plant			**$**	**15,559,000**

Table Q-161, Continued

PERMITTING AND MITIGATION	1%				**$**	**77,000**
CONSTRUCTION TOTAL					**$**	**29,933,000**
Interest During Construction	(18 months)				**$**	**1,846,000**
TOTAL CAPITAL COST					**$**	**31,779,000**
ANNUAL COSTS						
Debt Service					$	2,309,000
Operation and Maintenance Costs						
Pipeline	1%				$	41,000
Pump Station	2.50%				$	90,000
RO Operation	1,204,345	1000 gal	$	1.24	$	1,493,000
WTP Operation	1,204,345	1000 gal	$	0.70	$	843,000
Estimated Annual Power Cost	$0.09/kWh				$	132,000
Raw Water Cost	3,696	ac-ft	$	-	$	-
Total Annual Costs					**$**	**4,908,000**
UNIT COSTS (First 30 Years)						
Per Acre-Foot					$	1,328
Per 1,000 Gallons					$	4.08
UNIT COSTS (After 30 Years)						
Per Acre-Foot					$	703
Per 1,000 Gallons					$	2.16

Assume no raw water cost.

Table Q-162
Ennis from TRA (Reallocation of Flood Storage at Bardwell)

Owner:	Ennis				
Amount:	1,760 Ac-Ft/Yr				
CONSTRUCTION COSTS					
SITE WORK					
Relocation(s)	**Qty. Units**		**Unit Cost**		**Total Cost**
Recreational Facilities				$	2,797,000
Brazos Electric Power Lines				$	1,211,000
Navarro County Electric Power Lines				$	17,000
Engineering and Contingencies	35%			$	1,408,000
Subtotal of Relocation(s)				**$**	**5,433,000**
Modification(s)					
Outlet Works				$	50,000
Engineering and Contingencies	35%			$	17,000
Subtotal of Modification(s)				**$**	**67,000**
UPDATED STORAGE COST	(Based on 10 Percent Discount)			**$**	**20,167,000**
WATER TREATMENT FACILITIES					
Water Treatment Plant Expansion	4.00 MGD				$8,775,000
Engineering and Contingencies	35%			$	3,071,000
Subtotal of Water Treatment Plant				**$**	**11,846,000**
PERMITTING AND MITIGATION				**$**	**91,000**
CONSTRUCTION TOTAL				**$**	**37,604,000**
Interest During Construction	(6 months)			**$**	**815,000**
TOTAL CAPITAL COST				**$**	**38,419,000**
ANNUAL COSTS					
Debt Service				$	2,791,000
Operation and Maintenance Costs					
Project				$	112,000
Mitigation				$	18,000
WTP Operation	573,498 1000 gal		$ 0.70	$	401,000
Total Annual Costs				**$**	**3,322,000**
UNIT COSTS (First 30 Years)					
Per Acre-Foot				$	1,888
Per 1,000 Gallons				$	5.79
UNIT COSTS (After 30 Years)					
Per Acre-Foot				$	302
Per 1,000 Gallons				$	0.93

NOTES:

(1) With the exception of the storage costs, the ENR Construction Cost Index was used to update the project costs from December 1988 to September 2008.

(2) Original (1965) total storage costs were $9,540,000. Estimated updated total storage cost in December 1988 was approximately $41,913,000, for an average increase of 6.36 percent per year.

Table Q-163
Ferris Purchase Water from Rockett SUD

Owner:	Ferris				
Amount:	188	Ac-Ft/Yr			
Item No. & Description	**Qty.**	**Units**	**Unit Cost**		**Total Cost**
TOTAL CAPITAL COST				**$**	**-**
ANNUAL COSTS					
Debt Service				$	-
Operation and Maintenance Costs					
Pipeline	1%			$	-
Pump Station	2.50%			$	-
Estimated Annual Power Cost	$0.09/kWh			$	3,000
Treated Water Cost	61,260	1000 gal	$ 1.21	$	74,000
Total Annual Costs				**$**	**77,000**
UNIT COSTS (First 30 Years)					
Per Acre-Foot				$	410
Per 1,000 Gallons				$	1.26
UNIT COSTS (After 30 Years)					
Per Acre-Foot				$	410
Per 1,000 Gallons				$	1.26

Table Q-164
Glenn Heights Additional Water from Dallas

Owner:	Glenn Heights				
Amount:	1,107	Ac-Ft/Yr			
Item No. & Description	**Qty.**	**Units**	**Unit Cost**		**Total Cost**
TOTAL CAPITAL COST				**$**	**-**
ANNUAL COSTS					
Debt Service				$	-
Operation and Maintenance Costs					
Pipeline	1%			$	-
Pump Station	2.50%			$	-
Estimated Annual Power Cost	$0.09/kWh			$	-
Treated Water Demand Charge	2	MGD	$ 123,190	$	246,000
Treated Water Volume Charge	360,717	1000 gal	$ 0.70	$	253,000
Total Annual Costs				**$**	**499,000**
UNIT COSTS (First 30 Years)					
Per Acre-Foot				$	451
Per 1,000 Gallons				$	1.38
UNIT COSTS (After 30 Years)					
Per Acre-Foot				$	451
Per 1,000 Gallons				$	1.38

Table Q-165

Mountain Peak SUD - Cost of Overdrafting
Trinity Aquifer Using Existing Wells
Ellis County, Trinity Aquifer

Need	301	Ac-ft/yr	187	gpm
Depth to Water	131			
Well Depth	389			
Well Yield	390	gpm	628	ac-ft (peak)
			314	ac-ft (average)

Annual Cost		
Pumping Costs		$6,049
Chemical Costs	0.13	$13,301
Total Annual Cost		**$19,350**
UNIT COSTS		
Cost per ac-ft		$62
Cost per 1000 gallons		$0.19

Table Q-166
Mountain Peak WSC Purchase Additional Water from Midlothian

Owner:	Mountain Peak WSC				
Amount:	368	Ac-Ft/Yr			
Item No. & Description	**Qty.**	**Units**	**Unit Cost**		**Total Cost**
TOTAL CAPITAL COST				**$**	**-**
ANNUAL COSTS					
Debt Service				$	-
Operation and Maintenance Costs					
Pipeline	1%			$	-
Pump Station	2.50%			$	-
Estimated Annual Power Cost	$0.09/kWh			$	-
Treated Water Cost	119,913	1000 gal	$ 3.29	$	395,000
Total Annual Costs				**$**	**395,000**
UNIT COSTS (First 30 Years)					
Per Acre-Foot				$	1,073
Per 1,000 Gallons				$	3.29
UNIT COSTS (After 30 Years)					
Per Acre-Foot				$	1,073
Per 1,000 Gallons				$	3.29

Table Q-167
Mountain Peak WSC Purchase Water from Rockett SUD

Owner:	Mountain Peak WSC					
Amount:	2,041	Ac-Ft/Yr				
CONSTRUCTION COSTS						
TRANSMISSION FACILITIES						
Pipeline(s)	**Qty.**	**Units**		**Unit Cost**		**Total Cost**
18" Water Line						
Pipe	100,000	LF	$	77	$	7,700,000
ROW	100,000	LF	$	5	$	500,000
Engineering and Contingencies	30%				$	2,310,000
Subtotal of Pipeline(s)					**$**	**10,510,000**
Pump Station(s)						
Station 1						
Pump, building, & appurtenances	395	HP			$	1,777,000
Storage Tank	0.61	MG			$	481,000
Engineering and Contingencies	35%				$	790,000
Subtotal of Pump Station(s)					**$**	**3,048,000**
PERMITTING AND MITIGATION	1%				**$**	**129,000**
CONSTRUCTION TOTAL					**$**	**13,687,000**
Interest During Construction		(18 months)			**$**	**844,000**
TOTAL CAPITAL COST					**$**	**14,531,000**
ANNUAL COSTS						
Debt Service					$	1,056,000
Operation and Maintenance Costs						
Pipeline	1%				$	92,000
Pump Station	2.50%				$	68,000
Estimated Annual Power Cost	$0.09/kWh				$	16,000
Treated Water Cost	665,062	1000 gal	$	1.21	$	805,000
Total Annual Costs					**$**	**2,037,000**

Table Q-167, Continued

UNIT COSTS (First 30 Years)		
Per Acre-Foot	$	998
Per 1,000 Gallons	$	3.06
UNIT COSTS (After 30 Years)		
Per Acre-Foot	$	481
Per 1,000 Gallons	$	1.48

Table Q-168
Mountain Peak WSC - New Wells
Ellis County, Woodbine Aquifer

Need	200	ac-ft/yr		
Water Depth	1123	ft		
Well Depth	2360	ft		
Well Yield	325	gpm	523	ac-ft (peak)
Well Size	8	in	261.5	ac-ft (average)
Wells Needed	1			

WELLS					
Well(s)	**Number**		**Unit Cost**		
Water Wells	1		$ 493,000	$	493,000
Connection to Transmission System	1		$ 160,000	$	160,000
Engineering and Contingencies				$	196,000
Subtotal of Well(s)				**$**	**849,000**
PERMITTING AND MITIGATION	1%			**$**	**8,000**
CONSTRUCTION TOTAL				**$**	**857,000**
Interest During Construction		(6 months)		**$**	**19,000**
TOTAL CAPITAL COST				**$**	**876,000**
ANNUAL COSTS					
Debt Service - Total Capital				$	64,000
O&M					
Transmission	1%			$	1,900
Well(s)	2.5%			$	14,800
Add Chemicals, Etc.	65,170	1000 gal	$ 0.30	$	19,600
Pumping Costs				$	28,900
Total Annual Cost				**$**	**129,200**
UNIT COSTS (First 30 Years)					
Cost per ac-ft				$	646
Cost per 1000 gallons				$	1.98
UNIT COSTS (After 30 Years)					
Cost per ac-ft				$	326
Cost per 1000 gallons				$	1.00

Table Q-169
Oak Leaf Additional Water from Glenn Heights

Owner:	Oak Leaf				
Amount:	320	Ac-Ft/Yr			
Item No. & Description	**Qty.**	**Units**	**Unit Cost**		**Total Cost**
TOTAL CAPITAL COST				**$**	**-**
ANNUAL COSTS					
Debt Service				$	-
Operation and Maintenance Costs					
Pipeline	1%			$	-
Pump Station	2.50%			$	-
Estimated Annual Power Cost	$0.09/kWh			$	-
Treated Water Cost	104,272	1000 gal	$ 3.25	$	339,000
Total Annual Costs				**$**	**339,000**
UNIT COSTS (First 30 Years)					
Per Acre-Foot				$	1,059
Per 1,000 Gallons				$	3.25
UNIT COSTS (After 30 Years)					
Per Acre-Foot				$	1,059
Per 1,000 Gallons				$	3.25

Table Q-170
Palmer Purchase Water from Rockett SUD

Owner:	Palmer				
Amount:	39	Ac-Ft/Yr			
CONSTRUCTION COSTS					
TRANSMISSION FACILITIES					
Pipeline(s)	**Qty.**	**Units**	**Unit Cost**		**Total Cost**
8" Water Line					
Pipe	61,700	LF	$ 34	$	2,098,000
ROW	61,700	LF	$ 3	$	185,000
Engineering and Contingencies	30%			$	629,000
Subtotal of Pipeline(s)				**$**	**2,912,000**
Pump Station(s)					
Station 1					
Pump, building, & appurtenances	0	HP		$	-
Storage Tank	0.01	MG		$	20,000
Engineering and Contingencies	35%			$	7,000
Subtotal of Pump Station(s)				**$**	**27,000**
PERMITTING AND MITIGATION	1%			**$**	**25,000**
CONSTRUCTION TOTAL				**$**	**2,964,000**
Interest During Construction		(12 months)		**$**	**124,000**
TOTAL CAPITAL COST				**$**	**3,088,000**
ANNUAL COSTS					
Debt Service				$	224,000
Operation and Maintenance Costs					
Pipeline	1%			$	25,000
Pump Station	2.50%			$	1,000
Estimated Annual Power Cost	$0.09/kWh			$	-
Treated Water Cost	12,708	1000 gal	$ 1.21	$	15,000
Total Annual Costs				**$**	**265,000**

Table Q-170, Continued

UNIT COSTS (First 30 Years)		
Per Acre-Foot	$	6,795
Per 1,000 Gallons	$	20.85
UNIT COSTS (After 30 Years)		
Per Acre-Foot	$	1,051
Per 1,000 Gallons	$	3.23

Table Q-171
Ellis County Steam Electric Power - Supply from Waxahachie

Owner:
Amount: 4,454 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	24 in.	52,800	LF	$116	$6,125,000
Right of Way Easements (ROW)		52,800	LF	$12	$633,600
Engineering and Contingencies (30%)					$2,028,000
Subtotal of Pipeline					**$8,786,600**
Pump Station(s)					
Pump station	993 HP	1	LS	$2,853,480	$2,853,480
Ground Storage with Roof	1.3 MG	1	LS	$739,110	$739,110
Engineering and Contingencies (35%)					$1,257,000
Subtotal of Pump Station(s)					**$4,849,590**
Permitting and Mitigation					**$117,000**
CONSTRUCTION TOTAL					**$13,753,190**
Interest During Construction			**(12 months)**		**$573,095**
TOTAL COST					**$14,326,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$1,041,000
Electricity ($0.09 kWh)					$54,000
Raw Water ($.70 per 1,000 gallons)					$1,016,000
Operation & Maintenance					$62,000
Total Annual Costs					**$2,173,000**
UNIT COSTS (2010-2030)					
Per Acre-Foot					$488
Per 1,000 Gallons					$1.50
UNIT COSTS (2040-2060)					
Per Acre-Foot					$254
Per 1,000 Gallons					$0.78

Table Q-172
Rice WSC Additional Water from Ennis

Owner:	Rice WSC				
Amount:	37	Ac-Ft/Yr			
Item No. & Description	**Qty.**	**Units**	**Unit Cost**		**Total Cost**
TOTAL CAPITAL COST				**$**	**-**
ANNUAL COSTS					
Operation and Maintenance Costs					
Debt Service				$	-
Pipeline	1%			$	-
Pump Station	2.50%			$	-
Estimated Annual Power Cost	$0.09/kWh			$	-
Treated Water Cost	12,056	1000 gal	$ 2.67	$	32,000
Total Annual Costs				**$**	**32,000**
UNIT COSTS (First 30 Years)					
Per Acre-Foot				$	865
Per 1,000 Gallons				$	2.65
UNIT COSTS (After 30 Years)					
Per Acre-Foot				$	865
Per 1,000 Gallons				$	2.65

Table Q-173

Sardis-Lone Elm WSC - Cost of Overdrafting
Trinity Aquifer Using Existing Wells
Ellis County, Trinity Aquifer

Need	1,258	Ac-ft/yr	780	gpm
Depth to Water	736			
Well Depth	2100			
Well Yield	390	gpm	628	ac-ft (peak)
Wells Used	4		314	ac-ft (average)

Annual Cost		
Pumping Costs		$121,133
Chemical Costs	0.13	$53,205
Total Annual Cost		**$174,338**
UNIT COSTS		
Cost per ac-ft		$139
Cost per 1000 gallons		$0.43

Table Q-174
Ellis County-Other - New Wells Trinity Aquifer
Ellis County, Trinity Aquifer

Need	201	ac-ft/yr		
Water Depth	839	ft		
Well Depth	2579	ft		
Well Yield	100	gpm	161	ac-ft (peak)
Well Size	6	in	80.5	ac-ft (average)
Wells Needed	3			

WELLS					
Well(s)	**Number**		**Unit Cost**		
Water Wells	3		$ 402,000	$	1,206,000
Connection to Transmission System	3		$ 160,000	$	480,000
Engineering and Contingencies				$	506,000
Subtotal of Well(s)				**$**	**2,192,000**
PERMITTING AND MITIGATION	1%			**$**	**20,000**
CONSTRUCTION TOTAL				**$**	**2,212,000**
Interest During Construction		(6 months)		**$**	**48,000**
TOTAL CAPITAL COST				**$**	**2,260,000**
ANNUAL COSTS					
Debt Service - Total Capital				$	164,000
O&M					
Transmission	1%			$	6,000
Well(s)	2.5%			$	36,000
Add Chemicals, Etc.	65,553	1000 gal	$ 0.30	$	20,000
Pumping Costs				$	22,000
Total Annual Cost				**$**	**248,000**
UNIT COSTS (First 30 Years)					
Cost per ac-ft				$	1,233
Cost per 1000 gallons				$	3.78
UNIT COSTS (After 30 Years)					
Cost per ac-ft				$	418
Cost per 1000 gallons				$	1.28

Table Q-175
Ellis County-Other - New Wells Woodbine Aquifer
Ellis County, Woodbine Aquifer

Need	1,121	ac-ft/yr	
Water Depth	481	ft	
Well Depth	1484	ft	
Well Yield	100	gpm	161 ac-ft (peak)
Well Size	6	in	80.5 ac-ft (average)
Wells Needed	14		

WELLS					
Well(s)	**Number**		**Unit Cost**		
Water Wells	14		$ 265,000	$	3,710,000
Connection to Transmission System	14		$ 160,000	$	2,240,000
Engineering and Contingencies				$	1,785,000
Subtotal of Well(s)				**$**	**7,735,000**
PERMITTING AND MITIGATION	1%			**$**	**71,000**
CONSTRUCTION TOTAL				**$**	**7,806,000**
Interest During Construction	(6 months)			**$**	**169,000**
TOTAL CAPITAL COST				**$**	**7,975,000**
ANNUAL COSTS					
Debt Service - Total Capital				$	579,000
O&M					
Transmission	1%			$	27,000
Well(s)	2.5%			$	111,000
Add Chemicals, Etc.	365,279	1000 gal	$ 0.30	$	110,000
Pumping Costs				$	74,000
Total Annual Cost				**$**	**901,000**
UNIT COSTS (First 30 Years)					
Cost per ac-ft				$	804
Cost per 1000 gallons				$	2.47
UNIT COSTS (After 30 Years)					
Cost per ac-ft				$	287
Cost per 1000 gallons				$	0.88

Table Q-176
Ellis Irrigation - New Wells
Ellis County, Woodbine Aquifer

Need	563	ac-ft/yr		
Water Depth	481	ft		
Well Depth	1484	ft		
Well Yield	100	gpm	161	ac-ft (peak)
Well Size	6	in	80.5	ac-ft (average)
Wells Needed	7			

WELLS					
Well(s)	**Number**		**Unit Cost**		
Water Wells	7		$ 265,000	$	1,855,000
Connection to Transmission System	0		$ 160,000	$	-
Engineering and Contingencies				$	557,000
Subtotal of Well(s)				**$**	**2,412,000**
PERMITTING AND MITIGATION	1%			**$**	**22,000**
CONSTRUCTION TOTAL				**$**	**2,434,000**
Interest During Construction		(6 months)		**$**	**53,000**
TOTAL CAPITAL COST				**$**	**2,487,000**
ANNUAL COSTS					
Debt Service - Total Capital				$	181,000
O&M					
Transmission	1%			$	-
Well(s)	2.5%			$	56,000
Add Chemicals, Etc.	183,454	1000 gal	$ 0.30	$	55,000
Pumping Costs				$	37,000
Total Annual Cost				**$**	**329,000**
UNIT COSTS (First 30 Years)					
Cost per ac-ft				$	584
Cost per 1000 gallons				$	1.79
UNIT COSTS (After 30 Years)					
Cost per ac-ft				$	263
Cost per 1000 gallons				$	0.81

Table Q-177
Ellis Manufacturing Additional Water from Waxahachie

Owner:	Manufacturing			
Amount:	354 Ac-Ft/Yr			
Item No. & Description	**Qty. Units**	**Unit Cost**		**Total Cost**
TOTAL CAPITAL COST			**$**	**-**
ANNUAL COSTS				
Debt Service			$	-
Operation and Maintenance Costs				
Pipeline		1%	$	-
Pump Station		2.50%	$	-
Estimated Annual Power Cost/kWh		$0.09	$	-
Treated Water Cost	115,351 1000 gal	$3.49	$	403,000
Total Annual Costs			**$**	**403,000**
UNIT COSTS (First 30 Years)				
Per Acre-Foot			$	1,138
Per 1,000 Gallons			$	3.49
UNIT COSTS (After 30 Years)				
Per Acre-Foot			$	1,138
Per 1,000 Gallons			$	3.49

Table Q-178
Ellis Manufacturing Additional Water from Midlothian

Owner:	Manufacturing				
Amount:	495 Ac-Ft/Yr				
Item No. & Description	**Qty. Units**	**Unit Cost**			**Total Cost**
TOTAL CAPITAL COST				**$**	**-**
ANNUAL COSTS					
Debt Service				$	-
Operation and Maintenance Costs					
Pipeline			1%	$	-
Pump Station			2.50%	$	-
Estimated Annual Power Cost/kWh		$	0.09	$	-
Treated Water Cost	161,296 1000 gal	$	3.05	$	492,000
Total Annual Costs				**$**	**492,000**
UNIT COSTS (First 30 Years)					
Per Acre-Foot				$	994
Per 1,000 Gallons				$	3.05
UNIT COSTS (After 30 Years)					
Per Acre-Foot				$	994
Per 1,000 Gallons				$	3.05

Table Q-179
Ellis Manufacturing Additional Water from Ennis

Owner:	Manufacturing				
Amount:	76 Ac-Ft/Yr				
Item No. & Description	**Qty. Units**	**Unit Cost**			**Total Cost**
TOTAL CAPITAL COST				**$**	**-**
ANNUAL COSTS					
Debt Service				$	-
Operation and Maintenance Costs					
Pipeline			1%	$	-
Pump Station			2.50%	$	-
Estimated Annual Power Cost		$	0	$	-
Treated Water Cost	24,765 1000 gal	$	2.67	$	66,000
Total Annual Costs				**$**	**66,000**
UNIT COSTS (First 30 Years)					
Per Acre-Foot				$	868
Per 1,000 Gallons				$	2.67
UNIT COSTS (After 30 Years)					
Per Acre-Foot				$	868
Per 1,000 Gallons				$	2.66

Table Q-180
Ellis Steam Electric Power Additional Water from Midlothian

Owner:	Ellis County-Steam Electric Power				
Amount:	118 Ac-Ft/Yr				
Item No. & Description	**Qty.**	**Units**	**Unit Cost**		**Total Cost**
TOTAL CAPITAL COST				**$**	**-**
ANNUAL COSTS					
Debt Service				$	-
Operation and Maintenance Costs					
Pipeline			1%	$	-
Pump Station			2.50%	$	-
Estimated Annual Power Cost			$ 0.09	$	-
Treated Water Cost	38,450	1000 gal	$ 4.52	$	174,000
Total Annual Costs				**$**	**174,000**
UNIT COSTS (First 30 Years)					
Per Acre-Foot				$	1,475
Per 1,000 Gallons				$	4.53
UNIT COSTS (After 30 Years)					
Per Acre-Foot				$	1,475
Per 1,000 Gallons				$	4.53

Table Q-181
Ladonia from UTRWD Ralph Hall Reservoir Project

Owner:	Ladonia/UTRWD				
Amount:	1,120	ac-ft/yr			
CONSTRUCTION COSTS					
TRANSMISSION FACILITIES					
Pipeline(s)	**Qty.**	**Units**	**Unit Cost**		**Total Cost**
14" Water Line					
Pipe	4,265	LF	$ 52	$	222,000
ROW	4,265	LF	$ 5	$	21,000
Engineering and Contingencies	30%			$	67,000
Subtotal of Pipeline(s)				**$**	**310,000**
Pump Station(s)					
Station 1					
Pump, building, & appurtenances	85	HP		$	712,000
Storage Tank	0.5	MG		$	442,000
Engineering and Contingencies	35%			$	404,000
Subtotal of Pump Station(s)				**$**	**1,558,000**
WATER TREATMENT FACILITIES					
Water Treatment Plant	2.00	MGD		$	8,200,000
Plant Expansion	0.7	MGD		$	2,030,000
Subtotal of Water Treatment Plant				**$**	**10,230,000**
PERMITTING AND MITIGATION	1%			**$**	**115,000**
CONSTRUCTION TOTAL				**$**	**12,213,000**
Interest During Construction		(18 months)		**$**	**753,000**
TOTAL CAPITAL COST				**$**	**12,966,000**

Table Q-181, Continued

ANNUAL COSTS						
Debt Service					$	942,000
Operation and Maintenance Costs						
Pipeline	1%				$	3,000
Pump Station	2.50%				$	35,000
Estimated Annual Power Cost	$0.09/kWh				$	-
WTP Operation	364,953	1000 gal	$	0.35	$	128,000
Raw Water Cost		ac-ft	$	163	$	183,000
Total Annual Costs					**$**	**1,291,000**
UNIT COSTS (First 30 Years)						
Per Acre-Foot					$	1,153
Per 1,000 Gallons					$	3.54
UNIT COSTS (After 30 Years)						
Per Acre-Foot					$	312
Per 1,000 Gallons					$	0.96

NOTE: Assume raw water costs $163 per acre-foot.

Table Q-182
Fannin County Steam Electric Power

Owner:
Amount: 8,400 Ac-Ft/Yr from Lake Texoma

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	36 in.	79,200	LF	$184	$14,573,000
Right of Way Easements (ROW)		79,200	LF	$5	$396,000
Engineering and Contingencies (30%)					$4,491,000
Subtotal of Pipeline					**$19,460,000**
Pump Station(s)					
Pump station	480 HP	1	LS	$1,984,600	$1,984,600
Ground Storage with Roof	2.5 MG	1	LS	$1,085,425	$1,085,425
Engineering and Contingencies (35%)					$1,075,000
Subtotal of Pump Station(s)					**$4,145,025**
Permitting and Mitigation					**$212,000**
CONSTRUCTION TOTAL					**$23,817,025**
Interest During Construction			**(12 months)**		**$992,455**
TOTAL COST					**$24,809,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$1,802,000
Electricity ($0.09 kWh)					$89,000
Raw Water ($.70 per 1,000 gallons)					$1,916,000
Operation & Maintenance					$86,000
Total Annual Costs					**$3,893,000**
UNIT COSTS (2010-2030)					
Per Acre-Foot					$463
Per 1,000 Gallons					$1.42
UNIT COSTS (2040-2060)					
Per Acre-Foot					$249
Per 1,000 Gallons					$0.76

Table Q-183
Fairfield - New Wells in Carrizo-Wilcox Aquifer
Freestone County, Carrizo-Wilcox Aquifer

Need	282	Ac-ft/yr	175	gpm
Depth to Water	175			
Well Depth	730			
Well Yield	350	gpm	564	ac-ft (peak)
Well Size	10	in	282	ac-ft (average)
Wells Needed	1			

Construction Costs	Quantity	Unit	Unit Price	Cost
Water Wells	1	LS	$85,200	$85,200
Connection to Transmission System	1	LS	$160,000	$160,000
Storage tank 0.1 MG	1	LS	$183,000	$183,000
Subtotal				**$428,200**
Engineering and Contingencies				$128,000
Mitigation and Permitting				$5,138
Subtotal				$561,338
Interest During Construction				$12,000
		Total Capital		**$573,338**
Debt Service - Total Capital				$41,652
O&M				
Transmission				$7,410
Well(s)				$2,556
Add Chemicals etc.	91,890	1,000 gal	$0.30	$27,567
Pumping Costs	86,000	kW-h	$0.09	$7,740
		Total Annual Cost		**$86,925**
UNIT COSTS				
Cost per ac-ft				$308
Cost per 1,000 gallons				$0.95

Table Q-184
City of Fairfield Connection to Tarrant Regional Water District (Richland-Chambers)

Owner: Fairfield
Amount: 400 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	10 in.	26,400	LF	$43	$1,135,000
Right of Way Easements (ROW)		26,400	LF	$5	$132,000
Engineering and Contingencies (30%)					$380,000
Subtotal of Pipeline					**$1,647,000**
Pump Station(s)					
Booster Pump Station	20 HP	1	LS	$564,000	$564,000
Engineering and Contingencies (35%)					$197,000
Subtotal of Pump Station(s)					**$761,000**
Water Treatment Plant					
Water Treatment Plant	0.7 MGD	1	LS	$4,060,000	$4,060,000
Engineering and Contingencies (35%)					$1,421,000
Subtotal of Water Treatment Plant					**$5,481,000**
Permitting and Mitigation					**$20,000**
CONSTRUCTION TOTAL					**$7,889,000**
Interest During Construction			**(12 months)**		**$329,000**
TOTAL COST					**$8,218,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$597,000
Electricity ($0.09 kWh)					$4,000
Raw Water ($0.72 per 1,000 gallons)					$94,000
Treatment Cost ($0.70 per 1,000 gallons)					$91,000
Operation & Maintenance					$31,000
Total Annual Costs					**$817,000**
UNIT COSTS					
Per Acre-Foot					$2,043
Per 1,000 Gallons					$6.27

Table Q-185
Teague - New Wells in Carrizo-Wilcox Aquifer
Freestone County, Carrizo-Wilcox Aquifer

Need	443	Ac-ft/yr	275	gpm
Depth to Water	175			
Well Depth	677			
Well Yield	300	gpm	483	ac-ft (peak)
Well Size	10	in	242	ac-ft (average)
Wells Needed	2			

Construction Costs

Water Wells	2		$85,200	$170,400
Connection to Transmission System	2		$160,000	$320,000
Storage tank 0.1 MG	1		$183,000	$183,000
Subtotal				$673,400
Engineering and Contingencies				$202,000
Mitigation and Permitting				$8,000
Subtotal				$883,400
Interest During Construction (6 months)				$19,000
		Total Capital		**$902,400**
Debt Service - Total Capital				$65,558
O&M				
Transmission				$9,330
Well(s)				$5,112
Add Chemicals etc.	157,712	1,000 gal	$0.30	$47,314
Pumping Costs	148,000	kW-h	$0.09	$26,640.00
		Total Annual Cost		**$153,954**

UNIT COSTS

Cost per ac-ft	$318
Cost per 1,000 gallons	$0.98

Table Q-186
City of Wortham Purchase Raw Water from Tarrant Regional Water District

Owner: Wortham
Amount: 300 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	8 in.	104,000	LF	$34	$3,578,000
Right of Way Easements (ROW)		104,000	LF	$3	$312,000
Engineering and Contingencies (30%)					$1,167,000
Subtotal of Pipeline					**$5,057,000**
Pump Station(s)					
Booster pump station	60 HP	1	LS	$664,400	$664,400
Engineering and Contingencies (35%)					$233,000
Subtotal of Pump Station(s)					**$897,400**
Permitting and Mitigation					**$51,000**
CONSTRUCTION TOTAL					**$6,005,400**
Interest During Construction			**(12 months)**		**$250,000**
TOTAL COST					**$6,255,400**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$454,000
Electricity ($0.09 kWh)					$10,000
Raw Water ($0.72 per 1,000 gallons)					$70,000
Treatment Cost ($0.70 per 1,000 gallons)					$68,000
Operation & Maintenance					$63,000
Total Annual Costs					**$665,000**
UNIT COSTS (2010-2030)					
Per Acre-Foot					$2,217
Per 1,000 Gallons					$6.80
UNIT COSTS (2040-2060)					
Per Acre-Foot					$703
Per 1,000 Gallons					$2.16

Table Q-187
City of Wortham Purchase Treated Water from Corsicana

Owner:
Amount: 300 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	8 in.	104,000	LF	$34	$3,578,000
Right of Way Easements (ROW)	15 ft.	104,000	LF	$3	$312,000
Engineering and Contingencies (30%)					$1,167,000
Subtotal of Pipeline					**$5,057,000**
Pump Station(s)					
Pump station	50 HP	1	LS	$645,000	$645,000
Ground Storage with Roof	0.1 MG	1	LS	$183,000	$183,000
Engineering and Contingencies (35%)					$290,000
Subtotal of Pump Station(s)					**$1,118,000**
Permitting and Mitigation					**$53,000**
CONSTRUCTION TOTAL					**$6,228,000**
Interest During Construction			**(12 months)**		**$260,000**
TOTAL COST					**$6,488,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$471,000
Electricity ($0.09 kWh)					$6,000
Treated Water ($3.25 per 1,000 gallons)					$318,000
Operation & Maintenance					$23,000
Total Annual Costs					**$818,000**
UNIT COSTS (2010-2030)					
Per Acre-Foot					$2,727
Per 1,000 Gallons					$8.37
UNIT COSTS (2040-2060)					
Per Acre-Foot					$1,157
Per 1,000 Gallons					$3.55

Table Q-188
Freestone County S. E. Power by TRA from Tarrant Regional Water District

Owner: Unknown
Amount: 3,278 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	20 in.	26,400	LF	$90	$2,376,000
Right of Way Easements (ROW)		26,400	LF	$5	$132,000
Engineering and Contingencies (30%)					$752,000
Subtotal of Pipeline					**$3,260,000**
Pump Station(s)					
Booster Pump Station	160 HP	1	LS	$967,600	$967,600
Engineering and Contingencies (35%)					$339,000
Subtotal of Pump Station(s)					**$1,306,600**
Permitting and Mitigation					**$40,000**
CONSTRUCTION TOTAL					**$4,606,600**
Interest During Construction			**(12 months)**		**$192,000**
TOTAL COST					**$4,798,600**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$349,000
Electricity ($0.09 kWh)					$75,000
Raw Water ($0.72 per 1,000 gallons)					$769,000
Operation & Maintenance					$58,000
Total Annual Costs					**$1,251,000**
UNIT COSTS (during amortization)					
Per Acre-Foot					$382
Per 1,000 Gallons					$1.17

Table Q-189
Trinity River Authority Freestone County Reuse for Steam Electric Power

Owner: Trinity River Authority
Amount: 6,672 ac-ft/yr

CAPITAL COSTS

Phase 1

	Size	Quantity	Units	Unit Price	Cost
Transmission Facilities					
Pipeline (Rural)	24 in.	79,200	LF	$116	$ 9,195,000
Right of Way Easements (Rural)	20 ft.	79,200.0	LF	$5	$ 396,000
Pipeline Eng &Contingencies (30%)					$ 2,759,000
Pipeline Subtotal					**$ 12,350,000**
Pump Station (Intake)	700 HP	1	LS	$3,021,000	$ 3,021,000
Engineering and Contingencies (35%)					$ 1,057,000
Pump Station Subtotal					**$ 4,078,000**
Permitting and Mitigation					**$ 147,000**
Interest During Construction			**(12 months)**		**$ 691,000**
TOTAL CAPITAL COST					**$ 17,266,000**

ANNUAL COSTS

	Cost
Debt Service (6%, 30 years)	$ 1,254,000
Pipeline O&M (1%)	$ 110,000
Pump O&M (2.5%)	$ 91,000
Electricity	$ 188,000
Purchase of Reuse Water	$ 543,768
TOTAL ANNUAL COST	**$ 2,186,768**

Phase 1 Unit Costs (Pre-Amortization)

Cost per acre-ft	$ 312
Cost per 1000 gallons	$ 0.96

Phase 1 Unit Costs (After Amortization)

Cost per acre-ft	$ 133
Cost per 1000 gallons	$ 0.41

Table Q-190
Denison Infrastructure Improvements

Owner:	Denison					
Amount:		0	Ac-Ft/Yr			
Item No. & Description	**Qty.**	**Units**		**Unit Cost**		**Total Cost**
Construction Costs						
New 2 MG Clearwell	1	LS	$	1,850,000	$	1,850,000
Randell WTP improvements	1	LS	$	1,025,000	$	1,025,000
Pipeline from Texoma to Lake Randell	1	LS	$	400,000	$	400,000
New intake and pump station at Lake Randell	1	LS	$	3,500,000	$	3,500,000
Lake Randell spillway and dam improvements	1	LS	$	3,000,000	$	3,000,000
Subtotal Construction					**$**	**9,775,000**
Permitting and Mitigation	1%				$	117,000
Engineering, Contingency, Construction Management, Financial and Legal Costs					$	3,401,000
Capital Cost Subtotal					**$**	**13,293,000**
Interest During Construction		(12 months)				$554,000
TOTAL CAPITAL COST					**$**	**13,847,000**
ANNUAL COSTS						
Debt Service					$	1,006,000
Operation & Maintenance					$	164,000
Total Annual Costs					**$**	**1,170,000**

Table Q-191
Southmayd - New or Purchased Wells
Grayson County, Woodbine Aquifer

Need	60	ac-ft/yr	
Water Depth	300	ft	
Well Depth	486	ft	
Well Yield	80	gpm	129 ac-ft (peak)
Well Size	6	in	64.5 ac-ft (average)
Wells Needed	1		

WELLS					
Well(s)	**Number**		**Unit Cost**		
Water Wells	1		$ 140,750	$	141,000
Connection to Transmission System	1		$ 131,600	$	131,600
Engineering and Contingencies				$	82,000
Subtotal of Well(s)				**$**	**354,600**
PERMITTING AND MITIGATION	1%			**$**	**3,000**
CONSTRUCTION TOTAL				**$**	**357,600**
Interest During Construction		(6 months)		**$**	**8,000**
TOTAL CAPITAL COST				**$**	**365,600**
ANNUAL COSTS					
Debt Service - Total Capital				$	27,000
O&M					
Transmission	1%			$	1,579
Well(s)	2.5%			$	4,230
Add Chemicals, Etc.	19,551	1000 gal	$ 0.30	$	5,900
Pumping Costs				$	2,600
Total Annual Cost				**$**	**41,309**
UNIT COSTS (First 30 Years)					
Cost per ac-ft				$	688
Cost per 1000 gallons				$	2.11
UNIT COSTS (After 30 Years)					
Cost per ac-ft				$	238
Cost per 1000 gallons				$	0.73

Table Q-192
Grayson Manufacturing - Purchase Water from Howe

Owner:	Manufacturing				
Amount:	48 Ac-Ft/Yr				
Item No. & Description	**Qty.**	**Units**	**Unit Cost**		**Total Cost**
TOTAL CAPITAL COST				**$**	**-**
ANNUAL COSTS					
Debt Service				$	-
Treated Water Cost	15,641	1000 gal	$ 3.75	$	58,700
Total Annual Costs				**$**	**58,700**
UNIT COSTS (First 30 Years)					
Per Acre-Foot				$	1,223
Per 1,000 Gallons				$	3.75
UNIT COSTS (After 30 Years)					
Per Acre-Foot				$	1,223
Per 1,000 Gallons				$	3.75

Note: Raw water is assumed to cost $163 per acre-foot.

Table Q-193
Bryson to Graham

Owner: Bryson
Quantity: 200 AF/Y

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	6 in.	50,000	LF	$26	$1,300,000
Right of Way Easements Rural (ROW)		50,000	LF	$3	$150,000
Engineering and Contingencies (30%)					$390,000
Subtotal of Pipeline					**$1,840,000**
Pump Station(s)					
Booster Pump Station	60 HP	1	LS	$664,400	$664,000
Engineering and Contingencies (35%)					$232,000
Subtotal of Pump Station(s)					**$896,000**
Ground Storage					
Ground Storage Tanks at Booster	60,000	1	Gal	$65,800	$66,000
Engineering and Contingencies (35%)					$23,000
Subtotal of Ground Storage					**$89,000**
CONSTRUCTION TOTAL					**$2,825,000**
Permitting and Mitigation					**$24,000**
Interest During Construction			**(12 months)**		**$118,000**
TOTAL COST					**$2,967,000**
ANNUAL COSTS					
Debt Service (6% for 20 years)					$216,000
Electricity ($0.09 kWh)					$5,000
Operation & Maintenance					$38,000
Raw Water Purchase		65,200	1000 gal	$ 0.50	$32,600
Total Annual Costs					**$291,600**
UNIT COSTS (Until Amortized)					
Per Acre-Foot of treated water					$1,458
Per 1,000 Gallons					$4.47
UNIT COSTS (After Amortization)					
Per Acre-Foot					$378
Per 1,000 Gallons					$1.16

Table Q-194
Connecting Bryson to Jacksboro (Lost Creek/Jacksboro System)

Owner: City of Jacksboro
Amount: 200 Ac-Ft/Yr

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

CAPITAL COSTS	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
New pipeline	8 in.	84,480	LF	$34	$2,872,000
15-ft Right of Way Easements (ROW)		84,480	LF	$3	$253,000
Engineering and Contingencies (30%)					$938,000
Subtotal of Pipeline					**$4,063,000**
Pump Station	50 HP	1	LS	$645,000	$645,000
Engineering and Contingencies (35%)					$226,000
Subtotal of Pump Station(s)					**$871,000**
CONSTRUCTION TOTAL					**$4,934,000**
Permitting and Mitigation					**$42,000**
Interest During Construction			**(12 months)**		**$206,000**
TOTAL COST					**$5,182,000**

ANNUAL COSTS

Debt Service (6% for 30 years)	$344,000
Electricity ($0.09 kWh)	$6,600
Operation & Maintenance	$53,000
Raw Water Purchase ($0.50 per 1,000 gallons)	$33,000
Total Annual Costs	**$436,600**

UNIT COSTS (2010-2030)

Per Acre-Foot	$2,183
Per 1,000 Gallons	$6.70

UNIT COSTS (2040-2060)

Per Acre-Foot	$463
Per 1,000 Gallons	$1.42

Table Q-195
Jack County-Other Transmission System

Owner: unknown
Amount: 300 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	10 in.	53,000	LF	$43	$2,279,000
Right of Way Easements (ROW)		53,000	LF	$5	$265,000
Engineering and Contingencies (30%)					$763,000
Subtotal of Pipeline					**$3,307,000**
Pump Station(s)					
Pumps with intake & building	35 HP	1	LS	$612,600	$612,600
Ground Storage with Roof	0.1 MG	1	LS	$183,000	$183,000
Engineering and Contingencies (35%)					$278,000
Subtotal of Pump Station(s)					**$1,073,600**
Permitting and Mitigation					**$37,000**
CONSTRUCTION TOTAL					**$4,417,600**
Interest During Construction			**(12 months)**		**$184,000**
TOTAL COST					**$4,601,600**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$334,000
Electricity ($0.09 kWh)					$6,800
Treated Water ($2.00 per 1,000 gallons)					$196,000
Operation & Maintenance					$45,000
Total Annual Costs					**$581,800**
UNIT COSTS (2010-2030)					
Per Acre-Foot					$1,939
Per 1,000 Gallons					$5.95
UNIT COSTS (2040-2060)					
Per Acre-Foot					$826
Per 1,000 Gallons					$2.53

Table Q-196
Henderson County Steam Electric Power - Transmission Facilities from Cedar Creek Lake (TRWD)

Owner:	Unknown				
Quantity:	6,726 AF/Y				
CONSTRUCTION COSTS					
TRANSMISSION FACILITIES					
Pipeline	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline Rural	24 in.	53,000	LF	$116	$6,148,000
Right of Way Easements Rural (ROW)		53,000	LF	$5	$265,000
Engineering and Contingencies (30%)					$1,844,000
Subtotal of Pipeline					**$8,257,000**
Pump Station(s)					
Booster Pump Station	1000 HP	1	LS	$2,870,000	$2,870,000
Engineering and Contingencies (35%)					$1,005,000
Subtotal of Pump Station(s)					**$3,875,000**
Ground Storage					
Ground Storage Tanks at Booster	2.0 MG	1	LS	$957,000	$957,000
Engineering and Contingencies (35%)					$335,000
Subtotal of Ground Storage					**$1,292,000**
CONSTRUCTION TOTAL					**$13,424,000**
Permitting and Mitigation					**$120,000**
Interest During Construction			**(12 months)**		**$559,000**
TOTAL COST					**$14,103,000**
ANNUAL COSTS					
Debt Service (6% for 20 years)					$1,025,000
Electricity ($0.09 kWh)					$153,000
Operation & Maintenance					$189,000
Raw Water Purchase		2,192,676	1000 gal	$ 0.72	$1,578,727
Total Annual Costs					**$2,945,727**
UNIT COSTS (Until Amortized)					
Per Acre-Foot of treated water					$438
Per 1,000 Gallons					$1.34
UNIT COSTS (After Amortization)					
Per Acre-Foot					$286
Per 1,000 Gallons					$0.88

Table Q-197
Pipeline from Crandall to Seagoville (DWU)

Owner: Crandall
Amount: 2,400 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	12 in.	33,264	LF	$52	$1,716,000
Right of Way Easements (ROW)		33,264	LF	$12	$399,000
Engineering and Contingencies (30%)					$635,000
Subtotal of Pipeline					**$2,750,000**
Pump Station(s)					
Booster Pump Station	700 HP	1	LS	$2,268,000	$2,268,000
Engineering and Contingencies (35%)					$794,000
Subtotal of Pump Station(s)					**$3,062,000**
Permitting and Mitigation					**$48,000**
CONSTRUCTION TOTAL					**$5,860,000**
Interest During Construction (12 months)					**$244,000**
TOTAL COST					**$6,104,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$443,000
Electricity ($0.09 kWh)					$63,000
Treated water Demand Charge		2	MGD	$179,991 per MGD	$359,982
Treated water Volume Charge		782,042		$0.38 per 1,000 gal	$299,209
Operation & Maintenance					$89,000
Total Annual Costs					**$1,254,191**
UNIT COSTS					
Per Acre-Foot					$523
Per 1,000 Gallons					$1.60

Table Q-198
Kaufman County Irrigation - Pipeline with Reuse from NTMWD

Owner: Unknown
Amount: 1,805 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	14 in.	31,680	LF	$60	$1,907,000
Right of Way Easements (ROW)		31,680	LF	$12	$380,000
Engineering and Contingencies (30%)					$686,000
Subtotal of Pipeline					**$2,973,000**
Pump Station(s)					
Booster Pump Station	50 HP	2	Ea	$645,000	$1,290,000
Engineering and Contingencies (35%)					$452,000
Subtotal of Pump Station(s)					**$1,742,000**
Permitting and Mitigation					**$38,000**
CONSTRUCTION TOTAL					**$4,753,000**
Interest During Construction (12 months)					**$198,000**
TOTAL COST					**$4,951,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$360,000
Electricity ($0.09 kWh)					$9,000
Reuse Water ($0.25 per 1,000 gallons)					$147,108
Operation & Maintenance					$62,000
Total Annual Costs					**$578,108**
UNIT COSTS					
Per Acre-Foot					$320
Per 1,000 Gallons					$0.98

Table Q-199
Kaufman County Steam Electric Power Pipeline for Forney/Garland

Owner: Forney/Garland
Amount: 6,621 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	24 in.	26,400	LF	$116	$3,065,000
Right of Way Easements (ROW)		26,400	LF	$12	$317,000
Engineering and Contingencies (30%)					$1,015,000
Subtotal of Pipeline					**$4,397,000**
Pump Station(s)					
Booster Pump Station	600 HP	1	LS	$ 2,150,000	$2,150,000
Engineering and Contingencies (35%)					$753,000
Subtotal of Pump Station(s)					**$2,903,000**
Permitting and Mitigation					**$63,000**
CONSTRUCTION TOTAL					**$7,363,000**
Interest During Construction					**$307,000**
TOTAL COST					**$7,670,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$557,000
Electricity ($0.09 kWh)					$123,000
Reuse Water ($0.25 per 1,000 gallons)					$539,612
Operation & Maintenance					$102,000
Total Annual Costs					**$1,321,612**
UNIT COSTS					
Per Acre-Foot					$200
Per 1,000 Gallons					$0.61

Table Q-200
Kaufman County Steam Electric Power Pipeline for Treated Water from Forney (NTMWD)

Owner: NTMWD
1,121 ac-ft/yr

CAPITAL COSTS

	Size	Quantity	Units	Unit Price	Cost
Transmission Facilities					
Pipeline NTMWD	14 in.	15,840	LF	$60	$ 954,000
Right of Way Easements (Suburban)		15,840	LF	$12	$ 190,000
Pipeline Eng &Contingencies (30%)					$ 286,000
Pipeline Subtotal					**$ 1,430,000**
Pump Station	70 HP	1	LS	$683,800	$ 683,800
Engineering and Contingencies (35%)					$ 239,000
Pump Station Subtotal					**$ 922,800**
Permitting and Mitigation					**$ 20,000**
Interest During Construction			**(12 months)**		**$ 99,000**
TOTAL CAPITAL COST					**$ 2,471,800**

ANNUAL COSTS

	Cost
Debt Service (6%, 30 years)	$ 180,000
Pipeline O&M (1%)	$ 11,000
Pump O&M (2.5%)	$ 21,000
Electricity ($0.09 kWh)	$ 17,000
Reuse Water ($0.25 per 1,000 gallons)	$ 91,362
TOTAL ANNUAL COST	**$ 320,362**
Phase 1 Unit Costs (Pre-Amortization)	
Cost per acre-ft	$ 286
Cost per 1000 gallons	$ 0.88
Phase 1 Unit Costs (After Amortization)	
Cost per acre-ft	$ 125
Cost per 1000 gallons	$ 0.38

Table Q-201
Trinity River Authority Kaufman County Reuse for Steam Electric Power

Owner: Trinity River Authority
1,000 ac-ft/yr

CAPITAL COSTS

	Size	Quantity	Units	Unit Price		Cost
Transmission Facilities						
Pipeline (Suburban)	16 in.	79,200	LF	$69	$	5,449,000
Right of Way Easements (Suburban)		79,200	LF	$12	$	950,000
Pipeline Eng &Contingencies (30%)					$	1,635,000
Pipeline Subtotal					**$**	**8,034,000**
Pump Station	80 HP	1	LS	$933,076	$	933,076
Engineering and Contingencies (35%)					$	327,000
Pump Station Subtotal					**$**	**1,260,076**
Permitting and Mitigation					**$**	**77,000**
Interest During Construction			**(12 months)**		**$**	**390,000**
TOTAL CAPITAL COST					**$**	**9,761,076**

ANNUAL COSTS

		Cost
Debt Service (6%, 30 years)	$	709,000
Pipeline O&M (1%)	$	65,000
Pump O&M (2.5%)	$	28,000
Electricity	$	17,000
Purchase of Reuse Water	$	82,000
TOTAL ANNUAL COST	**$**	**901,000**
Phase 1 Unit Costs (Pre-Amortization)		
Cost per acre-ft	$	901
Cost per 1000 gallons	$	2.77
Phase 1 Unit Costs (After Amortization)		
Cost per acre-ft	$	192
Cost per 1000 gallons	$	0.59

Table Q-202
Ables Springs WSC - Connection to NTMWD Tawakoni Plant

Owner: Ables Springs WSC
Amount: 280 Ac-Ft/Yr

Total Construction Costs*	**$1,012,000**
Total Engineering Costs*	**$118,640**
Total Other Costs*	**$5,000**
TOTAL COST	**$1,135,640**
ANNUAL COSTS	
Debt Service (6% for 30 years)	$83,000
Electricity ($0.09 kWh)	$4,000
Treated Water ($1.30 per 1,000 gallons)	$119,000
Operation & Maintenance	$24,000
Total Annual Costs	**$230,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot of treated water	$821
Per 1,000 Gallons	$2.52
UNIT COSTS (After Amortization)	
Per Acre-Foot	$525
Per 1,000 Gallons	$1.61

Table Q-202, Continued
Upsize Existing NTMWD Delivery System

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Upsize Pipeline	16 in.	10,900	LF	$69	$752,000
Engineering and Contingencies (30%)					$226,000
Subtotal of Pipeline					**$978,000**
Pump Station					
Booster Pump Station	100 HP	1	LS	$742,000	$742,000
Ground Storage Tank	0.2 MG	1	LS	$246,750	$246,750
Engineering and Contingencies (35%)					$346,000
Subtotal of Pump Station(s)					**$1,334,750**
Permitting and Mitigation					**$21,000**
CONSTRUCTION TOTAL					**$2,333,750**
Interest During Construction (12 months)					**$97,000**
TOTAL COST					**$2,430,750**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$177,000
Electricity ($0.09 kWh)					$29,000
Treated Water ($1.30 per 1,000 gallons)					$828,000
Operation & Maintenance					$39,000
Total Annual Costs					**$1,073,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot of treated water					$549
Per 1,000 Gallons					$1.68
UNIT COSTS (After Amortization)					
Per Acre-Foot					$535
Per 1,000 Gallons					$1.64

*Cost estimate provided by Ables Springs WSC

Table Q-203
Upsizing of College Mound WSC line to Terrell

Owner: College Mound WSC
Amount: 1,400 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	12 in.	18,480	LF	$52	$954,000
Engineering and Contingencies (30%)					$286,000
Subtotal of Pipeline					**$1,240,000**
Pump Station(s)					
Booster Pump Station	140 HP	1	LS	$ 892,400	$892,400
Engineering and Contingencies (35%)					$312,000
Subtotal of Pump Station(s)					**$1,204,400**
Permitting and Mitigation					**$22,000**
CONSTRUCTION TOTAL					**$2,466,400**
Interest During Construction (12 months)					**$103,000**
TOTAL COST					**$2,569,400**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$187,000
Electricity ($0.09 kWh)					$26,000
Treated Water ($1.25 per 1,000 gallons)					$570,000
Operation & Maintenance					$38,000
Total Annual Costs					**$821,000**
UNIT COSTS					
Per Acre-Foot					$586
Per 1,000 Gallons					$1.80

Table Q-204
Forney Pump Station Capacity Increase in 2020 and 2040

Owner: Forney
Amount: 33,600 Ac-Ft/Yr

	Size	Quantity	Unit	Unit Cost	Cost
Total Capital Cost of Pump Station Expansions*	15 MGD	2	LS	$5,000,000	**$10,000,000**
ANNUAL COSTS (During Amortization					
Debt Service (6% for 30 years)					$726,000
Operation & Maintenance					$300,000
Total Annual Costs					**$1,026,000**

*Cost estimates provided by the City of Forney's engineer

Table Q-205
Terrell - New water line from Terrell to CR 305

Owner: Terrell
Amount: 10,000 acre-feet/year

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline*					
Pipeline	30 in.	4,700	LF	$223	$1,048,100
Boring and Casing	48 in.	300	LF	$1,091	$327,300
Subtotal of Pipeline					**$1,375,400**
Contingency (25%)*					$343,850
Engineering/Survey (13%)*					$223,503
CONSTRUCTION TOTAL					**$1,942,800**
Interest During Construction (12 months)					**$81,000**
TOTAL COST					**$2,023,800**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$147,000
Electricity ($0.09 kWh)					$117,000
Treated Water ($1.30 per 1,000 gallons)					$4,236,000
Operation & Maintenance					$17,000
Total Annual Costs					**$4,517,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot of treated water					$452
Per 1,000 Gallons					$1.39
UNIT COSTS (After Amortization)					
Per Acre-Foot					$437
Per 1,000 Gallons					$1.34

* Values obtained from City of Terrell's Impact Fee Update : Water CIP Costs

Table Q-206
Terrell - New line off of NTMWD delivery line to serve wholesale customers

Owner: Terrell
Amount: 7,000 acre-feet/year

CAPITAL COSTS	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline*	20 in.	1,000	LF	$149	$149,000
Water meter & Appurtenances*		1	LS	$200,000	$200,000
Subtotal of Pipeline					**$349,000**
Contingency (25%)*					$87,250
Engineering/Survey (16%)*					$69,910
CONSTRUCTION TOTAL					**$506,200**
Interest During Construction (12 months)					**$21,000**
TOTAL COST					**$527,200**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$38,000
Electricity ($0.09 kWh)					$81,000
Treated Water ($1.30 per 1,000 gallons)					$2,965,000
Operation & Maintenance					$4,000
Total Annual Costs					**$3,088,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot of treated water					$441
Per 1,000 Gallons					$1.35
UNIT COSTS (After Amortization)					
Per Acre-Foot					$436
Per 1,000 Gallons					$1.34

* Values obtained from City of Terrell's Impact Fee Update : Water CIP Costs

Table Q-207
Terrell - New line off of NTMWD delivery line to serve wholesale customers

Owner: Terrell
Amount: 7,000 acre-feet/year

CAPITAL COSTS	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline*	20 in.	2,000	LF	$149	$298,000
Boring and Casing*	30 in.	200	LF	$577	$115,400
Subtotal of Pipeline					**$413,400**
Contingency (25%)*					$103,350
Engineering/Survey (16%)*					$80,420
CONSTRUCTION TOTAL					**$597,200**
Interest During Construction (12 months)					**$25,000**
TOTAL COST					**$622,200**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$45,000
Electricity ($0.09 kWh)					$83,000
Treated Water ($1.30 per 1,000 gallons)					$2,965,000
Operation & Maintenance					$5,000
Total Annual Costs					**$3,098,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot of treated water					$443
Per 1,000 Gallons					$1.36
UNIT COSTS (After Amortization)					
Per Acre-Foot					$436
Per 1,000 Gallons					$1.34

* Values obtained from City of Terrell's Impact Fee Update : Water CIP Costs

Table Q-208
Terrell - New line off of NTMWD delivery line to serve wholesale customers

Owner: Terrell
Amount: 4,500 acre-feet/year

CAPITAL COSTS	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline*	16 in.	2,000	LF	$119	$238,000
Water meter & Appurtenances*		1	LS	$200,000	$200,000
Subtotal of Pipeline					**$438,000**
Contingency (25%)*					$109,500
Engineering/Survey (15%)*					$84,580
CONSTRUCTION TOTAL					**$632,100**
Interest During Construction (12 months)					**$26,000**
TOTAL COST					**$658,100**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$48,000
Electricity ($0.09 kWh)					$55,000
Treated Water ($1.30 per 1,000 gallons)					$1,906,000
Operation & Maintenance					$5,000
Total Annual Costs					**$2,014,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot of treated water					$448
Per 1,000 Gallons					$1.37
UNIT COSTS (After Amortization)					
Per Acre-Foot					$437
Per 1,000 Gallons					$1.34

* Values obtained from City of Terrell's Impact Fee Update : Water CIP Costs

Table Q-209
Terrell - Ground Storage Tank and Pump Station Expansions at existing NTMWD Delivery Point

Owner: Terrell
Amount: 10,000 Ac-Ft/Yr

CAPITAL COSTS	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pump Station Expansion*	6 MGD	1	LS	$496,000	$496,000
Ground Storage Tank*	3.0 MG	1	LS	$2,170,000	$2,170,000
Subtotal of Pump Station(s)					**$2,666,000**
Contingency (25%)*					$666,500
Engineering/Survey (13%)*					$421,790
CONSTRUCTION TOTAL					**$3,754,300**
Interest During Construction (12 months)					**$156,000**
TOTAL COST					**$3,910,300**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$284,000
Electricity ($0.09 kWh)					$110,000
Treated Water ($1.30 per 1,000 gallons)					$4,236,000
Operation & Maintenance					$80,000
Total Annual Costs					**$4,710,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot of treated water					$471
Per 1,000 Gallons					$1.45
UNIT COSTS (After Amortization)					
Per Acre-Foot					$443
Per 1,000 Gallons					$1.36

* Values obtained from City of Terrell's Impact Fee Update : Water CIP Costs

Table Q-210
Terrell - Second Point of Delivery Connection to NTMWD

Owner: Terrell
Amount: 6,720 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline*					
Pipeline	30 in.	21,000	LF	$223	$4,683,000
Pipeline	24 in.	16,500	LF	$179	$2,953,500
Boring and Casing	38 in.	200	LF	$744	$148,800
Boring and Casing	48 in.	300	LF	$1,091	$327,300
Subtotal of Pipeline					**$8,112,600**
Pump Station(s)*					
Booster Pump Station		1	LS	$3,596,000	$3,596,000
Ground Storage Tank	3.0 MG	1	LS	$2,170,000	$2,170,000
Subtotal of Pump Station(s)					**$5,766,000**
Contingency (25%)*					$3,469,650
Engineering/Survey (10%)*					$1,734,830
CONSTRUCTION TOTAL					**$19,083,100**
Interest During Construction (12 months)					**$795,000**
TOTAL COST					**$19,878,100**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$1,444,000
Electricity ($0.09 kWh)					$82,000
Treated Water ($1.30 per 1,000 gallons)					$2,847,000
Operation & Maintenance					$265,000
Total Annual Costs					**$4,638,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot of treated water					$690
Per 1,000 Gallons					$2.12
UNIT COSTS (After Amortization)					
Per Acre-Foot					$475
Per 1,000 Gallons					$1.46

* Values obtained from City of Terrell's Impact Fee Update : Water CIP Costs

Table Q-211
Terrell - New line to serve wholesale customers

Owner: Terrell
Amount: 7,000 acre-feet/year

CAPITAL COSTS	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline*	20 in.	21,000	LF	$149	$3,129,000
Boring and Casing*	32 in.	400	LF	$614	$245,600
Subtotal of Pipeline					**$3,374,600**
Contingency (25%)*					$843,650
Engineering/Survey (12%)*					$516,380
CONSTRUCTION TOTAL					**$4,734,630**
Interest During Construction (12 months)					**$197,000**
TOTAL COST					**$4,931,630**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$358,000
Electricity ($0.09 kWh)					$144,000
Treated Water ($1.30 per 1,000 gallons)					$2,965,000
Operation & Maintenance					$40,000
Total Annual Costs					**$3,507,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot of treated water					$501
Per 1,000 Gallons					$1.54
UNIT COSTS (After Amortization)					
Per Acre-Foot					$450
Per 1,000 Gallons					$1.38

* Values obtained from City of Terrell's Impact Fee Update : Water CIP Costs

Table Q-212
City of Kaufman - Pipeline to Connect to the NTMWD
Alternative WMS

Owner: Kaufman
Amount: 3,000 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	16 in.	155,760	LF	$69	$10,716,000
Right of Way Easements (ROW)		155,760	LF	$12	$1,869,000
Engineering and Contingencies (30%)					$3,776,000
Subtotal of Pipeline					**$16,361,000**
Pump Station(s)					
Booster Pump Station	750 HP	1	LS	$2,392,000	$2,392,000
Ground Storage Tank	0.7 MG	1	LS	$516,400	$516,400
Engineering and Contingencies (35%)					$1,018,000
Subtotal of Pump Station(s)					**$3,926,400**
Permitting and Mitigation					**$163,000**
CONSTRUCTION TOTAL					**$20,450,400**
Interest During Construction (12 months)					**$852,000**
TOTAL COST					**$21,302,400**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$1,548,000
Electricity ($0.09 kWh)					$164,000
Treated Water ($1.30 per 1,000 gallons)					$1,271,000
Operation & Maintenance					$216,000
Total Annual Costs					**$3,199,000**
UNIT COSTS (Until Amortized)					
Per Acre-Foot of treated water					$1,066
Per 1,000 Gallons					$3.27
UNIT COSTS (After Amortization)					
Per Acre-Foot					$550
Per 1,000 Gallons					$1.69

Table Q-213
East Parker County System - Pipeline from Weatherford to Annetta, Annetta South and Willow Park

Owner:	Unknown			
Amount:	800	Ac-Ft/Yr	Willow Park	69.6%
	250	Ac-Ft/Yr	Annetta	21.7%
	100	Ac-Ft/Yr	Annetta South	8.7%
	1,150	Ac-Ft/Yr	Total	

CAPITAL COSTS	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline					
Pipeline (everyone)	14 in.	38,000	LF	$60	$2,280,000
Right of Way Easements (ROW)		38,000	LF	$5	$190,000
Engineering and Contingencies (30%)					$741,000
Permitting and Mitigation					$27,000
Subtotal of Pipeline (everyone)					**$3,238,000**
Pipeline (Willow Park)	10 in.	8,000	LF	$43	$344,000
Right of Way Easements (ROW)		8,000	LF	$5	$40,000
Engineering and Contingencies (30%)					$115,000
Permitting and Mitigation					$4,000
Subtotal of Pipeline (Willow Park)					**$503,000**
Pipeline (Annetta & Annetta S.)	8 in.	13,300	LF	$34	$452,000
Right of Way Easements (ROW)		13,300	LF	$3	$40,000
Engineering and Contingencies (30%)					$148,000
Permitting and Mitigation					$5,000
Subtotal of Pipeline (Annetta & Annetta S.)					**$645,000**
Pipeline (Annetta S.)	6 in.	27,000	LF	$26	$702,000
Right of Way Easements (ROW)		27,000	LF	$3	$81,000
Engineering and Contingencies (30%)					$235,000
Permitting and Mitigation					$8,000
Subtotal of Pipeline (Annetta S.)					**$1,026,000**
Total of Pipeline Cost					**$5,412,000**

Willow Park portion of pipelines	*70% of 14 in line, 100% of 10 in line*	*$2,755,522*
Annetta portion of pipelines	*22% of 14 in line, 71% of 8 in line*	*$1,164,627*
Annetta S. portion of pipelines	*9% of 14 in line, 29% of 8 in line, 100% 6 in*	*$1,491,851*
		$5,412,000

Table Q-213, Continued

Pump Stations					
Booster Pump Station 1	119 HP	1	LS	$815,054	$815,054
Engineering and Contingencies (35%)					$285,000
Permitting and Mitigation					$10,000
Subtotal of Pump Station 1					**$1,110,054**
Booster Pump Station 2	47 HP	0	LS	$638,694	$0
Engineering and Contingencies (35%)					$0
Permitting and Mitigation					$0
Subtotal of Pump Station 2					**$0**
Total of Pump Stations					**$1,110,054**
Willow Park portion of P.S	*59% of P.S 1*				*$660,087*
Annetta portion of P.S	*27% of P.S 1*				*$296,507*
Annetta S. portion of P.S	*14% of P.S 1*				*$153,459*
					$1,110,054
CONSTRUCTION TOTAL					**$6,522,054**
Interest During Construction					**$272,000**
TOTAL COST					**$6,794,054**
Willow Park					*$3,558,100*
Annetta portion					*$1,522,100*
Annetta S. portion					*$1,713,900*
					$6,794,100

ANNUAL COSTS

Willow Park	
Debt Service (6% for 30 years)	$258,000
Electricity ($0.09 kWh)	$12,000
Treated Water ($2.50 per 1,000 gallons)	$652,000
Operation & Maintenance	$40,000
Total Annual Costs	**$962,000**

Table Q-213, Continued

Annetta	
Debt Service (6% for 30 years)	$111,000
Electricity ($0.09 kWh)	$6,000
Treated Water ($2.50 per 1,000 gallons)	$204,000
Operation & Maintenance	$15,000
Total Annual Costs	**$336,000**
Annetta S.	
Debt Service (6% for 30 years)	$125,000
Electricity ($0.09 kWh)	$4,000
Treated Water ($2.50 per 1,000 gallons)	$81,000
Operation & Maintenance	$14,000
Total Annual Costs	**$224,000**

Table Q-213, Continued

TOTAL ANNUAL COSTS	
Debt Service (6% for 30 years)	$494,000
Electricity ($0.09 kWh)	$22,000
Treated Water ($2.50 per 1,000 gallons)	$937,000
Operation & Maintenance	$69,000
Total Annual Costs	**$1,522,000**

UNIT COSTS	
Willow Park	
Per Acre-Foot	$1,203
Per 1,000 Gallons	$3.69
Annetta	
Per Acre-Foot	$1,344
Per 1,000 Gallons	$4.12
Annetta S.	
Per Acre-Foot	$2,240
Per 1,000 Gallons	$6.87

Table Q-214
Aledo to Fort Worth (Aledo's Share of Cost for the Wholesale Water System Extension)

Probable Owner: Aledo/Fort Worth
Amount: 1,146 AF/Y (Aledo's share)

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipelines*	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline from Fort Worth	12 in.	7,000	LF	$77	$539,000
Pipeline Westside IV (100% Aledo)	16 in.	24,000	LF	$103	$2,472,000
Pipeline Westside IV (100% Aledo)	20 in.	14,000	LF	$135	$1,890,000
Pipeline Littlepage Ave. (22.5% Aledo)	30 in.	3,000	LF	$215	$145,000
Pipeline 9th Ave to University (8.5% Aledo)	36 in.	17,500	LF	$276	$411,000
20" Borings Fort Worth (100% Aledo)	20 in.	200	LF	$263	$53,000
36" Borings @ Westside IV (100% Aledo)	36 in.	300	LF	$474	$142,000
48" borings @ 9th Ave to University (8.5% Aledo)	48 in.	500	LF	$632	$27,000
Meter Station		1	LS	$230,313	$230,000
ROW Easements Westside IV (100% Aledo)		38,000	LF	$28	$1,064,000
ROW Easements Littlepage Ave (22.5% Aledo)		3,000	LF	$28	$19,000
ROW Easements 9th to University (8.5% Aledo)		17,500	LF	$28	$42,000
Engineering and Contingencies (30%)					$2,110,000
Subtotal of Pipelines					**$8,605,000**

Pump Station(s)*	**Size**	**Quantity**	**Unit**		**Cost**
7.5 MGD Pump Station (30% Aledo)	7.5 MGD	1	LS	$1,700,000	$510,000
Pump Station Expansion (100% Aledo)		1	Ea	$1,200,000	$1,200,000
0.5 MG Ground Storage Tank (100%)	0.5 MG	1	Ea	$438,000	$438,000
Engineering and Contingencies (35%)					$752,000
Subtotal of Pump Stations					**$2,900,000**
Permitting and mitigation					$91,000
CONSTRUCTION TOTAL					**$11,505,000**
Interest During Construction	**(18 months)**				**$710,000**
TOTAL COST (Aledo's Share)					**$12,306,000**

Table Q-214, Continued

ANNUAL COSTS	
Debt Service (6% for 30 years)	$894,000
Treated Water ($1.50 per 1,000 gallons)	$560,000
Electricity ($0.06 kWh)	$10,000
Operation & Maintenance	$123,000
Total Annual Costs	**$1,587,000**
UNIT COSTS (Until Amortized)	
Per Acre-Foot	$1,385
Per 1,000 Gallons	$4.25
UNIT COSTS (After Amortization))	
Per Acre-Foot	$605
Per 1,000 Gallons	$1.86

Notes:
* Costs are based on more detailed information and do match the standard pipeline and pump station costs.

Table Q-215
West Parker County System - Pipeline from BRA
to Parker County SUD

Owner: Parker County-Other
Amount: 500 Ac-Ft/Yr Parker County SUD

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	10 in.	17,000	LF	$43	$731,000
Right of Way Easements (ROW)		17,000	LF	$5	$85,000
Engineering and Contingencies (30%)					$245,000
Permitting and Mitigation					$9,000
Subtotal of Pipeline					**$1,070,000**
Diversion Structure					
Brazos River diversion structure		1	EA	$300,000	$300,000
Engineering and Contingencies (35%)					$105,000
Permitting and Mitigation					$3,600
Subtotal of Diversion Structure					**$408,600**
Pump Stations					
Pump Station	22 HP	1	LS	$574,800	$574,800
Engineering and Contingencies (35%)					$201,000
Permitting and Mitigation					$7,000
Subtotal of Pump Station					**$782,800**
Water Treatment Plant					
Water Treatment Plant	1	1	LS	$3,650,000	$3,650,000
Engineering and Contingencies (35%)					$1,278,000
Land, Permitting and Mitigation					$72,000
Subtotal of Water Treatment Plant					**$5,000,000**
CONSTRUCTION TOTAL					**$7,261,400**
Interest During Construction					**$303,000**
TOTAL COST					**$7,564,400**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$550,000
Electricity ($0.09 kWh)					$5,000
Raw Water ($0.7 per 1,000 gallons)					$114,000
Treatment costs ($1.24 per 1,000 gallons)					$202,000
Operation & Maintenance					$30,000
Total Annual Costs					**$901,000**
UNIT COSTS					
Per Acre-Foot					$1,802
Per 1,000 Gallons					$5.53

Table Q-216
Parker County Springtown - Pipeline to Walnut Creek SUD (TRWD)

Owner: Springtown
Amount: 663 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	10 in.	15,840	LF	$43	$681,000
Right of Way Easements (ROW)		15,840	LF	$12	$190,000
Engineering and Contingencies (30%)					$261,000
Subtotal of Pipeline					**$1,132,000**
Pump Station(s)					
Booster Pump Station	40 HP	1	LS	$623,400	$623,400
Engineering and Contingencies (35%)					$218,000
Subtotal of Pump Station(s)					**$841,400**
Permitting and Mitigation					**$16,000**
CONSTRUCTION TOTAL					**$1,989,400**
Interest During Construction					**$83,000**
TOTAL COST					**$2,072,400**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$151,000
Electricity ($0.09 kWh)					$7,000
Treated Water ($3.63 per 1,000 gallons)					$784,000
Operation & Maintenance					$27,000
Total Annual Costs					**$969,000**
UNIT COSTS					
Per Acre-Foot					$1,462
Per 1,000 Gallons					$4.49

Table Q-217
Parker County Steam Electric Power - Additional Weatherford

Owner: Unknown
Amount: 50 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	6 in.	26,400	LF	$26	$686,000
Right of Way Easements (ROW)		26,400	Acre	$12	$317,000
Engineering and Contingencies (30%)					$301,000
Subtotal of Pipeline					**$1,304,000**
Pump Station(s)					
Booster Pump Station	5 HP	1	LS	$516,000	$516,000
Engineering and Contingencies (35%)					$181,000
Subtotal of Pump Station(s)					**$697,000**
Permitting and Mitigation					**$14,000**
CONSTRUCTION TOTAL					**$2,015,000**
Interest During Construction					**$84,000**
TOTAL COST					**$2,099,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$152,000
Electricity ($0.06 kWh)					$1,000
Reuse Water ($.25 per 1,000 gallons)					$4,000
Operation & Maintenance					$23,000
Total Annual Costs					**$180,000**
UNIT COSTS					
Per Acre-Foot					$3,600
Per 1,000 Gallons					$11.05

Table Q-218
Blackland WSC Purchase Treated Water from North Texas MWD

Owner: Blackland WSC
Amount: 700 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	12 in.	20,000	LF	$52	$1,040,000
Meter		1	LS	$200,000	$200,000
Right of Way Easements (ROW)		20,000	LF	$12	$240,000
Engineering and Contingencies (30%)					$444,000
Subtotal of Pipeline					**$1,924,000**
Pump Station(s)					
Ground Storage with Roof	1.2 MG	1	LS	$698,800	$698,800
Engineering and Contingencies (35%)					$245,000
Subtotal of Pump Station(s)					**$943,800**
Permitting and Mitigation					**$21,000**
CONSTRUCTION TOTAL					**$2,888,800**
Interest During Construction			**(18 months)**		**$178,000**
TOTAL COST					**$3,066,800**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$223,000
Treated Water ($1.30 per 1,000 gallons)					$297,000
Electricity ($0.09 kWh)					$11,000
Operation & Maintenance					$12,000
Total Annual Costs					**$543,000**
UNIT COSTS (2010-2030)					
Per Acre-Foot					$776
Per 1,000 Gallons					$2.38
UNIT COSTS (2040-2060)					
Per Acre-Foot					$457
Per 1,000 Gallons					$1.40

Table Q-219
RCH WSC Purchase Treated Water from North Texas MWD

Owner: RCH WSC
Amount: 500 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	10 in.	16,000	LF	$43	$688,000
Meter		1	LS	$200,000	$200,000
Right of Way Easements (ROW)		16,000	LF	$12	$192,000
Engineering and Contingencies (30%)					$324,000
Subtotal of Pipeline					**$1,404,000**
Pump Station(s)					
Ground Storage with Roof	1.0 MG	1	LS	$634,000	$634,000
Engineering and Contingencies (35%)					$222,000
Subtotal of Pump Station(s)					**$856,000**
Permitting and Mitigation					**$16,000**
CONSTRUCTION TOTAL					**$2,276,000**
Interest During Construction			**(18 months)**		**$140,000**
TOTAL COST					**$2,416,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$176,000
Treated Water ($1.30 per 1,000 gallons)					$212,000
Electricity ($0.09 kWh)					$8,000
Operation & Maintenance					$8,000
Total Annual Costs					**$404,000**
UNIT COSTS (2010-2030)					
Per Acre-Foot					$808
Per 1,000 Gallons					$2.48
UNIT COSTS (2040-2060)					
Per Acre-Foot					$456
Per 1,000 Gallons					$1.40

Table Q-220
Bethesda Parallel Pipeline to Fort Worth

Probable Owner: Bethesda/Fort Worth
Amount: 4,000 ac-ft/yr

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipelines	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline (16 in.)	16 in.	65,500	LF	$103	$6,747,000
Pipeline (20 in.)	20 in.	11,400	LF	$135	$1,539,000
ROW Easements (16 in)		65,500	LF	$28	$1,834,000
ROW Easements (20 in)		11,400	LF	$28	$319,200
Yard Piping		1	LS	$132,000	$132,000
36" Boring and casing		200	LF	$474	$95,000
Engineering and Contingencies (30%)					$3,200,000
Subtotal of Pipelines					**$13,866,200**
Storage Facility	**Size**	**Quantity**	**Unit**		**Cost**
1 MG Elevated Storage Tank	1.0 MG	1	LS	$1,742,000	$1,742,000
Engineering and Contingencies (35%)					$610,000
Subtotal of Storage Facilities					**$2,352,000**
Permitting and mitigation					$123,000
CONSTRUCTION TOTAL					**$16,341,200**
Interest During Construction	**(18 months)**				**$1,008,000**
TOTAL COST					**$17,349,000**

ANNUAL COSTS	
Debt Service (6% for 30 years)	$1,260,000
Operation & Maintenance	$154,000
Treated Water ($1.50 per 1,000 gallons)	$3,421,436
Total Annual Costs	**$4,835,436**
UNIT COSTS (2010-2030)	
Per Acre-Foot	$1,209
Per 1,000 Gallons	$3.71
UNIT COSTS (2040-2060)	
Per Acre-Foot	$894
Per 1,000 Gallons	$2.74

Table Q-221
Burleson to Fort Worth (Burleson's Share of Cost to Connect to Fort Worth)

Probable Owner: Burleson/Fort Worth

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipelines*	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline (24 in.)	24 in.	27,000	LF	$120	$3,240,000
Pipeline (30 in.)	30 in.	37,800	LF	$150	$5,670,000
ROW Easements		30	Acres	$3,000	$90,000
Yard Piping		1	LS	$100,000	$100,000
42" Boring and casing		400	LF	$420	$168,000
48" Boring and casing		200	LF	$480	$96,000
Engineering and Contingencies (30%)					$2,809,000
Subtotal of Pipelines					**$12,173,000**
Storage Facility*	**Size**	**Quantity**	**Unit**		**Cost**
3 MGD Pump Station	3 MGD	1	LS	$1,000,000	$1,000,000
1.5 MG Elevated Storage Tank	1.5 MG	1	LS	$1,950,000	$1,950,000
Engineering and Contingencies (35%)					$1,033,000
Subtotal of Pump Stations					**$3,983,000**
Permitting and mitigation					$130,000
CONSTRUCTION TOTAL					**$16,156,000**
Interest During Construction	**(18 months)**				**$996,000**
TOTAL COST					**$17,282,000**
Fort Worth's Share (85%)					**$14,690,000**
Burleson's Share (15%)					**$2,592,000**
ANNUAL COSTS FOR BURLESON					
Debt Service (6% for 30 years)					$188,000
Operation & Maintenance					$25,000
Total Annual Costs					**$213,000**

Notes:
* Pipeline and storage tank information and costs based on information provided in Fort Worth Master Plan.

Table Q-222
Crowley to Fort Worth (Crowley's Share of Cost to Upsize Connection to Fort Worth)

Probable Owner: Crowley/Fort Worth

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipelines*	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline (16 in.)	16 in.	17,000	LF	$80	$1,360,000
Pipeline (24 in.)	24 in.	8,500	LF	$120	$1,020,000
Pipeline (30 in.)	30 in.	13,500	LF	$150	$2,025,000
ROW Easements		18	Acres	$3,000	$54,000
Engineering and Contingencies (30%)					$1,338,000
Subtotal of Pipelines					**$5,797,000**
Permitting and mitigation					$53,000
CONSTRUCTION TOTAL					**$5,797,000**
Interest During Construction	**(18 months)**				**$358,000**
TOTAL COST					**$6,208,000**
Fort Worth's Share (90%)					**$5,587,000**
Crowley's Share (10%)					**$621,000**
ANNUAL COSTS FOR CROWLEY					
Debt Service (6% for 30 years)					$45,000
Operation & Maintenance					$5,000
Total Annual Costs					**$50,000**

Notes:
* Pipeline and storage tank information and costs based on information provided in Fort Worth Master Plan.

Table Q-223
Kennedale - New Well in Trinity Aquifer
Tarrant County, Trinity Aquifer

Need	216	Ac-ft/yr	134	gpm
Depth to Water	473			
Well Depth	1450			
Well Yield	270	gpm	435	ac-ft (peak)
Well Size	10	in	218	ac-ft (average)
Wells Needed	1			

Construction Costs

	Number		Unit Cost	Total Cost
Water Wells	1		$375,000	$375,000
Connection to Transmission System	1		$160,000	$160,000
Engineering and Contingencies (30%)				$161,000
Subtotal of Well(s)				**$696,000**
Permitting and Mitigation				$6,000
Construction Total				$702,000
Interest During Construction	6	months		$15,000
Total Capital Cost				**$717,000**
Debt Service - Total Capital				$52,000
O&M				
Transmission	1%			$2,000
Well(s)	2.5%			$11,000
Add Chemicals etc.	70,384	$0.30	per 1000 gal	$21,100
Pumping Costs				$14,000
			Total Annual Cost	**$100,100**

UNIT COSTS (First 30 Years)

Cost per ac-ft	$463
Cost per 1000 gallons	$1.42

UNIT COSTS (After 30 Years)

Cost per ac-ft	$223
Cost per 1000 gallons	$0.68

Table Q-224
Tarrant County Kennedale - Additional Fort Worth

Owner: Kennedale
Amount: 196 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline					$0
Right of Way Easements (ROW)					$0
Engineering and Contingencies (30%)					$0
Subtotal of Pipeline					**$0**
Pump Station(s)					
Booster Pump Station					$0
Engineering and Contingencies (35%)					$0
Subtotal of Pump Station(s)					**$0**
Permitting and Mitigation					**$0**
CONSTRUCTION TOTAL					**$0**
Interest During Construction					**$0**
TOTAL COST					**$0**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$0
Electricity ($0.09 kWh)					$0
Treated Water ($1.50 per 1,000 gallons)					$96,000
Operation & Maintenance					$0
Total Annual Costs					**$96,000**
UNIT COSTS					
Per Acre-Foot					$490
Per 1,000 Gallons					$1.50

Table Q-225
Tarrant County Kennedale - Pipeline to Arlington

Owner: Kennedale
Amount: 705 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	10 in.	9,400	LF	$43	$404,000
Right of Way Easements (ROW)		9,400	LF	$5	$47,000
Engineering and Contingencies (30%)					$135,000
Subtotal of Pipeline					**$586,000**
Pump Station(s)					
Booster Pump Station	20 HP	1	LS	$564,000	$564,000
Engineering and Contingencies (35%)					$197,000
Subtotal of Pump Station(s)					**$761,000**
Permitting and Mitigation					**$12,000**
CONSTRUCTION TOTAL					**$1,359,000**
Interest During Construction					**$57,000**
TOTAL COST					**$1,416,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$103,000
Electricity ($0.09 kWh)					$3,000
Treated Water ($1.50 per 1,000 gallons)					$345,000
Operation & Maintenance					$22,000
Total Annual Costs					**$473,000**
UNIT COSTS					
Per Acre-Foot					$671
Per 1,000 Gallons					$2.06

Table Q-226
Lakeside - New Well in Trinity Aquifer
Tarrant County, Trinity Aquifer

Need	264	Ac-ft/yr	164	gpm
Depth to Water	473			
Well Depth	1450			
Well Yield	330	gpm	531	ac-ft (peak)
Well Size	10	in	266	ac-ft (average)
Wells Needed	1			

Construction Costs

	Number		Unit Cost	Total Cost
Water Wells	1		$333,750	$333,750
Connection to Transmission System	1		$160,000	$160,000
Engineering and Contingencies (30%)				$148,000
Subtotal of Well(s)				**$641,750**
Permitting and Mitigation				$6,000
Construction Total				$647,750
Interest During Construction	6	months		$14,000
Total Capital Cost				**$661,750**
Debt Service - Total Capital				$48,000
O&M				
Transmission	1%			$2,000
Well(s)	2.5%			$10,000
Add Chemicals etc.	86,025		$0.30 per 1000 gal	$25,800
Pumping Costs				$17,000
			Total Annual Cost	**$102,800**

UNIT COSTS (First 30 Years)

Cost per ac-ft	$389
Cost per 1000 gallons	$1.20

UNIT COSTS (After 30 Years)

Cost per ac-ft	$208
Cost per 1000 gallons	$0.64

Table Q-227
Tarrant County Lakeside - Pipeline to Azle (TRWD)

Owner: Lakeside
Amount: 579 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	10 in.	31,000	LF	$43	$1,333,000
Right of Way Easements (ROW)		31,000	LF	$5	$155,000
Engineering and Contingencies (30%)					$446,000
Subtotal of Pipeline					**$1,934,000**
Pump Station(s)					
Booster Pump Station	45 HP	1	LS	$634,200	$634,200
Engineering and Contingencies (35%)					$222,000
Subtotal of Pump Station(s)					**$856,200**
Permitting and Mitigation					**$24,000**
CONSTRUCTION TOTAL					**$2,814,200**
Interest During Construction					**$117,000**
TOTAL COST					**$2,931,200**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$213,000
Electricity ($0.09 kWh)					$8,000
Treated Water ($2 per 1,000 gallons)					$377,000
Operation & Maintenance					$35,000
Total Annual Costs					**$633,000**
UNIT COSTS					
Per Acre-Foot					$1,093
Per 1,000 Gallons					$3.36

Table Q-228
North Richland Hills from Fort Worth

Probable Owner: North Richland Hills
Amount 3,323 Ac-ft/yr

Capital Costs*	**Description**	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pipeline (24 in.)	Proposed 24" Water Line	24 in.	9,450	LF	$156	$1,474,200
40" Boring and Casing	along Watauga Road	40 in.	300	LF	$615	$184,500
Pavement Repair			7,560	LF	$50	$378,000
Pump Station Expansion	Watauga Pump Station		1	LS	$1,750,000	$1,750,000
Ground Storage Tank	Improvements	5.0 MG	1	LS	$2,750,000	$2,750,000
Pipeline (30")	Offsite Water Supply	30 in.	5,900	LS	$195	$1,150,500
40" Boring and Casing	Improvements from Fort	40 in.	500	LF	$615	$307,500
Pavement Repair	Worth		4,720	LF	$50	$236,000
New Wholesale Meter			1	LS	$200,000	$200,000
Subtotal						$8,430,700
Engineering and Contingencies (20%)						$1,686,140
Subtotal						$10,116,840
Eng/Survey (12%)						$1,214,021
CONSTRUCTION TOTAL						**$11,331,000**
Interest During Construction		**(12 months)**				**$472,000**
TOTAL COST						**$11,803,000**
ANNUAL COSTS						
Debt Service (6% for 30 years)						$857,000
Treated Water ($2 per 1,000 gallons)						$2,166,000
Operation & Maintenance						$166,000
Total Annual Costs						**$3,189,000**
UNIT COSTS (First 30 years)						
Per Acre-Foot						$960
Per 1,000 Gallons						$2.95
UNIT COSTS (After 30 years)						
Per Acre-Foot						$702
Per 1,000 Gallons						$2.15

Notes:
* Capital Costs obtained from the North Richland Hills Capital Improvements Plan

Table Q-229
Tarrant County Pantego - Pipeline to Fort Worth

Owner: Pantego
Amount: 100 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	6 in.	5,300	LF	$26	$138,000
Right of Way Easements (ROW)		5,300	LF	$21	$111,000
Engineering and Contingencies (30%)					$75,000
Subtotal of Pipeline					**$324,000**
Pump Station(s)					
Booster Pump Station	4 HP	1	LS	$516,000	$516,000
Engineering and Contingencies (35%)					$181,000
Subtotal of Pump Station(s)					**$697,000**
Permitting and Mitigation					**$8,000**
CONSTRUCTION TOTAL					**$1,029,000**
Interest During Construction					**$43,000**
TOTAL COST					**$1,072,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$78,000
Electricity ($0.09 kWh)					$800
Treated Water ($1.79 per 1,000 gallons)					$58,000
Operation & Maintenance					$17,000
Total Annual Costs					**$153,800**
UNIT COSTS					
Per Acre-Foot					$1,538
Per 1,000 Gallons					$4.72

Table Q-230
Tarrant County Pantego - Pipeline to Arlington

Owner: Pantego
Amount: 100 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	4 in.	5,300	LF	$26	$138,000
Right of Way Easements (ROW)		5,300	LF	$21	$111,000
Engineering and Contingencies (30%)					$75,000
Subtotal of Pipeline					**$324,000**
Pump Station(s)					
Booster Pump Station	4 HP	1	LS	$516,000	$516,000
Engineering and Contingencies (35%)					$181,000
Subtotal of Pump Station(s)					**$697,000**
Permitting and Mitigation					**$8,000**
CONSTRUCTION TOTAL					**$1,029,000**
Interest During Construction					**$43,000**
TOTAL COST					**$1,072,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$78,000
Electricity ($0.09 kWh)					$400
Treated Water ($1.79 per 1,000 gallons)					$58,000
Operation & Maintenance					$17,000
Total Annual Costs					**$153,400**
UNIT COSTS					
Per Acre-Foot					$1,534
Per 1,000 Gallons					$4.71

Table Q-231
Tarrant County Pelican Bay - Pipeline to Azle (TRWD)

Owner: Pelican Bay
Amount: 157 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	8 in.	13,000	LF	$34	$442,000
Right of Way Easements (ROW)	15 ft.	13,000	LF	$5	$65,000
Engineering and Contingencies (30%)					$152,000
Subtotal of Pipeline					**$659,000**
Pump Station(s)					
Booster Pump Station	6 HP	1	LS	$520,400	$520,400
Engineering and Contingencies (35%)					$182,000
Subtotal of Pump Station(s)					**$702,400**
Permitting and Mitigation					**$12,000**
CONSTRUCTION TOTAL					**$1,373,400**
Interest During Construction					**$57,000**
TOTAL COST					**$1,430,400**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$104,000
Electricity ($0.09 kWh)					$2,000
Treated Water ($2 per 1,000 gallons)					$102,000
Operation & Maintenance					$21,000
Total Annual Costs					**$229,000**
UNIT COSTS					
Per Acre-Foot					$1,459
Per 1,000 Gallons					$4.48

Table Q-232
Tarrant County S. E. Power - Direct Reuse from Fort Worth

Owner: Unknown
Amount: 2,600 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	24 in.	52,800	LF	$116	$6,125,000
Right of Way Easements (ROW)		52,800	LF	$5	$264,000
Engineering and Contingencies (30%)					$1,917,000
Subtotal of Pipeline					**$8,306,000**
Pump Station(s)					
Booster Pump Station	200 HP	1	LS	$1,118,000	$1,118,000
Engineering and Contingencies (35%)					$391,000
Subtotal of Pump Station(s)					**$1,509,000**
Permitting and Mitigation					**$87,000**
CONSTRUCTION TOTAL					**$9,902,000**
Interest During Construction			**(12 months)**		**$413,000**
TOTAL COST					**$10,315,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$749,000
Electricity ($0.09 kWh)					$41,000
Reuse Water ($0.25 per 1,000 gallons)					$212,000
Operation & Maintenance					$108,000
Total Annual Costs					**$1,110,000**
UNIT COSTS (Pre-Amortization)					
Per Acre-Foot					$427
Per 1,000 Gallons					$1.31
UNIT COSTS (Post Amortization)					
Per Acre-Foot					$139
Per 1,000 Gallons					$0.43

Table Q-233
TRWD Reuse for Tarrant County Irrigation

Owner: Tarrant County Irrigation
Amount: 1,327 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Cost of Pipeline	12 in	26,400	LF	$ 77	$2,033,000
Right of Way Easements (ROW)		26,400	LF	$ 12	$317,000
Engineering & Contingencies (30%)					$610,000
Total Pipeline Cost					**$2,960,000**
Cost of Pump Station	180 HP	1	LS	$ 1,042,800	$1,043,000
Engineering & Contingencies (35%)					$365,000
Total Pump Station Cost					**$1,408,000**
TOTAL CAPITAL COST					**$4,368,000**
Permitting and Mitigation					**$37,000**
Interest during Construction (12 months)					**$182,000**
Total Raw Water Delivery Capital Cost					**$4,587,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$333,000
Electricity ($0.09 kWh)					$36,000
Operation & Maintenance					$56,000
Purchase of Reuse Water					$108,000
Total Annual Costs					**$533,000**
UNIT COSTS (During Amortization)					
Per Acre-Foot					$402
Per 1,000 gallons					$1.23
UNIT COSTS (During Amortization)					
Per Acre-Foot					$151
Per 1,000 gallons					$0.46

Note: Cost to purchase reuse water is assumed to be $0.25 per thousand gallons.

Table Q-234
Wise County Alvord - Pipeline to Chico (TRWD)

Owner: Alvord
Amount: 150 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	6 in.	39,400	LF	$26	$1,024,000
Right of Way Easements (ROW)		39,400	LF	$5	$197,000
Engineering and Contingencies (30%)					$366,000
Subtotal of Pipeline					**$1,587,000**
Pump Station(s)					
Booster Pump Station	50 HP	1	LS	$645,000	$645,000
Engineering and Contingencies (35%)					$226,000
Subtotal of Pump Station(s)					**$871,000**
Permitting and Mitigation					**$20,000**
CONSTRUCTION TOTAL					**$2,478,000**
Interest During Construction					**$103,000**
TOTAL COST					**$2,581,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$188,000
Electricity ($0.09 kWh)					$2,000
Treated Water ($2 per 1,000 gallons)					$98,000
Operation & Maintenance					$31,000
Total Annual Costs					**$319,000**
UNIT COSTS					
Per Acre-Foot					$2,127
Per 1,000 Gallons					$6.53

Table Q-235
Wise County Aurora - Pipeline to Rhome

Owner: Aurora
Amount: 120 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	6 in.	9,979	LF	$26	$259,000
Right of Way Easements (ROW)		9,979	LF	$5	$50,000
Engineering and Contingencies (30%)					$93,000
Subtotal of Pipeline					**$402,000**
Pump Station(s)					
Booster Pump Station		1	LS	$591,000	$591,000
Ground storage Tank	0.04 MG	1	LS	$125,000	$125,000
Engineering and Contingencies (35%)					$251,000
Subtotal of Pump Station(s)					**$967,000**
Permitting and Mitigation					**$12,000**
CONSTRUCTION TOTAL					**$1,381,000**
Interest During Construction					**$58,000**
TOTAL COST					**$1,439,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$105,000
Electricity ($0.09 kWh)					$400
Operation & Maintenance					$24,000
Total Annual Costs					**$129,400**
UNIT COSTS					
Per Acre-Foot					$1,078
Per 1,000 Gallons					$3.31

Table Q-236
Bridgeport Pump Station Capacity Increase

Owner: Bridgeport
Amount: Ac-Ft/Yr

CAPITAL COSTS	**Size**	**Quantity**	**Unit**	**Unit Price**	**Cost**
Pump Station(s)					
Pump Station Upgrade		1	LS	$658,000	$658,000
Engineering and Contingencies (35%)					$230,000
Subtotal of Pump Station(s)					**$888,000**
CONSTRUCTION TOTAL					**$888,000**
Interest During Construction			**(6 months)**		**$19,000**
TOTAL COST					**$907,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$66,000
Operation & Maintenance					$20,000
Total Annual Costs					**$86,000**

Table Q-237
Bridgeport Parallel Pipeline Connection to TRWD in 2020

Owner: Bridgeport
Amount: 2,319 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Parallel pipeline to Bridgeport	24 in.	26,000	LF	$116	$3,016,000
Right of Way Easements (ROW)		26,000	LF	$5	$130,000
Engineering and Contingencies (30%)					$944,000
Subtotal of Pipeline					**$4,090,000**
Pump Station(s)					
Pump Station with Intake Structure	70 HP	1	LS	$742,000	$742,000
Engineering and Contingencies (35%)					$260,000
Subtotal of Pump Station(s)					**$1,002,000**
Permitting and Mitigation					**$45,000**
CONSTRUCTION TOTAL					**$5,137,000**
Interest During Construction			**(12 months)**		**$214,000**
TOTAL COST					**$5,351,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$389,000
Electricity ($0.09 kWh)					$19,300
Operation & Maintenance					$58,000
Total Annual Costs					**$466,300**
UNIT COSTS (2010-2030)					
Per Acre-Foot					$201
Per 1,000 Gallons					$0.62
UNIT COSTS (2040-2060)					
Per Acre-Foot					$33
Per 1,000 Gallons					$0.10

Table Q-238
Wise County Chico - Pipeline to Bridgeport

Owner: Chico
Amount: 230 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	10 in.	34,200	LF	$43	$1,471,000
Right of Way Easements (ROW)		34,200	LF	$5	$171,000
Engineering and Contingencies (30%)					$493,000
Subtotal of Pipeline					**$2,135,000**
Pump Station(s)					
Booster Pump Station	10 HP	1	LS	$538,000	$538,000
Engineering and Contingencies (35%)					$188,000
Subtotal of Pump Station(s)					**$726,000**
Permitting and Mitigation					**$24,000**
CONSTRUCTION TOTAL					**$2,885,000**
Interest During Construction					**$120,000**
TOTAL COST					**$3,005,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$218,000
Electricity ($0.09 kWh)					$2,000
Treated Water ($2 per 1,000 gallons)					$150,000
Operation & Maintenance					$34,000
Total Annual Costs					**$404,000**
UNIT COSTS					
Per Acre-Foot					$1,757
Per 1,000 Gallons					$5.39

Table Q-239
Wise County Decatur - Parallel Pipeline to Bridgeport

Owner: Decatur/Wise County WSD
Amount: 3,631 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	24 in.	68,640	LF	$116	$7,962,000
Right of Way Easements (ROW)		68,640	LF	$5	$343,000
Engineering and Contingencies (30%)					$2,492,000
Subtotal of Pipeline					**$10,797,000**
Pump Station(s)					
Booster Pump Station	300 HP	1	LS	$1,441,000	$1,441,000
Engineering and Contingencies (35%)					$504,000
Subtotal of Pump Station(s)					**$1,945,000**
Permitting and Mitigation					**$113,000**
CONSTRUCTION TOTAL					**$12,855,000**
Interest During Construction					**$536,000**
TOTAL COST					**$13,391,000**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$973,000
Electricity ($0.09 kWh)					$65,000
Operation & Maintenance					$139,000
Total Annual Costs					**$1,177,000**
UNIT COSTS					
Per Acre-Foot					$324
Per 1,000 Gallons					$0.99

Table Q-240
Wise County New Fairview - Pipeline to Rhome

Owner: New Fairview
Amount: 318 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	10 in.	23,540	LF	$43	$1,012,000
Right of Way Easements (ROW)		23,540	LF	$5	$118,000
Engineering and Contingencies (30%)					$339,000
Subtotal of Pipeline					**$1,469,000**
Pump Station(s)					
Booster Pump Station	5 HP	1	LS	$516,000	$516,000
Ground storage Tank	0.1 MG	1	LS	$171,400	$171,400
Engineering and Contingencies (35%)					$241,000
Subtotal of Pump Station(s)					**$928,400**
Permitting and Mitigation					**$20,000**
CONSTRUCTION TOTAL					**$2,417,400**
Interest During Construction					**$101,000**
TOTAL COST					**$2,518,400**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$183,000
Electricity ($0.09 kWh)					$1,000
Operation & Maintenance					$33,000
Total Annual Costs					**$217,000**
UNIT COSTS					
Per Acre-Foot					$682
Per 1,000 Gallons					$2.09

Table Q-241
Wise County Newark - Pipeline to Rhome

Owner: Newark
Amount: 564 Ac-Ft/Yr

CAPITAL COSTS	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline	10 in.	20,000	LF	$43	$860,000
Right of Way Easements (ROW)		20,000	LF	$5	$100,000
Engineering and Contingencies (30%)					$288,000
Subtotal of Pipeline					**$1,248,000**
Pump Station(s)					
Booster Pump Station	20 HP	1	LS	$564,000	$564,000
Ground storage Tank	0.17 MG	1	LS	$186,975	$186,975
Engineering and Contingencies (35%)					$263,000
Subtotal of Pump Station(s)					**$1,013,975**
Permitting and Mitigation					**$19,000**
CONSTRUCTION TOTAL					**$2,280,975**
Interest During Construction					**$95,000**
TOTAL COST					**$2,375,975**
ANNUAL COSTS					
Debt Service (6% for 30 years)					$173,000
Electricity ($0.09 kWh)					$2,000
Operation & Maintenance					$33,000
Total Annual Costs					**$208,000**
UNIT COSTS					
Per Acre-Foot					$369
Per 1,000 Gallons					$1.13

Table Q-242
Wise County Steam Electric Power Pipeline for Bridgeport Reuse by 2040

Owner:	Unknown						
Amount:	2,000 AF/Y						

CAPITAL COSTS

Phase 1 (2020)

	Size	Quantity	Units	Unit Price		Cost	
Transmission Facilities							
Pipeline Bridgeport	20 in.	21,120	LF	$	90	$	1,901,000
Right of Way Easements		21,120	LF	$	5	$	106,000
Pipeline Eng &Contingencies (30%)						$	570,000
Pipeline Subtotal						**$**	**2,577,000**
Pump Station	150 HP	1	LS	$	930,000	$	930,000
Engineering and Contingencies (35%)						$	326,000
Pump Station Subtotal						**$**	**1,256,000**
Permitting and Mitigation						**$**	**34,000**
Interest During Construction			**(12 months)**			**$**	**161,000**
TOTAL CAPITAL COST						**$**	**4,028,000**

Phase 1 ANNUAL COSTS

	Size	Quantity	Units	Unit Price	Cost	
Debt Service (6%, 30 years)					$	293,000
Pipeline O&M (1%)					$	23,000
Pump O&M (2.5%)					$	28,000
Electricity					$	20,000
Reuse Water ($0.25 per 1,000 gallons)					$	163,000
TOTAL ANNUAL COST					**$**	**527,000**

Phase 1 Unit Costs (Pre-Amortization)		
Cost per acre-ft	$	264
Cost per 1000 gallons	$	0.81
Phase 1 Unit Costs (After Amortization)		
Cost per acre-ft	$	117
Cost per 1000 gallons	$	0.36

Table Q-243
Wise County Steam Electric Power Pipeline for Decatur Reuse by 2040

Owner:	Unknown						
Amount:	2,000 AF/Y						

CAPITAL COSTS

Phase 1 (2020)

	Size	Quantity	Units	Unit Price		Cost	
Transmission Facilities							
Pipeline Decatur	20 in.	21,120	LF	$	90	$	1,901,000
Right of Way Easements		21,120	LF	$	5	$	106,000
Pipeline Eng &Contingencies (30%)						$	570,000
Pipeline Subtotal						**$**	**2,577,000**
Pump Station	150 HP	1	LS	$	930,000	$	930,000
Engineering and Contingencies (35%)						$	326,000
Pump Station Subtotal						**$**	**1,256,000**
Permitting and Mitigation						**$**	**34,000**
Interest During Construction			**(12 months)**			**$**	**161,000**
TOTAL CAPITAL COST						**$**	**4,028,000**

Phase 1 ANNUAL COSTS

	Size	Quantity	Units	Unit Price	Cost	
Debt Service (6%, 30 years)					$	293,000
Pipeline O&M (1%)					$	23,000
Pump O&M (2.5%)					$	28,000
Electricity					$	20,000
Reuse Water ($0.25 per 1,000 gallons)					$	163,000
TOTAL ANNUAL COST					**$**	**527,000**

Phase 1 Unit Costs (Pre-Amortization)

Cost per acre-ft	$	264
Cost per 1000 gallons	$	0.81

Phase 1 Unit Costs (After Amortization)

Cost per acre-ft	$	117
Cost per 1000 gallons	$	0.36

Table Q-244
Blooming Grove - New Well in Trinity Aquifer
Navarro County, Trinity Aquifer

Need	160	Ac-ft/yr	99	gpm
Depth to Water	400	ft		
Well Depth	3000	ft		
Well Yield	112	gpm	180	ac-ft (peak)
Well Size	8	in	90	ac-ft (average)
Wells Needed	1			

Total capital cost of well and treatment facility*				**$1,495,400**
Annual Cost (6% for 30 years)				$108,639
O&M				
Well				$44,862
Add Chemicals etc.	29,327	1,000 gal	$0.30	$8,798
Pumping Costs	55,000	kW-h	$0.09	$4,950
		Total Annual Cost		**$167,249**

UNIT COSTS	
Cost per ac-ft	$1,858
Cost per 1,000 gallons	$5.70

*Cost is based on information provided by Blooming Grove

Table Q-245
Navarro Mills WSC - New Well in Woodbine Aquifer
Navarro County, Woodbine Aquifer

Need	180	Ac-ft/yr		112	gpm
Depth to Water	259	ft			
Well Depth	1500	ft			
Well Yield	112	gpm		180	ac-ft (peak)
Well Size	8	in		90	ac-ft (average)
Wells Needed	1				

Total capital cost of well*				**$1,200,000**
Annual Cost (6% for 30 years)				$87,179
O&M				
Well				$36,000
Add Chemicals etc.	29,327	1,000 gal	$0.30	$8,798
Pumping Costs	38,000	kW-h	$0.09	$3,420
		Total Annual Cost		**$135,397**
UNIT COSTS (First 30 years)				
Cost per ac-ft				$1,504
Cost per 1,000 gallons				$4.62
UNIT COSTS (After 30 years)				
Cost per ac-ft				$536
Cost per 1,000 gallons				$1.64

*Cost is based on information provided by Navarro Mills WSC

Table Q-246
M E N WSC - New Well in Other Aquifer (Alternative WMS)
Navarro County, Other Aquifer

Need	2,240	Ac-ft/yr	1,389	gpm
Depth to Water	175			
Well Depth	730			
Well Yield	1,389	gpm	2,240	ac-ft (peak)
Well Size	15	in	1,120	ac-ft (average)
Wells Needed	1			

Construction Costs	Quantity	Unit	Unit Price	Cost
Water Wells*	1	LS	$1,500,000	$1,500,000
Booster pump station*	1	LS	$500,000	$500,000
Transmission system*	1	LS	$1,500,000	$1,500,000
Total Capital Cost				**$3,500,000**
Debt Service - Total Capital				$254,271
O&M				
Transmission				$51,000
Well(s)				$45,000
Add Chemicals etc.	364,953	1,000 gal	$0.30	$109,486
Pumping Costs	343,000	kW-h	$0.09	$30,870
		Total Annual Cost		**$490,627**

UNIT COSTS	
Cost per ac-ft	$438
Cost per 1,000 gallons	$1.34

*Cost estimate provided by M E N WSC's engineer

Table Q-247
Chatfield WSC - New Well in Other Aquifer (Alternative WMS)
Navarro County, Other Aquifer

Need	2,240	Ac-ft/yr	1,389	gpm
Depth to Water	175			
Well Depth	730			
Well Yield	1,389	gpm	2,240	ac-ft (peak)
Well Size	15	in	1,120	ac-ft (average)
Wells Needed	1			

Construction Costs	Quantity	Unit	Unit Price	Cost
Water Wells*	1	LS	$1,500,000	$1,500,000
Booster pump station*	1	LS	$500,000	$500,000
Transmission system*	1	LS	$1,500,000	$1,500,000
Total Capital Cost				**$3,500,000**
Debt Service - Total Capital				$254,271
O&M				
Transmission				$51,000
Well(s)				$45,000
Add Chemicals etc.	364,953	1,000 gal	$0.30	$109,486
Pumping Costs	343,000	kW-h	$0.09	$30,870
		Total Annual Cost		**$490,627**

UNIT COSTS	
Cost per ac-ft	$438
Cost per 1,000 gallons	$1.34

*Cost estimate provided by Chatfield WSC's engineer

Table Q-248
Upsizing of M E N WSC Lake Halbert Connection

Owner: M E N WSC
Amount: 600 AF/Y

CAPITAL COSTS

	Size	Quantity	Units	Unit Price	Cost
Transmission Facilities					
Pipeline (Rural)	12 in.	10,560	LF	$52	$545,000
Right of Way Easements	20 ft.	10,560	LF	$5	$52,800
Pipeline Eng. & Contingencies (30%)					$179,000
Pipeline Subtotal					**$776,800**
New 12" Tap & Metering Facilities					
New 12" Tap & Metering Facilities		1	LS	$250,000	$250,000
Engineering and Contingencies (35%)					$88,000
Tap & Metering Subtotal					**$338,000**
Elevated Storage Tank					
Elevated Storage Tank	0.5 MG	1	LS	$1,333,000	$1,333,000
Engineering and Contingencies (35%)					$467,000
Storage Subtotal					**$1,800,000**
Permitting and Mitigation					**$23,000**
Interest During Construction			**(6 months)**		**$64,000**
TOTAL CAPITAL COST					**$3,001,800**

ANNUAL COSTS

	Cost
Debt Service (6%, 30 years)	$218,000
Pipeline O&M (1%)	$7,000
Storage and Metering O&M (2.5%)	$47,000
Treated Water ($3.25 per 1,000 gallons)	$635,700
TOTAL ANNUAL COST	**$907,700**
Unit Costs (First 30 years)	
Cost per acre-ft	$1,513
Cost per 1000 gallons	$4.64
Unit Costs (After 30 years)	
Cost per acre-ft	$1,150
Cost per 1000 gallons	$3.53

Table Q-249
Chatfield WSC 2 MGD WTP on Cedar Creek Reservoir
Alternative WMS

Owner:	Chatfield WSC
Amount:	1,120 AF/Y

CAPITAL COSTS

	Cost
Transmission Facilities*	$1,000,000
WTP*	$3,500,000
Total Capital Cost	**$4,500,000**

ANNUAL COSTS

	Cost
Debt Service (6%, 30 years)	$327,000
Pipeline O&M (1%)	$12,000
Raw Water ($.72 per 1,000 gallons)	$262,886
TOTAL ANNUAL COST	**$601,886**

Unit Costs (First 30 years)	
Cost per acre-ft	$537
Cost per 1000 gallons	$1.65
Unit Costs (After 30 years)	
Cost per acre-ft	$245
Cost per 1000 gallons	$0.75

*Cost estimate provided by Chatfield WSC's engineer

Table Q-250
M E N WSC 2 MGD WTP on Cedar Creek Reservoir
Alternative WMS

Owner:	M E N WSC
Amount:	1,120 AF/Y

CAPITAL COSTS

	Cost
Transmission Facilities*	$1,000,000
WTP*	$3,500,000
Total Capital Cost	**$4,500,000**

ANNUAL COSTS

	Cost
Debt Service (6%, 30 years)	$327,000
Pipeline O&M (1%)	$12,000
Raw Water ($.72 per 1,000 gallons)	$262,886
TOTAL ANNUAL COST	**$601,886**

Unit Costs (First 30 years)	
Cost per acre-ft	$537
Cost per 1000 gallons	$1.65
Unit Costs (After 30 years)	
Cost per acre-ft	$245
Cost per 1000 gallons	$0.75

*Cost estimate provided by M E N WSC's engineer

Table Q-251
Chatfield WSC WTP on Richland-Chambers Reservoir
Alternative WMS

Owner:	Chatfield WSC
Amount:	1,120 AF/Y

CAPITAL COSTS

	Cost
Transmission Facilities*	$500,000
WTP*	$3,500,000
Total Capital Cost	**$4,000,000**

ANNUAL COSTS

	Cost
Debt Service (6%, 30 years)	$291,000
Pipeline O&M (1%)	$6,000
Raw Water ($.72 per 1,000 gallons)	$262,886
TOTAL ANNUAL COST	**$559,886**

Unit Costs (First 30 years)	
Cost per acre-ft	$500
Cost per 1000 gallons	$1.53
Unit Costs (After 30 years)	
Cost per acre-ft	$240
Cost per 1000 gallons	$0.74

*Cost estimate provided by Chatfield WSC's engineer

Table Q-252
M E N WSC WTP on Richland-Chambers Reservoir
Alternative WMS

Owner:	M E N WSC
Amount:	1,120 AF/Y

CAPITAL COSTS

	Cost
Transmission Facilities*	$500,000
WTP*	$3,500,000
Total Capital Cost	**$4,000,000**

ANNUAL COSTS

	Cost
Debt Service (6%, 30 years)	$291,000
Pipeline O&M (1%)	$6,000
Raw Water ($.72 per 1,000 gallons)	$262,886
TOTAL ANNUAL COST	**$559,886**

Unit Costs (First 30 years)	
Cost per acre-ft	$500
Cost per 1000 gallons	$1.53
Unit Costs (After 30 years)	
Cost per acre-ft	$240
Cost per 1000 gallons	$0.74

*Cost estimate provided by M E N WSC's engineer

Table Q-253
1.5 MGD Water Treatment Plant Expansion at Lake Athens

Probable Owner: Athens MWA
Amount: 840 Acre-Feet/Year
Expansion at Lake Athens 840 ac-ft/yr 1.5 MGD design

CONSTRUCTION COSTS				
Modify Fish Hatchery Intake	1	LS	$1,000,000	$1,000,000
Engineering and Contingencies (35%)				$350,000
Subtotal of Intake Modifications				**$1,350,000**
Pump Station(s)				
Expand intake at Athens by 1.5 MGD	1	LS	$197,000	$197,000
Engineering and Contingencies (35%)				$69,000
Subtotal of Pump Station(s)				**$266,000**
Permitting and Mitigation	1	LS		$14,400
WATER TREATMENT FACILITIES				
Additional Treatment Capacity at Lake	1.5	MGD		$4,025,000
Engineering and Contingencies (35%)				$1,409,000
Subtotal of Treatment				**$5,434,000**
Permitting of treatment plant				$48,300
CONSTRUCTION TOTAL				**$7,112,700**
Interest During Construction		**(12 months)**		**$296,000**
TOTAL CAPITAL COST				**$7,408,700**

Table Q-253, Continued

ANNUAL COSTS TREATED WATER			
Debt Service (6% for 30 years)			$538,200
Electricity ($0.09 kWh)			$15,000
Facility Operation & Maintenance			$23,900
Water Treatment ($.70/1,000 gal finished water)	840	af/y	$191,600
Total Annual Costs			**$768,700**
UNIT COSTS (During Amortization)			
Per Acre-Foot of treated water			$915
Per 1,000 Gallons of treated water			$2.81
UNIT COSTS (After Amortization)			
Per Acre-Foot of treated water			$274
Per 1,000 Gallons of treated water			$0.84

Table Q-254
Melissa - South Water Take Point Project (Supply from NTMWD)*

Owner:	Melissa					
Amount:		0	Ac-Ft/Yr			
Item No. & Description	**Qty.**	**Units**		**Unit Cost**		**Total Cost**
Construction Costs						
Construction Costs	1	LS	$	1,500,000	$	1,500,000
Easement, surveying and legal	1	LS	$	5,240	$	5,240
Program Management	1	LS	$	36,050	$	36,050
Subtotal Construction					**$**	**1,541,290**
Permitting and Mitigation	1%					
Engineering, Contingency, Construction Management, Financial and Legal Costs					$	297,250
Capital Cost Subtotal					**$**	**1,838,540**
Interest During Construction		(12 months)				$77,000
TOTAL CAPITAL COST					**$**	**1,915,540**
ANNUAL COSTS						
Debt Service					$	139,200
Operation & Maintenance					$	-
Total Annual Costs					**$**	**139,200**

* Costs provided by City of Melissa's Engineer

Table Q-255
Springtown - New Well in Trinity Aquifer
Parker County, Trinity Aquifer

Need	184	Ac-ft/yr	114	gpm
Depth to Water	310			
Well Depth	370			
Well Yield	114	gpm	184	ac-ft (peak)
Well Size	8	in	92	ac-ft (average)
Wells Needed	1			

Construction Costs

	Number		Unit Cost	Total Cost
Water Wells	1		$144,750	$144,750
Connection to Transmission System	1		$160,000	$160,000
Engineering and Contingencies (30%)				$91,000
Subtotal of Well(s)				**$395,750**
Permitting and Mitigation				$4,000
Construction Total				$399,750
Interest During Construction	6	months		$9,000
Total Capital Cost				**$408,750**
Debt Service - Total Capital				$30,000
O&M				
Transmission	1%			$2,000
Well(s)	2.5%			$4,000
Add Chemicals etc.	59,957	$0.30	per 1000 gal	$18,000
Pumping Costs				$8,000
		Total Annual Cost		**$62,000**

UNIT COSTS (First 30 Years)

Cost per ac-ft	$337
Cost per 1000 gallons	$1.03

UNIT COSTS (After 30 Years)

Cost per ac-ft	$174
Cost per 1000 gallons	$0.53

Table Q-256
Payne Springs - New Well in Carrizo-Wilcox Aquifer
Henderson County, Carrizo-Wilcox Aquifer

Need	154	Ac-ft/yr	95	gpm
Depth to Water	200			
Well Depth	240			
Well Yield	95	gpm	154	ac-ft (peak)
Well Size	6	in	77	ac-ft (average)
Wells Needed	1			

Construction Costs

	Number		Unit Cost	Total Cost
Water Wells	1		$122,000	$122,000
Connection to Transmission System	1		$160,000	$160,000
Engineering and Contingencies (30%)				$85,000
Subtotal of Well(s)				**$367,000**
Permitting and Mitigation				$3,000
Construction Total				$370,000
Interest During Construction	6	months		$8,000
Total Capital Cost				**$378,000**
Debt Service - Total Capital				$27,000
O&M				
Transmission	1%			$2,000
Well(s)	2.5%			$4,000
Add Chemicals etc.	50,181	$0.30	per 1000 gal	$15,100
Pumping Costs				$5,000
		Total Annual Cost		**$53,100**
UNIT COSTS (First 30 Years)				
Cost per ac-ft				$345
Cost per 1000 gallons				$1.06
UNIT COSTS (After 30 Years)				
Cost per ac-ft				$169
Cost per 1000 gallons				$0.52

Table Q-257
Lake Worth - New Well in Trinity Aquifer
Tarrant County, Trinity Aquifer

Need	105	Ac-ft/yr	65	gpm
Depth to Water	275			
Well Depth	400			
Well Yield	65	gpm	105	ac-ft (peak)
Well Size	6	in	53	ac-ft (average)
Wells Needed	1			

Construction Costs

	Number		Unit Cost	Total Cost
Water Wells	1		$150,000	$150,000
Connection to Transmission System	1		$160,000	$160,000
Engineering and Contingencies (30%)				$93,000
Subtotal of Well(s)				**$403,000**
Permitting and Mitigation				$4,000
Construction Total				$407,000
Interest During Construction	6	months		$9,000
Total Capital Cost				**$416,000**
Debt Service - Total Capital				$30,000
O&M				
Transmission	1%			$2,000
Well(s)	2.5%			$5,000
Add Chemicals etc.	34,214		$0.30 per 1000 gal	$10,300
Pumping Costs				$4,000
			Total Annual Cost	**$51,300**
UNIT COSTS (First 30 Years)				
Cost per ac-ft				$489
Cost per 1000 gallons				$1.50
UNIT COSTS (After 30 Years)				
Cost per ac-ft				$203
Cost per 1000 gallons				$0.62

Table Q-258
Little Elm - New Wells in Woodbine Aquifer
Denton County, Woodbine Aquifer

Need	410	Ac-ft/yr	254	gpm
Depth to Water	240			
Well Depth	370			
Well Yield	254	gpm	409	ac-ft (peak)
Well Size	10	in	205	ac-ft (average)
Wells Needed	1			

Construction Costs

	Number		Unit Cost	Total Cost
Water Wells	1		$154,000	$154,000
Connection to Transmission System	1		$160,000	$160,000
Engineering and Contingencies (30%)				$94,000
Subtotal of Well(s)				**$408,000**
Permitting and Mitigation				$4,000
Construction Total				$412,000
Interest During Construction	6	months		$9,000
Total Capital Cost				**$421,000**
Debt Service - Total Capital				$31,000
O&M				
Transmission	1%			$2,000
Well(s)	2.5%			$5,000
Add Chemicals etc.	133,599	$0.30	per 1000 gal	$40,100
Pumping Costs				$15,000
			Total Annual Cost	**$93,100**
UNIT COSTS (First 30 Years)				
Cost per ac-ft				$227
Cost per 1000 gallons				$0.70
UNIT COSTS (After 30 Years)				
Cost per ac-ft				$151
Cost per 1000 gallons				$0.46