

Appendix 4C-A

Cost Estimates

This appendix summarizes unit prices and provides a general description of project scopes and costs for each WMS.

This page intentionally left blank

WUGNAME: Anderson_County-Other
STRATEGY: New Wells in Queen City Aquifer
AMOUNT (ac-ft/yr): 100

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Water Well Construction		2	ea	\$ 29,473	\$ 58,947
Connection to Water System		2	ea	\$ 50,000	\$ 100,000
Subtotal					\$ 158,947
Engineering and Contingencies (30%)					\$ 47,684
Mitigation and Permitting (1%)					\$ 1,589
Subtotal					\$ 208,220
Interest During Construction					\$ 4,512
TOTAL CAPITAL COST					\$ 212,732
ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 18,547
Pipeline O&M (1%)					\$ 1,000
Pump O&M (2.5%)					\$ 1,474
Chemicals			1000 gal	\$ 0.30	\$ 9,776
Electricity					\$ 1,314
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 32,110
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 13,563
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 321
Cost per 1000 gallons					\$ 0.99
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 136
Cost per 1000 gallons					\$ 0.42

WUGNAME: Anderson_County-Other
STRATEGY: New Wells in Carizzo-Wilcox Aquifer
AMOUNT (ac-ft/yr): 100

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Water Well Construction		1	ea	\$ 95,900	\$ 95,900
Connection to Water System		1	ea	\$ 100,000	\$ 100,000
Subtotal					\$ 195,900
Engineering and Contingencies (30%)					\$ 58,770
Mitigation and Permitting (1%)					\$ 1,959
Subtotal					\$ 256,629
Interest During Construction					\$ 5,560
TOTAL CAPITAL COST					\$ 262,189
ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 22,859
Pipeline O&M (1%)					\$ 1,000
Pump O&M (2.5%)					\$ 2,398
Chemicals			1000 gal	\$ 0.30	\$ 9,776
Electricity					\$ 4,599
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 40,631
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 17,772
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 406
Cost per 1000 gallons					\$ 1.25
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 178
Cost per 1000 gallons					\$ 0.55

WUGNAME: Frankston
STRATEGY: New Wells in Carizzo-Wilcox Aquifer
AMOUNT (ac-ft/yr): 120

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Water Well Construction		1	ea	\$ 91,239	\$ 91,239
Connection to Water System		1	ea	\$ 100,000	\$ 100,000
Subtotal					\$ 191,239
Engineering and Contingencies (30%)					\$ 57,372
Mitigation and Permitting (1%)					\$ 1,912
Subtotal					\$ 250,523
Interest During Construction					\$ 5,428
TOTAL CAPITAL COST					\$ 255,951
ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 22,315
Pipeline O&M (1%)					\$ 1,000
Pump O&M (2.5%)					\$ 2,281
Chemicals			1000 gal	\$ 0.30	\$ 11,731
Electricity					\$ 5,519
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 42,846
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 20,531
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 357
Cost per 1000 gallons					\$ 1.10
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 171
Cost per 1000 gallons					\$ 0.53

WUGNAME: Anderson_Mining
STRATEGY: New Wells in Carizzo-Wilcox Aquifer
AMOUNT (ac-ft/yr): 120

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Water Well Construction		1	ea	\$ 70,900	\$ 70,900
Connection to Water System		1	ea	\$ 100,000	\$ 100,000
Subtotal					\$ 170,900
Engineering and Contingencies (30%)					\$ 51,270
Mitigation and Permitting (1%)					\$ 1,709
Subtotal					\$ 223,879
Interest During Construction					\$ 4,851
TOTAL CAPITAL COST					\$ 228,730
ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 19,942
Pipeline O&M (1%)					\$ 1,000
Pump O&M (2.5%)					\$ 1,773
Chemicals			1000 gal	NA	\$ -
Electricity					\$ 5,519
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 28,233
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 8,292
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 233
Cost per 1000 gallons					\$ 0.72
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 68
Cost per 1000 gallons					\$ 0.21

WUGNAME: Anderson_Steam Electric Power_1
STRATEGY: Lake Palestine
AMOUNT (ac-ft/yr): 21,853 19.50 MGD

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Transmission Facilities					
Pipeline	42 in.	58080 ft		\$ 215	\$ 12,487,200
Right of Way Easements		40 AC		\$ 2,000	\$ 80,000
Terminal Storage	5.00 MG	1 LS		\$ 1,303,000	\$ 1,303,000
Contingencies (10%, engineering done)					\$ 1,256,720
		11 miles			
Pipeline Subtotal					\$ 15,126,920
Pump Station					\$ 4,345,875
Contingencies (10%, engineering done)					\$ 434,587
Pump Station Subtotal					\$ 4,780,462
Environmental and Permitting		0 ft		\$ 0.57	\$ 199,074
Additional Engineering (20%)					\$ 3,981,476
Interest During Construction					\$ 829,481
TOTAL CAPITAL COST					\$ 24,917,413
ANNUAL COSTS					
	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 2,172,414
Raw Water Cost		7,120,822	1000 gal	\$ 0.65	\$ 4,628,534
Pipeline O&M (1%)					\$ 124,872
Pump O&M (2.5%)					\$ 152,087
Chemicals			1000 gal	\$ -	\$ -
Electricity					\$ 422,708
TOTAL ANNUAL COST					\$ 7,500,615
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 343
Cost per 1000 gallons					\$ 1.05
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 244
Cost per 1000 gallons					\$ 0.75

WUGNAME: Angelina_County-Other_Phase1
STRATEGY: New Wells in Yegua-Jackson Aquifer
AMOUNT (ac-ft/yr): 150

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Water Well Construction			1 ea	\$ 56,800	\$ 56,800
Connection to Water System			1 ea	\$ 100,000	\$ 100,000
Subtotal					\$ 156,800
Engineering and Contingencies (30%)					\$ 47,040
Mitigation and Permitting (1%)					\$ 1,568
Subtotal					\$ 205,408
Interest During Construction					\$ 4,451
TOTAL CAPITAL COST					\$ 209,859
ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 18,296
Pipeline O&M (1%)					\$ 1,000
Pump O&M (2.5%)					\$ 1,420
Chemicals			1000 gal	\$ 0.30	\$ 14,661
Electricity					\$ 5,913
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 41,291
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 22,994
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 275
Cost per 1000 gallons					\$ 0.84
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 153
Cost per 1000 gallons					\$ 0.47

WUGNAME: Angelina_County-Other_Phase2
STRATEGY: New Wells in Yegua-Jackson Aquifer
AMOUNT (ac-ft/yr): 300

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Water Well Construction			2 ea	\$ 56,800	\$ 113,600
Connection to Water System			2 ea	\$ 100,000	\$ 200,000
Subtotal					\$ 313,600
Engineering and Contingencies (30%)					\$ 94,080
Mitigation and Permitting (1%)					\$ 3,136
Subtotal					\$ 410,816
Interest During Construction					\$ 8,901
TOTAL CAPITAL COST					\$ 419,717
ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 36,593
Pipeline O&M (1%)					\$ 2,000
Pump O&M (2.5%)					\$ 2,840
Chemicals			1000 gal	\$ 0.30	\$ 29,323
Electricity					\$ 11,826
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 82,582
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 45,989
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 275
Cost per 1000 gallons					\$ 0.84
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 153
Cost per 1000 gallons					\$ 0.47

WUGNAME: Angelina County-Other
STRATEGY: Purchase Water from Lufkin
AMOUNT (ac-ft/yr): 1,100 2.0 MGD

Expand Treated Water Supply	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline to Angelina County customers	12 in.	66,000	LF	\$52	\$3,432,000
Pipeline to Angelina County customers	8 in.	66,000	LF	\$34	\$2,244,000
Right of Way Easements Rural (ROW)		45.5	ACRE	\$2,000	\$91,000
Engineering and Contingencies (30%)					\$1,703,000
Subtotal of Pipeline					\$7,470,000
Pump Station(s)					
Pump Station	470 HP	1	LS	\$1,961,000	\$1,961,000
Engineering and Contingencies (35%)					\$686,000
Subtotal of Pump Station(s)					\$2,647,000
CONSTRUCTION TOTAL					\$10,117,000
Permitting and Mitigation					\$65,000
Interest During Construction					\$422,000
			(12 months)		
TOTAL COST					\$10,604,000
ANNUAL COSTS					
Debt Service (6% for 20 years)					\$925,000
Electricity (\$0.09 kWh)					\$48,000
Operation & Maintenance					\$100,000
Treated Water Purchase			Kgal	\$2.00	\$717,000
Total Annual Costs					\$1,790,000
UNIT COSTS (Until Amortized)					
Per Acre-Foot of treated water					\$1,627
Per 1,000 Gallons					\$4.99
UNIT COSTS (After Amortization)					
Per Acre-Foot					\$786
Per 1,000 Gallons					\$2.41

WWPNAME: Diboll
STRATEGY: Purchase from Lufkin
Quantity: 800 AF/Y 1.25 MGD

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline to Lake Nacogdoches	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	14 in.	61,250	LF	\$60	\$3,675,000
Right of Way Easements Rural (ROW)		28.1	ACRE	\$2,000	\$56,000
Engineering and Contingencies (30%)					\$1,103,000
Subtotal of Pipeline					\$4,834,000

Pump Station(s)	Size	Quantity	Unit	Unit Price	Cost
Pump with intake & building	50 HP	1	LS	\$871,000	\$871,000
Booster Pump Station	0 HP	1	LS	\$0	\$0
Engineering and Contingencies (35%)					\$305,000
Subtotal of Pump Station(s)					\$1,176,000

CONSTRUCTION TOTAL **\$6,010,000**

Permitting and Mitigation **\$55,000**

Interest During Construction **\$130,000**
 (6 months)

TOTAL COST **\$6,195,000**

ANNUAL COSTS

Debt Service (6% for 20 years)					\$540,100
Electricity (\$0.09 kWh)					\$13,600
Operation & Maintenance					\$70,200
Treated Water Purchase			Kgal	\$2.00	\$521,000
Treatment			Kgal	\$0.00	\$0
Total Annual Costs					\$1,144,900

UNIT COSTS (Until Amortized)

Per Acre-Foot of treated water					\$1,431
Per 1,000 Gallons					\$4.39

UNIT COSTS (After Amortization)

Per Acre-Foot					\$756
Per 1,000 Gallons					\$2.32

WUGNAME: Dibold_Phase1
STRATEGY: New Wells in Yegua-Jackson Aquifer
AMOUNT (ac-ft/yr): 600

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Water Well Construction			2 ea	\$ 115,400	\$ 230,800
Connection to Water System			2 ea	\$ 100,000	\$ 200,000
Subtotal					\$ 430,800
Engineering and Contingencies (30%)					\$ 129,240
Mitigation and Permitting (1%)					\$ 4,308
Subtotal					\$ 564,348
Interest During Construction					\$ 12,228
TOTAL CAPITAL COST					\$ 576,576
ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 50,268
Pipeline O&M (1%)					\$ 2,000
Pump O&M (2.5%)					\$ 5,770
Chemicals			1000 gal	\$ 0.30	\$ 58,653
Electricity					\$ 23,652
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 140,344
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 90,075
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 234
Cost per 1000 gallons					\$ 0.72
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 150
Cost per 1000 gallons					\$ 0.46

WUGNAME: Four Way WSC
STRATEGY: Purchase water from Lufkin
AMOUNT (ac-ft/yr): 225

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Connection to Water System		1	ea	\$ 500,000	\$ 500,000
Subtotal					\$ 500,000
Engineering and Contingencies (30%)					\$ 150,000
Mitigation and Permitting (1%)					\$ 5,000
Subtotal					\$ 655,000
Interest During Construction					\$ 14,192
TOTAL CAPITAL COST					\$ 669,192
ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 58,343
Pipeline O&M (1%)					\$ 5,000
Purchase cost		73,300	Kgal	\$ 2	\$ 146,600
Electricity					\$ 1,478
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 211,421
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 153,078
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 940
Cost per 1000 gallons					\$ 2.88
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 680
Cost per 1000 gallons					\$ 2.09

WUGNAME: Hudson_Phase1
STRATEGY: New Wells Carrizo Wilcox Aquifer
AMOUNT (ac-ft/yr): 404

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Water Well Construction		1	ea	\$ 329,568	\$ 329,568
Connection to Water System		1	ea	\$ 100,000	\$ 100,000
Subtotal					\$ 429,568
Engineering and Contingencies (30%)					\$ 128,871
Mitigation and Permitting (1%)					\$ 4,296
Subtotal					\$ 562,735
Interest During Construction					\$ 12,193
TOTAL CAPITAL COST					\$ 574,927
ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 50,125
Pipeline O&M (1%)					\$ 1,000
Pump O&M (2.5%)					\$ 8,239
Chemicals			1000 gal	\$ 0.30	\$ 39,444
Electricity					\$ 21,024
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 119,832
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 69,707
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 297
Cost per 1000 gallons					\$ 0.91
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 173
Cost per 1000 gallons					\$ 0.53

WUGNAME: Hudson_Phase2
STRATEGY: New Wells Carrizo Wilcox Aquifer
AMOUNT (ac-ft/yr): 1049

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Water Well Construction		2	ea	\$ 413,198	\$ 826,396
Connection to Water System		2	ea	\$ 100,000	\$ 200,000
Subtotal					\$ 1,026,396
Engineering and Contingencies (30%)					\$ 307,919
Mitigation and Permitting (1%)					\$ 10,264
Subtotal					\$ 1,344,579
Interest During Construction					\$ 29,133
TOTAL CAPITAL COST					\$ 1,373,712
ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 119,766
Pipeline O&M (1%)					\$ 2,000
Pump O&M (2.5%)					\$ 20,660
Chemicals			1000 gal	\$ 0.30	\$ 102,555
Electricity					\$ 55,188
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 300,169
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 180,403
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 286
Cost per 1000 gallons					\$ 0.88
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 172
Cost per 1000 gallons					\$ 0.53

WUGNAME: Hudson Angelina
STRATEGY: Purchase water from Hudsccon WSC
AMOUNT (ac-ft/yr): 1200

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
----------------------	-------------	-----------------	--------------	-------------------	-------------

Subtotal					\$ -
-----------------	--	--	--	--	-------------

Engineering and Contingencies (30%)					\$ -
-------------------------------------	--	--	--	--	------

Mitigation and Permitting (1%)					\$ -
--------------------------------	--	--	--	--	------

Subtotal					\$ -
-----------------	--	--	--	--	-------------

Interest During Construction					\$ -
------------------------------	--	--	--	--	------

TOTAL CAPITAL COST					\$ -
---------------------------	--	--	--	--	-------------

ANNUAL COSTS	2010	2020	2030	2040	2050	2060
	0	0	125	400	800	1200
	\$ -	\$ -	\$ 39,657	\$ 126,901	\$ 140,522	\$ 210,784
						\$ 380,703

TOTAL ANNUAL COST w/ AMORTIZATION						\$ -
--	--	--	--	--	--	-------------

TOTAL ANNUAL COST AFTER AMORTIZATION						\$ -
---	--	--	--	--	--	-------------

UNIT COSTS (Until Amortized)

Cost per acre-ft						\$ 317
------------------	--	--	--	--	--	--------

Cost per 1000 gallons						\$ 0.97
-----------------------	--	--	--	--	--	---------

UNIT COSTS (After Amortization)

Cost per acre-ft						\$ 176
------------------	--	--	--	--	--	--------

Cost per 1000 gallons						\$ 0.54
-----------------------	--	--	--	--	--	---------

WUGNAME: Hudson WSC_Phase1
STRATEGY: New Wells in Carrizo-Wilcox Aquifer
AMOUNT (ac-ft/yr): 600

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Water Well Construction			2 ea	\$ 264,052	\$ 528,103
Connection to Water System			2 ea	\$ 100,000	\$ 200,000
Subtotal					\$ 728,103
Engineering and Contingencies (30%)					\$ 218,431
Mitigation and Permitting (1%)					\$ 7,281
Subtotal					\$ 953,815
Interest During Construction					\$ 20,666
TOTAL CAPITAL COST					\$ 974,482
ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 84,960
Pipeline O&M (1%)					\$ 2,000
Pump O&M (2.5%)					\$ 13,203
Chemicals			1000 gal	\$ 0.30	\$ 58,653
Electricity					\$ 31,536
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 190,352
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 105,392
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 317
Cost per 1000 gallons					\$ 0.97
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 176
Cost per 1000 gallons					\$ 0.54

WUGNAME: Hudson WSC_Phase2
STRATEGY: New Wells in Carrizo-Wilcox Aquifer
AMOUNT (ac-ft/yr): 1400

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Water Well Construction			4 ea	\$ 329,568	\$ 1,318,274
Connection to Water System			4 ea	\$ 100,000	\$ 400,000
Subtotal					\$ 1,718,274
Engineering and Contingencies (30%)					\$ 515,482
Mitigation and Permitting (1%)					\$ 17,183
Subtotal					\$ 2,250,939
Interest During Construction					\$ 48,771
TOTAL CAPITAL COST					\$ 2,299,710
ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 200,499
Pipeline O&M (1%)					\$ 4,000
Pump O&M (2.5%)					\$ 32,957
Chemicals			1000 gal	\$ 0.30	\$ 136,857
Electricity					\$ 73,584
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 447,897
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 247,398
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 320
Cost per 1000 gallons					\$ 0.98
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 177
Cost per 1000 gallons					\$ 0.54

**SBLIV-1
 Angelina County Livestock
 Increase Supply from Local Sources**

Owner: Angelina County Livestock
 Quantity: 90 AF/Y

Item	Size	Quantity	Unit	Unit Price	Cost
Capital Costs					
Stock Ponds					
Stock Ponds	25 AF/Y	4	Ea.	\$34,000	\$122,400
Engineering and Contingencies					\$42,800
Subtotal for Local Supply					\$165,200
TOTAL CONSTRUCTION COST					\$165,200
Interest During Construction			(6 months)		\$3,600
Permitting and Mitigation					\$0
TOTAL CAPITAL COST					\$168,800
Annual Costs					
Debt Service (6 percent for 20 years)					\$14,700
Total Annual Cost					\$14,700
UNIT COSTS (Until Amortized)					
Water Cost (\$ per ac-ft)					\$163
Water Cost (\$ per 1,000 gallons)					\$0.50
UNIT COSTS (After Amortization)					
Water Cost (\$ per ac-ft)					\$0
Water Cost (\$ per 1,000 gallons)					\$0.00

WUGNAME: Angelina Manufacturing
STRATEGY: Lake Columbia
Quantity: 8,551 AF/Y 11.44 MGD

**CONSTRUCTION COSTS
 TRANSMISSION FACILITIES**

Pipeline	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	30 in.	15,840	LF	\$145	\$2,297,000
Pipeline Urban	30 in.	0	LF	\$215	\$0
Right of Way Easements Rural (ROW)		7.3	ACRE	\$2,000	\$15,000
Right of Way Easements Urban (ROW)		0.0	ACRE	\$20,000	\$0
Engineering and Contingencies (30%)					\$689,000
Subtotal of Pipeline					\$3,001,000

Pump Station(s)	Size	Quantity	Unit	Unit Price	Cost
Pump with intake & building	400 HP	1	LS	\$2,423,000	\$2,423,000
Booster Pump Station	0 HP	1	LS	\$0	\$0
Engineering and Contingencies (35%)					\$848,050
Subtotal of Pump Station(s)					\$3,271,050

Terminal Storage	Size	Quantity	Unit	Unit Price	Cost
Storage	2 MG	1	LS	\$714,000	\$714,000
Engineering and Contingencies (35%)					\$249,900
Subtotal of WTP					\$963,900

CONSTRUCTION TOTAL **\$7,235,950**

Permitting and Mitigation **\$65,000**

Interest During Construction (12 months) **\$302,000**

TOTAL COST **\$7,602,950**

ANNUAL COSTS

Debt Service (6% for 20 years)					\$663,000
Electricity (\$0.09 kWh)					\$133,000
Operation & Maintenance					\$101,000
Raw Water Purchase			Kgal	\$0.66	\$1,839,000
Treatment			Kgal	\$0.00	\$0
Total Annual Costs					\$2,736,000

UNIT COSTS (Until Amortized)

Per Acre-Foot of water					\$320
Per 1,000 Gallons					\$0.98

UNIT COSTS (After Amortization)

Per Acre-Foot					\$242
Per 1,000 Gallons					\$0.74

WUGNAME: Angelina Manufacturing
STRATEGY: Purchase from Lufkin
Raw Water Quantity: 8,800 AF/Y 11.78 MGD
Treated Water Quantity: 7,000 AF/Y 9.37 MGD

**CONSTRUCTION COSTS
TRANSMISSION FACILITIES**

Pipeline	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	30 in.	52,800	LF	\$145	\$7,656,000
Pipeline Urban	30 in.	0	LF	\$215	\$0
Right of Way Easements Rural (ROW)		24.2	ACRE	\$2,000	\$48,000
Right of Way Easements Urban (ROW)		0.0	ACRE	\$20,000	\$0
Engineering and Contingencies (30%)					\$2,297,000
Subtotal of Pipeline					\$10,001,000

Pump Station(s)					
Pump with building	300 HP	2	LS	\$1,441,000	\$2,882,000
Booster Pump Station	0 HP	1	LS	\$0	\$0
Engineering and Contingencies (35%)					\$1,008,700
Subtotal of Pump Station(s)					\$3,890,700

Terminal Storage					
Storage	2 MG	1	LS	\$714,000	\$714,000
Engineering and Contingencies (35%)					\$250,000
Subtotal of WTP					\$964,000

CONSTRUCTION TOTAL **\$14,855,700**

Permitting and Mitigation **\$135,000**

Interest During Construction (12 months) **\$619,000**

TOTAL COST **\$15,609,700**

ANNUAL COSTS

Debt Service (6% for 20 years)					\$1,361,000
Electricity (\$0.09 kWh)					\$181,000
Operation & Maintenance					\$178,000
Raw Water Purchase			Kgal	\$0.50	\$1,434,000
Treated Water Purchase			Kgal	\$2.00	\$4,562,000
Total Annual Costs					\$7,716,000

UNIT COSTS (Until Amortized)

Per Acre-Foot of water					\$488
Per 1,000 Gallons					\$1.50

UNIT COSTS (After Amortization)

Per Acre-Foot					\$402
Per 1,000 Gallons					\$1.23

WUGNAME: Angelina Mining
STRATEGY: Angelina River/ Lake Columbia
Quantity: 4,000 AF/Y 5.35 MGD

**CONSTRUCTION COSTS
 TRANSMISSION FACILITIES**

Pipeline	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	20 in.	26,400	LF	\$90	\$2,376,000
Right of Way Easements Rural (ROW)		12.1	ACRE	\$2,000	\$24,000
Engineering and Contingencies (30%)					\$713,000
Subtotal of Pipeline					\$3,113,000
Pump Station(s)					
Pump with intake	200 HP	1	LS	\$1,509,000	\$1,509,000
Booster Pump Station	0 HP	1	LS	\$0	\$0
Engineering and Contingencies (35%)					\$528,150
Subtotal of Pump Station(s)					\$2,037,150
Terminal Storage	1.0 MG	1	LS	\$469,000	\$469,000

CONSTRUCTION TOTAL **\$5,619,150**

Permitting and Mitigation **\$52,000**

Interest During Construction **\$122,000**
 (6 months)

TOTAL COST **\$5,793,150**

ANNUAL COSTS

Debt Service (6% for 20 years)					\$505,000
Electricity (\$0.09 kWh)					\$74,000
Operation & Maintenance					\$88,000
Raw Water Purchase			Kgal	\$0.66	\$860,000
Treatment			Kgal	\$0.00	\$0
Total Annual Costs					\$1,527,000

UNIT COSTS (Until Amortized)

Per Acre-Foot of treated water					\$382
Per 1,000 Gallons					\$1.17

UNIT COSTS (After Amortization)

Per Acre-Foot					\$256
Per 1,000 Gallons					\$0.78

WUGNAME: Angelina_Steam Electric Power
STRATEGY: New Wells in Carizzo-Wilcox
AMOUNT (ac-ft/yr): 1000

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Water Well Construction		3	ea	\$ 329,600	\$ 988,800
Connection to Water System		3	ea	\$ 100,000	\$ 300,000
Subtotal					\$ 1,288,800
Engineering and Contingencies (30%)					\$ 386,640
Mitigation and Permitting (1%)					\$ 12,888
Subtotal					\$ 1,688,328
Interest During Construction					\$ 36,581
TOTAL CAPITAL COST					\$ 1,724,909
ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 150,385
Pipeline O&M (1%)					\$ 3,000
Pump O&M (2.5%)					\$ 24,720
Chemicals			1000 gal	\$ -	\$ -
Electricity					\$ 52,560
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 230,665
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 80,280
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 1,538
Cost per 1000 gallons					\$ 4.72
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 535
Cost per 1000 gallons					\$ 1.64

WUGNAME: New Summerfield
STRATEGY: New Wells - Carrizo Wilcox Aquifer
AMOUNT (ac-ft/yr): 242

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Water Well Construction		1	ea	\$ 123,742	\$ 123,742
Connection to Water System		1	ea	\$ 100,000	\$ 100,000
Subtotal					\$ 223,742
Engineering and Contingencies (30%)					\$ 67,122
Mitigation and Permitting (1%)					\$ 2,237
Subtotal					\$ 293,101
Interest During Construction					\$ 6,351
TOTAL CAPITAL COST					\$ 299,452
ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 26,108
Pipeline O&M (1%)					\$ 1,000
Pump O&M (2.5%)					\$ 3,094
Chemicals			1000 gal	\$ 0.30	\$ 23,667
Electricity					\$ 9,461
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 63,329
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 37,221
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 262
Cost per 1000 gallons					\$ 0.80
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 154
Cost per 1000 gallons					\$ 0.47

WUGNAME: Rusk
STRATEGY: New Wells - Carrizo Wilcox Aquifer
AMOUNT (ac-ft/yr): 212

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Water Well Construction		1	ea	\$ 123,742	\$ 123,742
Connection to Water System		1	ea	\$ 100,000	\$ 100,000
Subtotal					\$ 223,742
Engineering and Contingencies (30%)					\$ 67,122
Mitigation and Permitting (1%)					\$ 2,237
Subtotal					\$ 293,101
Interest During Construction					\$ 6,351
TOTAL CAPITAL COST					\$ 299,452

ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 26,108
Pipeline O&M (1%)					\$ 1,000
Pump O&M (2.5%)					\$ 3,094
Chemicals			1000 gal	\$ 0.30	\$ 20,724
Electricity					\$ 9,461
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 60,386
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 34,279

UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 285
Cost per 1000 gallons					\$ 0.87

UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 162
Cost per 1000 gallons					\$ 0.50

WUGNAME: City of Rusk
STRATEGY: Lake Columbia
Quantity: 3,000 AF/Y 5.00 MGD

**CONSTRUCTION COSTS
 TRANSMISSION FACILITIES**

Pipeline	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	20 in.	50,160	LF	\$90	\$4,514,000
Pipeline Urban	20 in.	0	LF	\$135	\$0
Right of Way Easements Rural (ROW)		23.0	ACRE	\$2,000	\$46,000
Right of Way Easements Urban (ROW)		0.0	ACRE	\$20,000	\$0
Engineering and Contingencies (30%)					\$1,354,000
Subtotal of Pipeline					\$5,914,000

Pump Station(s)	Size	Quantity	Unit	Unit Price	Cost
Pump with intake & building	225 HP	1	LS	\$1,618,000	\$1,618,000
Booster Pump Station	0 HP	1	LS	\$0	\$0
Engineering and Contingencies (35%)					\$566,300
Subtotal of Pump Station(s)					\$2,184,300

Water Treatment Facility	Size	Quantity	Unit	Unit Price	Cost
New Water Treatment Plant	5 MGD	1	LS	\$14,050,000	\$14,050,000
Engineering and Contingencies (35%)					\$4,917,500
Subtotal of WTP					\$18,967,500

CONSTRUCTION TOTAL **\$27,065,800**

Permitting and Mitigation **\$242,000**

Interest During Construction (12 months) **\$1,128,000**

TOTAL COST **\$28,435,800**

ANNUAL COSTS

Debt Service (6% for 20 years)					\$2,479,000
Electricity (\$0.09 kWh)					\$57,000
Operation & Maintenance					\$103,000
Raw Water Purchase			Kgal	\$0.66	\$645,000
Treatment			Kgal	\$0.70	\$684,000
Total Annual Costs					\$3,968,000

UNIT COSTS (Until Amortized)

Per Acre-Foot of treated water					\$1,323
Per 1,000 Gallons					\$4.06

UNIT COSTS (After Amortization)

Per Acre-Foot					\$496
Per 1,000 Gallons					\$1.52

WUGNAME: Cherokee Mining
STRATEGY: Angelina River/ Lake Columbia
Quantity: 1,500 AF/Y 2.01 MGD

**CONSTRUCTION COSTS
 TRANSMISSION FACILITIES**

Pipeline	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	12 in.	26,400	LF	\$52	\$1,373,000
Right of Way Easements Rural (ROW)		12.1	ACRE	\$2,000	\$24,000
Engineering and Contingencies (30%)					\$412,000
Subtotal of Pipeline					\$1,809,000
Pump Station(s)					
Pump with intake	115 HP	1	LS	\$1,078,000	\$1,078,000
Booster Pump Station	0 HP	1	LS	\$0	\$0
Engineering and Contingencies (35%)					\$377,300
Subtotal of Pump Station(s)					\$1,455,300
Terminal Storage	0.2 MG	1	LS	\$247,000	\$247,000

CONSTRUCTION TOTAL **\$3,511,300**

Permitting and Mitigation **\$32,000**

Interest During Construction **\$76,000**
(6 months)

TOTAL COST **\$3,619,300**

ANNUAL COSTS

Debt Service (6% for 20 years)					\$316,000
Electricity (\$0.09 kWh)					\$34,000
Operation & Maintenance					\$55,000
Raw Water Purchase			Kgal	\$0.66	\$323,000
Treatment			Kgal	\$0.00	\$0
Total Annual Costs					\$728,000

UNIT COSTS (Until Amortized)

Per Acre-Foot of treated water					\$485
Per 1,000 Gallons					\$1.49

UNIT COSTS (After Amortization)

Per Acre-Foot					\$275
Per 1,000 Gallons					\$0.84

**Hardin County
County - Other**

	2000	2010	2020	2030	2040	2050	2060
Required groundwater, af/y		153	306	306	306	459	459
Well Design, gpm (2*Reqd)		190	379	379	379	569	569
Supplied groundwater, MGD		0.1366	0.2732	0.2732	0.2732	0.4098	0.4098
County GW Parameters							
All. GPM/well	200						
Well Depth	800						
Cost /Well	184200						
No. of Wells		0.9485	1.8969	1.8969	1.8969	2.8454	2.8454
Phasing of Wells		1	1	0	0	1	0
Well Cost		\$ 184,200.00	\$ 184,200.00	\$ -	\$ -	\$ 184,200.00	\$ -
Distribution Cost							
Length Dist. Pipe/Well	5280						
Total Length							
Pipe Diameter, in	10						
Head Loss/100 feet	0.213						
Depth to Water Surface	400						
Total Head Required	491						
Total Horsepower	35						
Cost of Pipeline	43	\$ 227,040.00	\$ 227,040.00	\$ -	\$ -	\$ 227,040.00	\$ -
1 MG ground storage and elev	0	0	0	0	0	0	0
Total Capital Cost		\$ 411,240.00	\$ 411,240.00	\$ -	\$ -	\$ 411,240.00	\$ -
Engineering & Cont. (30%)		\$123,372	\$123,372	\$0	\$0	\$123,372	\$0
Interest During Construction		\$22,276	\$22,276	\$0	\$0	\$22,276	\$0
Total Cost		\$556,888	\$556,888	\$0	\$0	\$556,888	\$0
Annual Cost							
New Debt Service,6%, 20yrs.		\$48,552	\$48,552	\$0	\$0	\$48,552	\$0
New Plus Existing		\$48,552	\$97,104	\$48,552	\$0	\$48,552	\$48,552
O&M Cost							
Electricity		10,430	20,859	20,859	20,859	31,289	31,289
O&M		\$4,605	\$9,210	\$9,210	\$9,210	\$13,815	\$13,815
Transmission Line		\$2,270	\$4,541	\$4,541	\$4,541	\$6,811	\$6,811
Total Annual Cost		\$65,857	\$131,714	\$83,162	\$34,610	\$100,467	\$100,467
Unit Cost, \$/1000 gallons		\$1.32	\$1.32	\$0.83	\$0.35	\$0.67	\$0.67
Unit Cost, \$/acft		\$430.44	\$430.44	\$271.77	\$113.11	\$218.88	\$218.88
						\$286.96	\$0.88

Hardin County Manufacturing

	2000	2010	2020	2030	2040	2050	2060	
Required groundwater, af/y		114	114	114	114	114	114	
Well Design, gpm (2*Reqd)		141	141	141	141	141	141	
Supplied groundwater, MGD		0.1018	0.1018	0.1018	0.1018	0.1018	0.1018	
County GW Parameters								
All. GPM/well (200)	140							
Well Depth	700							
Cost /Well	79920							
No. of Wells		1.0096	1.0096	1.0096	1.0096	1.0096	1.0096	
Phasing of Wells		1	0	0	0	0	0	
Well Cost	\$	79,920.00	\$	-	\$	-	\$	-
Distribution Cost								
Length Dist. Pipe/Well	5280							
Total Length								
Pipe Diameter, in	6							
Head Loss/100 feet	0.176							
Depth to Water Surface	20							
Total Head Required	109							
Total Horsepower	6							
Cost of Pipeline	26	\$	137,280.00	0	0	0	0	
Booster Station and Ground								
Storage per 3 wells	\$	100,000.00	\$	100,000.00	0	0	0	
Total Capital Cost	\$	317,200.00	0	0	0	0	0	
Engineering & Cont. (30%)		\$95,160	\$0	\$0	\$0	\$0	\$0	
Interest During Construction		\$17,182	\$0	\$0	\$0	\$0	\$0	
Total Cost		\$429,542	\$0	\$0	\$0	\$0	\$0	
Annual Cost								
New Debt Service,6%, 20yrs.		\$37,449	\$0	\$0	\$0	\$0	\$0	
New Plus Existing		\$37,449	\$37,449	\$0	\$0	\$0	\$0	
O&M Cost								
Electricity		1,624	1,624	1,624	1,624	1,624	1,624	
O&M		\$1,998	\$1,998	\$1,998	\$1,998	\$1,998	\$1,998	
Transmission Line		\$2,373	\$2,373	\$2,373	\$2,373	\$2,373	\$2,373	
Total Annual Cost		\$43,444	\$43,444	\$5,995	\$5,995	\$5,995	\$5,995	
Unit Cost, \$/1000 gallons		\$1.17	\$1.17	\$0.16	\$0.16	\$0.16	\$0.16	
Unit Cost, \$/acft		\$381.09	\$381.09	\$52.59	\$52.59	\$52.59	\$52.59	
							\$381.09	
							\$1.17	

Hardin County**Irrigation**

	2010	2020	2030	2040	2050	2060
Required water, af/y	1002	1002	1002	1002	1002	1002
Distribution Design, gpm (1.5*Reqd)	932	932	932	932	932	932
Supplied water, MGD	0.89	0.89	0.89	0.89	0.89	0.89
Distribution Cost						
Length Dist. Pipe	12500					
Pumping Rate, gpm	3451					
Pipe Diameter, in	20					
Head Loss/100 feet	0.18					
Depth to Water Surface	20					
Total Head Required	42.5					
Total Horsepower	53					
Cost of Pipeline per foot	\$90					
Pump Station	\$651,000	0				
Total Capital Cost	\$1,776,000	0	0	0	0	0
Engineering & Cont. (30%)	\$532,800	\$0	\$0	\$0	\$0	\$0
Interest During Construction	\$96,201	\$0	\$0	\$0	\$0	\$0
Total Cost	\$2,405,001	\$0	\$0	\$0	\$0	\$0
Annual Cost						
New Debt Service, 6%, 20yrs.	(\$209,679)	\$0	\$0	\$0	\$0	\$0
New Plus Existing	(\$209,679)	(\$209,679)		\$0	\$0	\$0
O&M Cost						
Electricity	(5,605)	(5,605)	(5,605)	(5,605)	(5,605)	(5,605)
O&M	\$0	\$0	\$0	\$0	\$0	\$0
Transmission Line	\$0	\$0	\$0	\$0	\$0	\$0
Raw Water Cost \$0.25/1000 gallons	(\$81,636)	(\$81,636)	(\$81,636)	(\$81,636)	(\$81,636)	(\$81,636)
Total Annual Cost	(\$296,920)	(\$296,920)	(\$87,241)	(\$87,241)	(\$87,241)	(\$87,241)
Unit Cost, \$/1000 gallons	(\$0.91)	(\$0.91)	(\$0.27)	(\$0.27)	(\$0.27)	(\$0.27)

**Table
Henderson County-Other
Purchase Water from UNRMWA**

Probable Owner: County-Other
Quantity: 500 AF/Y 0.78 MGD

**CONSTRUCTION COSTS
TRANSMISSION FACILITIES**

Pipeline	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	10 in.	26,400	LF	\$43	\$1,135,000
Pipeline Urban	10 in.	0	LF	\$65	\$0
Right of Way Easements Rural (ROW)		12.1	ACRE	\$2,000	\$24,000
Right of Way Easements Urban (ROW)		0.0	ACRE	\$20,000	\$0
Engineering and Contingencies (30%)					\$341,000
Subtotal of Pipeline					\$1,500,000
Pump Station(s)					
Pump with intake & building	30 HP	1	LS	\$602,000	\$602,000
Booster Pump Station	0 HP	1	LS	\$0	\$0
Engineering and Contingencies (35%)					\$210,700
Subtotal of Pump Station(s)					\$812,700
Ground Storage					
Ground Storage Tanks at Booster	0.25 MG	1	LS	\$279,000	\$279,000
Engineering and Contingencies (35%)					\$97,650
Subtotal of Ground Storage					\$376,650
Surface Water Treatment					
Water treatment plant	1 MGD	1	LS	\$5,800,000	\$5,800,000

CONSTRUCTION TOTAL **\$8,489,350**

Permitting and Mitigation **\$94,000**

Interest During Construction **\$354,000**
(12 months)

TOTAL COST **\$8,937,350**

ANNUAL COSTS

Debt Service (6% for 20 years)					\$779,000
Electricity (\$0.09 kWh)					\$8,000
Operation & Maintenance					\$40,000
Raw Water Purchase			Kgal	\$0.25	\$41,000
Treatment			Kgal	\$0.70	\$114,000
Total Annual Costs					\$982,000

UNIT COSTS (Until Amortized)

Per Acre-Foot of treated water					\$1,964
Per 1,000 Gallons					\$6.02

UNIT COSTS (After Amortization)

Per Acre-Foot					\$406
Per 1,000 Gallons					\$1.25

**Table
Henderson County-Other
Install New Wells in Queen City**

Owner: County-Other
Quantity: 500 AF/Y

Item	Size	Quantity	Unit	Unit Price	Cost
Capital Costs					
Wellfield and Treatment					
Wells	50 gpm	12	Ea.	\$19,070	\$228,800
Connection to Existing Distribution System		12	Ea.	\$10,000	\$120,000
Storage Tank (Closed)	10,000 Gal	12	Ea.	\$10,050	\$120,600
Engineering and Contingencies (35% for well field)					\$164,300
Subtotal for Wellfield					\$633,700
Transmission System					
Pipeline - Rural	6 inch	31,680	LF	\$26	\$823,700
Pipeline - Urban	6 inch	0	LF	\$39	\$0
Pump Station	30 HP	3	LS	\$602,000	\$1,806,000
Easement - Rural	15 Feet	11	AC	\$2,000	\$21,800
Easement - Urban	15 Feet	0	AC	\$20,000	\$0
Engineering and Contingencies (30% for pipelines, 35% for other items)					\$879,200
Subtotal for Transmission					\$3,530,700
TOTAL CONSTRUCTION COST					\$4,164,400
Interest During Construction			(6 months)		\$90,200
Permitting and Mitigation					\$15,500
Groundwater Rights/ Purchase					\$150,000
TOTAL CAPITAL COST					\$4,420,100
Annual Costs					
Debt Service (6 percent for 20 years)					\$385,400
Electricity (Transmission)					\$6,000
Well operation and treatment					\$48,900
Operation and Maintenance of transmission					\$64,100
Total Annual Cost					\$504,400
UNIT COSTS (Until Amortized)					
Water Cost (\$ per ac-ft)					\$1,009
Water Cost (\$ per 1,000 gallons)					\$3.10
UNIT COSTS (After Amortization)					
Water Cost (\$ per ac-ft)					\$238
Water Cost (\$ per 1,000 gallons)					\$0.73

**Table
Henderson County-Other
Install New Wells in Carrizo-Wilcox**

Owner: County-Other
Quantity: 50 AF/Y

Item	Size	Quantity	Unit	Unit Price	Cost
Capital Costs					
Wellfield and Treatment					
Wells	50 gpm	1	Ea.	\$48,590	\$48,600
Connection to Existing Distribution System		1	Ea.	\$10,000	\$10,000
Storage Tank (Closed)	10,000 Gal	0	Ea.	\$10,050	\$0
Engineering and Contingencies (35% for well field)					\$20,500
Subtotal for Wellfield					\$79,100
Transmission System					
Pipeline - Rural	6 inch	10,560	LF	\$26	\$274,600
Pipeline - Urban	6 inch	0	LF	\$39	\$0
Pump Station	2 HP	1	LS	\$100,000	\$100,000
Easement - Rural	15 Feet	4	AC	\$2,000	\$7,300
Easement - Urban	15 Feet	0	AC	\$20,000	\$0
Engineering and Contingencies (30% for pipelines, 35% for other items)					\$117,400
Subtotal for Transmission					\$499,300
TOTAL CONSTRUCTION COST					\$578,400
Interest During Construction			(6 months)		\$12,500
Permitting and Mitigation					\$4,000
Groundwater Rights/ Purchase					\$15,000
TOTAL CAPITAL COST					\$609,900
Annual Costs					
Debt Service (6 percent for 20 years)					\$53,200
Electricity (Transmission)					\$500
Well operation and treatment					\$4,900
Operation and Maintenance of transmission					\$6,300
Total Annual Cost					\$64,900
UNIT COSTS (Until Amortized)					
Water Cost (\$ per ac-ft)					\$1,298
Water Cost (\$ per 1,000 gallons)					\$3.98
UNIT COSTS (After Amortization)					
Water Cost (\$ per ac-ft)					\$234
Water Cost (\$ per 1,000 gallons)					\$0.72

**Houston County
Irrigation**

	2000	2010	2020	2030	2040	2050	2060
Required groundwater, af/y		383	766	1149	1532	1915	2298
Well Design, gpm (2*Reqd)		475	950	1425	1899	2374	2849
Supplied groundwater, MGD		0.3420	0.6839	1.0259	1.3679	1.7098	2.0518
County GW Parameters							
All. GPM/well	475						
Well Depth	800						
Cost /Well	257250						
No. of Wells		0.9997	1.9994	2.9991	3.9988	4.9985	5.9982
Phasing of Wells		1	1	1	1	1	1
Well Cost		\$ 257,250.00	\$ 257,250.00	\$ 257,250.00	\$ 257,250.00	\$ 257,250.00	\$ 257,250.00
Distribution Cost							
Length Dist. Pipe/Well	5280						
Total Length							
Pipe Diameter, in	6						
Head Loss/100 feet	0.213						
Depth to Water Surface	400						
Total Head Required	491						
Total Horsepower	84						
Cost of Pipeline	26	\$ 137,280.00	\$ 137,280.00	\$ 137,280.00	\$ 137,280.00	\$ 137,280.00	\$ 137,280.00
1 MG ground storage and elev	0	0	0	0	0	0	0
Total Capital Cost		\$ 394,530.00	\$ 394,530.00	\$ 394,530.00	\$ 394,530.00	\$ 394,530.00	\$ 394,530.00
Engineering & Cont. (30%)		\$118,359	\$118,359	\$118,359	\$118,359	\$118,359	\$118,359
Interest During Construction		\$21,371	\$21,371	\$21,371	\$21,371	\$21,371	\$21,371
Total Cost		\$534,260	\$534,260	\$534,260	\$534,260	\$534,260	\$534,260
Annual Cost							
New Debt Service,6%, 20yrs.		\$46,579	\$46,579	\$46,579	\$46,579	\$46,579	\$46,579
New Plus Existing		\$46,579	\$93,158	\$93,158	\$93,158	\$93,158	\$93,158
O&M Cost							
Electricity		24,770	49,541	74,311	99,082	123,852	148,623
O&M		\$6,431	\$12,863	\$19,294	\$25,725	\$32,156	\$38,588
Transmission Line		\$1,373	\$2,746	\$4,118	\$5,491	\$6,864	\$8,237
Total Annual Cost		\$79,154	\$158,307	\$190,882	\$223,456	\$256,031	\$288,606
Unit Cost, \$/1000 gallons		\$0.63	\$0.63	\$0.51	\$0.45	\$0.41	\$0.39
Unit Cost, \$/acft		\$206.67	\$206.67	\$166.13	\$145.86	\$133.70	\$125.59
							\$125.59
							\$0.39

**Houston County
Livestock**

	2000	2010	2020	2030	2040	2050	2060
Required groundwater, af/y		211	211	422	633	844	1080
Well Design, gpm (2*Reqd)		262	262	523	785	1046	1339
Supplied groundwater, MGD		0.1884	0.1884	0.3768	0.5652	0.7536	0.9643
County GW Parameters							
All. GPM/well	275						
Well Depth	800						
Cost /Well	190875						
No. of Wells		0.9513	0.9513	1.9026	2.8539	3.8052	4.8692
Phasing of Wells		1	0	1	1	1	1
Well Cost		\$ 257,250.00	\$ -	\$ 257,250.00	\$ 257,250.00	\$ 257,250.00	\$ 257,250.00
Distribution Cost							
Length Dist. Pipe/Well	5280						
Total Length							
Pipe Diameter, in	6						
Head Loss/100 feet	0.213						
Depth to Water Surface	400						
Total Head Required	491						
Total Horsepower	49						
Cost of Pipeline	26	\$ 137,280.00	\$ -	\$ 137,280.00	\$ 137,280.00	\$ 137,280.00	\$ 137,280.00
1 MG ground storage and elev	0	0	0	0	0	0	0
Total Capital Cost		\$ 394,530.00	\$ -	\$ 394,530.00	\$ 394,530.00	\$ 394,530.00	\$ 394,530.00
Engineering & Cont. (30%)		\$118,359	\$0	\$118,359	\$118,359	\$118,359	\$118,359
Interest During Construction		\$21,371	\$0	\$21,371	\$21,371	\$21,371	\$21,371
Total Cost		\$534,260	\$0	\$534,260	\$534,260	\$534,260	\$534,260
Annual Cost							
New Debt Service,6%, 20yrs.		\$46,579	\$0	\$46,579	\$46,579	\$46,579	\$46,579
New Plus Existing		\$46,579	\$46,579	\$46,579	\$93,158	\$93,158	\$93,158
O&M Cost							
Electricity		24,770	24,770	49,541	74,311	99,082	123,852
O&M		\$6,431	\$6,431	\$12,863	\$19,294	\$25,725	\$32,156
Transmission Line		\$1,373	\$1,373	\$2,746	\$4,118	\$5,491	\$6,864
Total Annual Cost		\$79,154	\$79,154	\$111,728	\$190,882	\$223,456	\$256,031
Unit Cost, \$/1000 gallons		\$1.15	\$1.15	\$0.81	\$0.93	\$0.81	\$0.73
Unit Cost, \$/acft		\$375.14	\$375.14	\$264.76	\$301.55	\$264.76	\$237.07

**Jasper County
County - Other**

Neches	2000	2010	2020	2030	2040	2050	2060
Required groundwater, af/y		550	550	550	550	550	550
Well Design, gpm (2*Reqd)		682	682	682	682	682	682
Supplied groundwater, MGD		0.4911	0.4911	0.4911	0.4911	0.4911	0.4911
County GW Parameters							
All. GPM/well (125)	800						
Well Depth	1600						
Cost /Well	584100						
No. of Wells		0.8524	0.8524	0.8524	0.8524	0.8524	0.8524
Phasing of Wells		1	0	0	0	0	0
Well Cost		584100	0	0	0	0	0
Distribution Cost							
Length Dist. Pipe/Well	5280						
Total Length							
Pipe Diameter, in	6						
Head Loss/100 feet	0.176						
Depth to Water Surface	1500						
Total Head Required	1589						
Total Horsepower	459						
Cost of Pipeline	26	\$ 137,280.00	\$ -	\$ -	\$ -	\$ -	\$ -
Booster Station and Ground Storage per 3 wells			0		0		0
Total Capital Cost		\$ 721,380.00	\$ -	\$ -	\$ -	\$ -	\$ -
Engineering & Cont. (30%)		\$216,414	\$0	\$0	\$0	\$0	\$0
Interest During Construction		\$39,075	\$0	\$0	\$0	\$0	\$0
Total Cost		\$976,869	\$0	\$0	\$0	\$0	\$0
Annual Cost							
New Debt Service,6%, 20yrs.		\$85,168	\$0	\$0	\$0	\$0	\$0
New Plus Existing		\$85,168	\$85,168	\$0	\$0	\$0	\$0
O&M Cost							
Electricity		134,969	134,969	134,969	134,969	134,969	134,969
O&M		\$14,603	\$14,603	\$14,603	\$14,603	\$14,603	\$14,603
Transmission Line		\$1,373	\$1,373	\$1,373	\$1,373	\$1,373	\$1,373
Total Annual Cost		\$236,113	\$236,113	\$150,945	\$150,945	\$150,945	\$150,945
Unit Cost, \$/1000 gallons		\$1.32	\$1.32	\$0.84	\$0.84	\$0.84	\$0.84
Unit Cost, \$/acft		\$429.30	\$429.30	\$274.44	\$274.44	\$274.44	\$274.44
							\$429.30
							\$1.32

Sabine	2000	2010	2020	2030	2040	2050	2060
Required groundwater, af/y		82	82	82	82	82	82
Well Design, gpm (2*Reqd)		102	102	102	102	102	102
Supplied groundwater, MGD		0.0732	0.0732	0.0732	0.0732	0.0732	0.0732
County GW Parameters							
All. GPM/well (125)	125						
Well Depth	1600						
Cost /Well	152622						
No. of Wells		0.1271	0.1271	0.1271	0.1271	0.1271	0.1271
Phasing of Wells		1		0	0	0	0
Well Cost		153000	0	0	0	0	0
Distribution Cost							
Length Dist. Pipe/Well	5280						
Total Length							
Pipe Diameter, in	6						
Head Loss/100 feet	0.176						
Depth to Water Surface	1500						
Total Head Required	1589						
Total Horsepower	72						
Cost of Pipeline	26	\$ 137,280.00	\$ -	\$ -	\$ -	\$ -	\$ -
Booster Station and Ground Storage per 3 wells			0	0	0	0	0
Total Capital Cost		\$ 290,280.00	\$ -	\$ -	\$ -	\$ -	\$ -
Engineering & Cont. (30%)		\$87,084	\$0	\$0	\$0	\$0	\$0
Interest During Construction		\$15,724	\$0	\$0	\$0	\$0	\$0
Total Cost		\$393,088	\$0	\$0	\$0	\$0	\$0
Annual Cost							
New Debt Service,6%, 20yrs.		\$34,271	\$0	\$0	\$0	\$0	\$0
New Plus Existing		\$34,271	\$34,271	\$0	\$0	\$0	\$0
O&M Cost							
Electricity		134,969	134,969	134,969	134,969	134,969	134,969
O&M		\$3,825	\$3,825	\$3,825	\$3,825	\$3,825	\$3,825
Transmission Line		\$1,373	\$1,373	\$1,373	\$1,373	\$1,373	\$1,373
Total Annual Cost		\$174,438	\$174,438	\$140,167	\$140,167	\$140,167	\$140,167
Unit Cost, \$/1000 gallons		\$6.53	\$6.53	\$5.25	\$5.25	\$5.25	\$5.25
Unit Cost, \$/acft		\$2,127.30	\$2,127.30	\$1,709.36	\$1,709.36	\$1,709.36	\$1,709.36
							\$2,127.30
							\$6.53

Jefferson County

Steam Electric

	2000	2010	2020	2030	2040	2050	2060
Required water, af/y			25951	25951	25951	25951	25951
Distribution Design, gpm (1.5*Reqd)		0	24131	24131	24131	24131	24131
Supplied water, MGD		0	23.17	23.17	23.17	23.17	23.17
Distribution Cost							
Length Dist. Pipe	25000						
Pumping Rate	18000						
Pipe Diameter, in	42						
Head Loss/100 feet	0.104						
Depth to Water Surface	20						
Total Head Required	126						
Total Horsepower	818						
Cost of Pipeline	215						
Booster Station and Ground Storage (5 MG)							
	\$4,703,000		\$10,078,000				
Total Capital Cost	\$10,078,000		\$10,078,000	0	0	0	0
Engineering & Cont. (30%)		\$0	\$3,023,400	\$0	\$0	\$0	\$0
Interest During Construction		\$0	\$545,896	\$0	\$0	\$0	\$0
Total Cost		\$0	\$13,647,296	\$0	\$0	\$0	\$0
Annual Cost							
New Debt Service, 6%, 20yrs.		\$0	\$1,189,833	\$0	\$0	\$0	\$0
New Plus Existing		\$0	\$1,189,833	\$1,189,833		\$0	\$0
O&M Cost							
Electricity		0	430,358	430,358	430,358	430,358	430,358
O&M		\$0	\$117,575	\$117,575	\$117,575	\$117,575	\$117,575
Transmission Line		\$0	\$53,750	\$53,750	\$53,750	\$53,750	\$53,750
Raw Water Cost \$0.15/1000 gallons			\$1,268,587	\$1,268,587	\$1,268,587	\$1,268,587	\$1,268,587
Total Annual Cost		\$0	\$3,060,104	\$3,060,104	\$1,870,270	\$1,870,270	\$1,870,270
Unit Cost, \$/1000 gallons			\$0.36	\$0.36	\$0.22	\$0.22	\$0.22
Unit Cost, \$/acft			\$117.92	\$117.92	\$72.07	\$72.07	\$72.07
							\$117.92
							\$0.36

Mining-Jefferson

	2000	2010	2020	2030	2040	2050	2060
Required groundwater, af/y						4	9
Well Design, gpm (2*Reqd)		0	0	0	0	5.0	11
Supplied groundwater, MGD		0	0	0	0	0.0	0.0080
County GW Parameters							
All. GPM/well	11						
Well Depth	800						
Cost /Well	76123						
No. of Wells		0.0000	0.0000	0.0000	0.0000	0.5	1.0144
Phasing of Wells		0	0	0	0	1.0	0
Well Cost		\$ -	\$ -	\$ -	\$ -	76123.0	\$ -
Distribution Cost							
Length Dist. Pipe/Well	0						
Total Length							
Pipe Diameter, in	0						
Head Loss/100 feet	0.176						
Depth to Water Surface	1500						
Total Head Required	1580						
Total Horsepower	6						
Cost of Pipeline	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Booster Station and Ground Storage per 3 wells			0		0	0	0
Total Capital Cost		\$ -	\$ -	\$ -	\$ -	76,123.00	\$ -
Engineering & Cont. (30%)		\$0	\$0	\$0	\$0	\$22,837	\$0
Interest During Construction		\$0	\$0	\$0	\$0	\$4,123	\$0
Total Cost		\$0	\$0	\$0	\$0	\$103,083	\$0
Annual Cost							
New Debt Service,6%, 20yrs.		\$0	\$0	\$0	\$0	\$8,987	\$0
New Plus Existing		\$0	\$0	\$0	\$0	\$8,987	\$8,987
O&M Cost							
Electricity		0	0	0	0	1,856	1,856
O&M		\$0	\$0	\$0	\$0	\$1,903	\$1,903
Transmission Line		\$0	\$0	\$0	\$0	\$0	\$0
Total Annual Cost		\$0	\$0	\$0	\$0	\$12,746	\$12,746
Unit Cost, \$/1000 gallons							\$4.35

WUGNAME: Nacogdoches County-Other
STRATEGY: Lake Naconiche Regional Water System - Phase 1
AMOUNT (ac-ft/yr): 1,700 3.0 MGD

Expand Treated Water Supply	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline Segment A	16 in.	13,200	LF	\$69	\$911,000
Pipeline Segment B	16 in.	26,400	LF	\$69	\$1,822,000
Pipeline Segment C	12 in.	15,840	LF	\$52	\$824,000
Pipeline Segment D	10 in.	21,120	LF	\$43	\$908,000
Pipeline Segment E	12 in.	5,280	LF	\$52	\$275,000
Pipeline Segment F	10 in.	36,960	LF	\$43	\$1,589,000
Pipeline Segment G	6 in.	29,040	LF	\$26	\$755,000
Subtotal of Pipeline		147,840			7,084,000
Right of Way Easements Rural (ROW)		50.9	ACRE	\$2,000	\$102,000
Engineering and Contingencies (30%)					\$2,125,000
Subtotal of Pipeline					\$9,311,000
Pump Station(s)					
Pump Station	375 HP	1	LS	\$1,707,000	\$1,707,000
Lake Intake	3.0 MGD	1	LS		\$500,000
Engineering and Contingencies (35%)					\$772,000
Subtotal of Pump Station(s)					\$2,979,000
Water Treatment Plant					
Water Treatment Plant	3.0 MGD	1	LS	\$10,600,000	\$10,600,000
CONSTRUCTION TOTAL					\$22,890,000
Permitting and Mitigation - infrastructure					\$233,000
Water rights Permitting					\$500,000
Interest During Construction					\$954,000
					(12 months)
TOTAL COST					\$24,577,000
ANNUAL COSTS					
Debt Service (6% for 20 years)					\$2,143,000
Electricity (\$0.09 kWh)					\$46,000
Operation & Maintenance					\$151,000
Raw Water Purchase					\$138,000
Treatment Cost					\$388,000
Total Annual Costs					\$2,866,000
UNIT COSTS (Until Amortized)					
Per Acre-Foot of treated water					\$1,686
Per 1,000 Gallons					\$5.17
UNIT COSTS (After Amortization)					
Per Acre-Foot					\$425
Per 1,000 Gallons					\$1.30

WUGNAME: Nacogdoches Mining
STRATEGY: Angelina River/ Lake Columbia
Quantity: 7,000 AF/Y 9.37 MGD

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	36 in.	26,400	LF	\$184	\$4,858,000
Right of Way Easements Rural (ROW)		12.1	ACRE	\$2,000	\$24,000
Engineering and Contingencies (30%)					\$1,457,000
Subtotal of Pipeline					\$6,339,000
Pump Station(s)					
Pump with intake	250 HP	1	LS	\$1,727,000	\$1,727,000
Booster Pump Station	0 HP	1	LS	\$0	\$0
Engineering and Contingencies (35%)					\$604,450
Subtotal of Pump Station(s)					\$2,331,450
Terminal Storage	1.0 MG	1	LS	\$634,000	\$634,000

CONSTRUCTION TOTAL **\$9,304,450**

Permitting and Mitigation **\$87,000**

Interest During Construction (6 months) **\$202,000**

TOTAL COST **\$9,593,450**

ANNUAL COSTS

Debt Service (6% for 20 years)					\$836,000
Electricity (\$0.09 kWh)					\$104,000
Operation & Maintenance					\$129,000
Raw Water Purchase			Kgal	\$0.66	\$1,505,000
Treatment			Kgal	\$0.00	\$0
Total Annual Costs					\$2,574,000

UNIT COSTS (Until Amortized)

Per Acre-Foot of treated water					\$368
Per 1,000 Gallons					\$1.13

UNIT COSTS (After Amortization)

Per Acre-Foot					\$248
Per 1,000 Gallons					\$0.76

Table
Nacogdoches County Steam Electric
Purchase Water from ANRA

Probable Owner: Nacogdoches County Steam Electric Power
Quantity: 13,400 AF/Y 17.93 MGD

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	36 in.	26,400	LF	\$184	\$4,858,000
Right of Way Easements Rural (ROW)		12.1	ACRE	\$2,000	\$24,000
Engineering and Contingencies (30%)					\$1,457,000
Subtotal of Pipeline					\$6,339,000

Pump Station(s)

Pump with intake & building	600 HP	1	LS	\$2,860,000	\$2,860,000
Engineering and Contingencies (35%)					\$1,001,000
Subtotal of Pump Station(s)					\$3,861,000

CONSTRUCTION TOTAL **\$10,200,000**

Permitting and Mitigation **\$93,000**

Interest During Construction **\$425,000**
(12 months)

TOTAL COST **\$10,718,000**

ANNUAL COSTS

Debt Service (6% for 20 years)					\$934,000
Electricity (\$0.09 kWh)					\$265,000
Operation & Maintenance					\$144,000
Raw Water Purchase			Kgal	\$0.66	\$2,882,000
Treatment			Kgal	\$0.00	\$0
Total Annual Costs					\$4,225,000

UNIT COSTS (Until Amortized)

Per Acre-Foot of treated water					\$315
Per 1,000 Gallons					\$0.97

UNIT COSTS (After Amortization)

Per Acre-Foot					\$246
Per 1,000 Gallons					\$0.75

Table
Nacogdoches County Steam Electric
Purchase Water from Houston County WCID

Probable Owner: Nacogdoches County Steam Electric Power
Quantity: 340 AF/Y 0.45 MGD

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	8 in.	26,400	LF	\$34	\$898,000
Right of Way Easements Rural (ROW)		12.1	ACRE	\$2,000	\$24,000
Engineering and Contingencies (30%)					\$269,000
Subtotal of Pipeline					\$1,191,000

Pump Station(s)

Pump	20 HP	1	LS	\$564,000	\$564,000
Engineering and Contingencies (35%)					\$197,400
Subtotal of Pump Station(s)					\$761,400

CONSTRUCTION TOTAL **\$1,952,400**

Permitting and Mitigation **\$18,000**

Interest During Construction **\$42,000**
(6 months)

TOTAL COST **\$2,012,400**

ANNUAL COSTS

Debt Service (6% for 20 years)					\$175,000
Electricity (\$0.09 kWh)					\$5,000
Operation & Maintenance					\$28,000
Raw Water Purchase			Kgal	\$0.50	\$55,000
Treatment			Kgal	\$0.00	\$0
Total Annual Costs					\$263,000

UNIT COSTS (Until Amortized)

Per Acre-Foot of treated water					\$774
Per 1,000 Gallons					\$2.37

UNIT COSTS (After Amortization)

Per Acre-Foot					\$259
Per 1,000 Gallons					\$0.79

**Newton County
Manufacturing**

	2000	2010	2020	2030	2040	2050	2060
Required groundwater, af/y		400	400	400	800	800	800
Well Design, gpm (2*Reqd)		496	496	496	992	992	992
Supplied groundwater, MGD		0.3571	0.3571	0.3571	0.7143	0.7143	0.7143
County GW Parameters							
All. GPM/well (125)	450						
Well Depth	700						
Cost /Well	191900						
No. of Wells		1.1021	1.1021	1.1021	2.2042	2.2042	2.2042
Phasing of Wells		1	0	0	1	0	0
Well Cost		\$ 191,900.00	\$ -	\$ -	\$ 191,900.00	\$ -	\$ -
Distribution Cost							
Length Dist. Pipe/Well	5280						
Total Length							
Pipe Diameter, in	6						
Head Loss/100 feet	0.176						
Depth to Water Surface	1500						
Total Head Required	1589						
Total Horsepower	258						
Cost of Pipeline	26	\$ 137,280.00	\$ -	\$ -	\$ 137,280.00	\$ -	\$ -
Booster Station and Ground Storage per 3 wells							
Total Capital Cost		\$ 329,180.00	\$ -	\$ -	\$ 329,180.00	\$ -	\$ -
Engineering & Cont. (30%)		\$98,754	\$0	\$0	\$98,754	\$0	\$0
Interest During Construction		\$17,831	\$0	\$0	\$17,831	\$0	\$0
Total Cost		\$445,765	\$0	\$0	\$445,765	\$0	\$0
Annual Cost							
New Debt Service,6%, 20yrs.		\$38,864	\$0	\$0	\$38,864	\$0	\$0
New Plus Existing		\$38,864	\$38,864	\$0	\$38,864	\$38,864	\$0
O&M Cost							
Electricity		75,920	75,920	75,920	151,841	151,841	151,841
O&M		\$4,798	\$4,798	\$4,798	\$9,595	\$9,595	\$9,595
Transmission Line		\$1,373	\$1,373	\$1,373	\$2,746	\$2,746	\$2,746
Total Annual Cost		\$120,954	\$120,954	\$82,091	\$203,045	\$203,045	\$164,181
Unit Cost, \$/1000 gallons		\$0.93	\$0.93	\$0.63	\$0.78	\$0.78	\$0.63

WUGNAME: Newton Steam Electric Power
STRATEGY: Purchase from SRA
Quantity: 15,000 AF/Y 20.07 MGD

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	36 in.	26,400	LF	\$184	\$4,858,000
Right of Way Easements Rural (ROW)		12.1	ACRE	\$2,000	\$24,000
Engineering and Contingencies (30%)					\$1,457,000
Subtotal of Pipeline					\$6,339,000
Pump Station(s)					
Pump with intake	700 HP	1	LS	\$3,021,000	\$3,021,000
Booster Pump Station	0 HP	1	LS	\$0	\$0
Engineering and Contingencies (35%)					\$1,057,350
Subtotal of Pump Station(s)					\$4,078,350
Terminal Storage	5.0 MG	1	LS	\$1,720,000	\$1,720,000

CONSTRUCTION TOTAL **\$12,137,350**

Permitting and Mitigation **\$115,000**

Interest During Construction **\$263,000**
 (6 months)

TOTAL COST **\$12,515,350**

ANNUAL COSTS

Debt Service (6% for 20 years)					\$1,091,000
Electricity (\$0.09 kWh)					\$255,000
Operation & Maintenance					\$201,000
Raw Water Purchase			Kgal	\$0.50	\$2,444,000
Treatment			Kgal	\$0.00	\$0
Total Annual Costs					\$3,991,000

UNIT COSTS (Until Amortized)

Per Acre-Foot of treated water					\$266
Per 1,000 Gallons					\$0.82

UNIT COSTS (After Amortization)

Per Acre-Foot					\$193
Per 1,000 Gallons					\$0.59

WUGNAME: Orange_County-Other
STRATEGY: New Wells in Gulf Coast Aquifer
AMOUNT (ac-ft/yr): 140

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Water Well Construction		2	ea	\$ 61,472	\$ 122,943
Connection to Water System		2	ea	\$ 100,000	\$ 200,000
Subtotal					\$ 322,943
Engineering and Contingencies (30%)					\$ 96,883
Mitigation and Permitting (1%)					\$ 3,229
Subtotal					\$ 423,055
Interest During Construction					\$ 9,166
TOTAL CAPITAL COST					\$ 432,222
ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 37,683
Pipeline O&M (1%)					\$ 2,000
Pump O&M (2.5%)					\$ 3,074
Chemicals			1000 gal	\$ 0.30	\$ 13,686
Electricity					\$ 1,314
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 57,756
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 20,073
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 413
Cost per 1000 gallons					\$ 1.27
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 143
Cost per 1000 gallons					\$ 0.44

**Orange County
Mauriceville**

Neches	2000	2010	2020	2030	2040	2050	2060
Required groundwater, af/y		0	203	203	203	203	203
Well Design, gpm (2*Reqd)		0	252	252	252	252	252
Supplied groundwater, MGD		0.0000	0.1813	0.1813	0.1813	0.1813	0.1813
County GW Parameters							
All. GPM/well (125)	300						
Well Depth	1200						
Cost /Well	269500						
No. of Wells		0.0000	0.8390	0.8390	0.8390	0.8390	0.8390
Phasing of Wells		0	1	0	0	0	0
Well Cost		0	269500	0	0	0	0
Distribution Cost							
Length Dist. Pipe/Well	5280						
Total Length							
Pipe Diameter, in	6						
Head Loss/100 feet	0.176						
Depth to Water Surface	1500						
Total Head Required	1589						
Total Horsepower	172						
Cost of Pipeline	26 \$	- \$	137,280.00 \$	- \$	- \$	- \$	- \$
Booster Station and Ground Storage per 3 wells			0		0	0	0
Total Capital Cost	\$	- \$	406,780.00 \$	- \$	- \$	- \$	- \$
Engineering & Cont. (30%)		\$0	\$122,034	\$0	\$0	\$0	\$0
Interest During Construction		\$0	\$22,034	\$0	\$0	\$0	\$0
Total Cost		\$0	\$550,848	\$0	\$0	\$0	\$0
Annual Cost							
New Debt Service, 6%, 20yrs.		\$0	\$48,025	\$0	\$0	\$0	\$0
New Plus Existing		\$0	\$48,025	\$48,025	\$0	\$0	\$0
O&M Cost							
Electricity		0	50,614	50,614	50,614	50,614	50,614
O&M		\$0	\$6,738	\$6,738	\$6,738	\$6,738	\$6,738
Transmission Line		\$0	\$1,373	\$1,373	\$1,373	\$1,373	\$1,373
Total Annual Cost		\$0	\$106,749	\$106,749	\$58,724	\$58,724	\$58,724
Unit Cost, \$/1000 gallons			\$1.61	\$1.61	\$0.89	\$0.89	\$0.89
Unit Cost, \$/acft			\$525.86	\$525.86	\$289.28	\$289.28	\$289.28

**Polk County
County Other**

	2000	2010	2020	2030	2040	2050	2060
Required groundwater, af/y		208	417	624	832	832	832
Well Design, gpm (2*Reqd)		258	517	774	1032	1032	1032
Supplied groundwater, MGD		0.1857	0.3723	0.5571	0.7429	0.7429	0.7429
County GW Parameters							
All. GPM/well	260						
Well Depth	450						
Cost /Well	122690						
No. of Wells		0.9919	1.9885	2.9756	3.9675	3.9675	3.9675
Phasing of Wells		1	1	1	1		0
Well Cost		\$122,690	\$122,690	\$122,690	\$122,690	\$0	\$0.00
Distribution Cost							
Length Dist. Pipe/Well	5280						
Total Length							
Pipe Diameter, in	8						
Head Loss/100 feet	0.134						
Depth to Water Surface	20						
Total Head Required	107						
Total Horsepower	10						
Cost of Pipeline	34	\$179,520	\$179,520	\$179,520	\$179,520	\$0	0
Ground Storage and Pressure	250000	\$250,000	\$250,000	\$250,000	\$250,000	\$0	\$0
Total Capital Cost		\$552,210	\$552,210	\$552,210	\$552,210	\$0	0
Engineering & Cont. (30%)		\$165,663	\$165,663	\$165,663	\$165,663	\$0	\$0
Interest During Construction		\$29,912	\$29,912	\$29,912	\$29,912	\$0	\$0
Total Cost		\$747,785	\$747,785	\$747,785	\$747,785	\$0	\$0
Annual Cost							
New Debt Service,6%, 20yrs.		\$65,195	\$65,195	\$65,195	\$65,195	\$0	\$0
New Plus Existing		\$65,195	\$130,391	\$130,391	\$130,391	\$65,195	\$0
O&M Cost							
Electricity		2,955	5,911	8,866	11,821	11,821	11,821
O&M		\$3,067	\$6,135	\$9,202	\$12,269	\$12,269	\$12,269
Transmission Line		\$4,295	\$8,590	\$12,886	\$17,181	\$17,181	\$17,181
Total Annual Cost		\$75,513	\$151,026	\$161,344	\$171,662	\$106,466	\$41,271
Unit Cost, \$/1000 gallons		\$1.11	\$1.11	\$0.79	\$0.63	\$0.39	\$0.15
Amount Provided	63			63	126	126	126
Unit Cost, \$/acft		\$363.04	\$362.17	\$258.56	\$206.32	\$127.96	\$49.60
							\$194
							\$0.60

Polk County Manufacturing

	2000	2010	2020	2030	2040	2050	2060
Required groundwater, af/y			225	225	450	450	450
Well Design, gpm (2*Reqd)		0	279	279	558	558	558
Supplied groundwater, MGD		0.0000	0.2009	0.2009	0.4018	0.4018	0.4018
County GW Parameters							
All. GPM/well (250)	300						
Well Depth	450						
Cost /Well	126250						
No. of Wells		0.0000	0.9299	0.9299	1.8598	1.8598	1.8598
Phasing of Wells		0	1	0	1	0	0
Well Cost		\$0	\$126,250	\$0	\$126,250	\$0	\$0.00
Distribution Cost							
Length Dist. Pipe/Well	2600						
Total Length							
Pipe Diameter, in	8						
Head Loss/100 feet	0.134						
Depth to Water Surface	20						
Total Head Required	103						
Total Horsepower	11						
Cost of Pipeline	34	\$0	\$88,400	\$0	\$88,400	\$0	0
Booster Station and Ground							
Storage per 3 wells		\$0	\$0	\$0	\$0	\$0	0
Total Capital Cost		\$0	\$214,650	\$0	\$214,650	\$0	0
Engineering & Cont. (30%)		\$0	\$64,395	\$0	\$64,395	\$0	\$0
Interest During Construction		\$0	\$11,627	\$0	\$11,627	\$0	\$0
Total Cost		\$0	\$290,672	\$0	\$290,672	\$0	\$0
Annual Cost							
New Debt Service,6%, 20yrs.		\$0	\$25,342	\$0	\$25,342	\$0	\$0
New Plus Existing		\$0	\$25,342	\$25,342	\$25,342	\$25,342	\$0
O&M Cost							
Electricity		0	3,296	3,296	6,591	6,591	6,591
O&M		\$0	\$3,156	\$3,156	\$6,313	\$6,313	\$6,313
Transmission Line		\$0	\$884	\$884	\$1,768	\$1,768	\$1,768
Total Annual Cost		\$0	\$32,678	\$32,678	\$40,014	\$40,014	\$14,672
Unit Cost, \$/1000 gallons			\$0.45	\$0.45	\$0.27	\$0.27	\$0.10

**Rusk County
Mining**

	2000	2010	2020	2030	2040	2050	2060
Required groundwater, af/y					3	83	158
Well Design, gpm (2*Reqd)		0	0	0	4	103	196
Supplied groundwater, MGD		0	0	0	0.0027	0.0741	0.1411
County GW Parameters							
All. GPM/well	200						
Well Depth	750						
Cost /Well	\$104,850						
No. of Wells		0	0	0	0.018597534	0.5145318	0.97947014
Phasing of Wells		0	0	0	1		0
Well Cost		\$0	\$0	\$0	\$104,850	\$0	\$0.00
Distribution Cost							
Length Dist. Pipe/Well	200						
Total Length							
Pipe Diameter, in	6						
Head Loss/100 feet	0.346						
Depth to Water Surface	20						
Total Head Required	100.69						
Total Horsepower	7.26						
Cost of Pipeline	\$26	\$0	\$0	\$0	\$5,200	\$0	0
Ground Storage and Pressure	\$67,000	\$0	\$0	\$0	\$67,000	\$0	\$0
Total Capital Cost		\$0	\$0	\$0	\$177,050	\$0	0
Engineering & Cont. (30%)		\$0	\$0	\$0	\$53,115	\$0	\$0
Interest During Construction		\$0	\$0	\$0	\$9,590	\$0	\$0
Total Cost		\$0	\$0	\$0	\$239,755	\$0	\$0
Annual Cost							
New Debt Service,6%, 30yrs.		\$0	\$0	\$0	(\$17,418)	\$0	\$0
New Plus Existing		\$0	\$0	\$0	(\$17,418)	(\$17,418)	(\$17,418)
O&M Cost							
Electricity		0	0	0	(1,425)	(1,425)	(1,425)
O&M		\$0	\$0	\$0	(\$2,621)	(\$2,621)	(\$2,621)
Transmission Line		\$0	\$0	\$0	(\$722)	(\$722)	(\$722)
Total Annual Cost		\$0	\$0	\$0	(\$22,186)	(\$22,186)	(\$22,186)
Unit Cost, \$/1000 gallons					(\$22.69)	(\$0.82)	(\$0.43)

**Rusk County
Steam-Electric**

	2000	2010	2020	2030	2040	2050	2060
Required groundwater, af/y			2218	6862	12522	19423	27834
Well Design, gpm (2*Reqd)		0	2749.9554	8507.752	15525	24081	34510
Supplied groundwater, MGD		0	1.98035714	6.126785714	11.1804	17.3420	24.8518
County GW Parameters							
All. GPM/well	800						
Well Depth	750						
Cost /Well	\$323,150						
No. of Wells		0	3.43744425	10.63469	19.40652699	30.101659	43.1369807
Phasing of Wells		0	11				0
Well Cost		\$0	\$3,554,650	\$0	\$0	\$0	\$0.00
Distribution Cost							
Length Dist. Pipe/Well	2500						
Total Length							
Pipe Diameter, in	12						
Head Loss/100 feet	0.147						
Depth to Water Surface	700						
Total Head Required	783.68						
Total Horsepower	226.16						
Cost of Pipeline	\$52	\$0	\$1,430,000	\$0	\$0	\$0	0
Ground Storage and Pressure		\$0	\$0	\$0	\$0	\$0	\$0
Total Capital Cost		\$0	\$4,984,650	\$0	\$0	\$0	0
Engineering & Cont. (30%)		\$0	\$1,495,395	\$0	\$0	\$0	\$0
Interest During Construction		\$0	\$270,004	\$0	\$0	\$0	\$0
Total Cost		\$0	\$6,750,049	\$0	\$0	\$0	\$0
Annual Cost							
New Debt Service,6%, 30yrs.		\$0	(\$490,384)	\$0	\$0	\$0	\$0
New Plus Existing		\$0	(\$490,384)	(\$490,384)	(\$490,384)	\$0	\$0
O&M Cost							
Electricity		0	(488,055)	(488,055)	(488,055)	(488,055)	(488,055)
O&M		\$0	(\$88,866)	(\$88,866)	(\$88,866)	(\$88,866)	(\$88,866)
Transmission Line		\$0	(\$14,300)	(\$14,300)	(\$14,300)	(\$14,300)	(\$14,300)
Total Annual Cost		\$0	(\$1,081,605)	(\$1,081,605)	(\$1,081,605)	(\$591,221)	(\$591,221)
Unit Cost, \$/1000 gallons					(\$0.27)	(\$0.09)	(\$0.07)

WUGNAME: Rusk_Mining
STRATEGY: New Wells Queen City Aquifer
AMOUNT (ac-ft/yr): 158

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Water Well Construction			1 ea	\$ 104,850	\$ 104,850
Pipeline Connection to Water System	6 in.	200	LF	\$ 26	\$ 5,200
Ground Storage Tank					\$ 67,000
Subtotal					\$ 177,050
Engineering and Contingencies (30%)					\$ 53,115
Mitigation and Permitting (1%)					\$ 1,771
Subtotal					\$ 231,936
Interest During Construction					\$ 9,664
TOTAL CAPITAL COST					\$ 241,600
ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 21,064
Pipeline O&M (1%)					\$ 52
Pump O&M (2.5%)					\$ 4,296
Chemicals			1000 gal		\$ -
Electricity					\$ 2,138
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 27,550
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 6,486
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 174
Cost per 1000 gallons					\$ 0.54
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 41
Cost per 1000 gallons					\$ 0.13

Table
Rusk County Steam Electric
Purchase Water from ANRA

Probable Owner: Rusk County Steam Electric
Quantity: 8,500 AF/Y 11.37 MGD

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	30 in.	26,400	LF	\$145	\$3,828,000
Right of Way Easements Rural (ROW)		12.1	ACRE	\$2,000	\$24,000
Engineering and Contingencies (30%)					\$1,148,000
Subtotal of Pipeline					\$5,000,000

Pump Station(s)

Pump with intake & building	400 HP	1	LS	\$2,387,000	\$2,387,000
Engineering and Contingencies (35%)					\$835,450
Subtotal of Pump Station(s)					\$3,222,450

CONSTRUCTION TOTAL **\$8,222,450**

Permitting and Mitigation **\$75,000**

Interest During Construction (12 months) **\$343,000**

TOTAL COST **\$8,640,450**

ANNUAL COSTS

Debt Service (6% for 20 years)					\$753,000
Electricity (\$0.09 kWh)					\$140,000
Operation & Maintenance					\$118,000
Raw Water Purchase			Kgal	\$0.50	\$1,385,000
Treatment			Kgal	\$0.00	\$0
Total Annual Costs					\$2,396,000

UNIT COSTS (Until Amortized)

Per Acre-Foot of treated water					\$282
Per 1,000 Gallons					\$0.86

UNIT COSTS (After Amortization)

Per Acre-Foot					\$193
Per 1,000 Gallons					\$0.59

Table
Rusk County Steam Electric
Purchase Water from SRA

Probable Owner: Rusk County Steam Electric
Quantity: 1,500 AF/Y 2.01 MGD

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pump Station(s)

Infrastructure improvements	150 HP	1	LS	\$930,000	\$930,000
Engineering and Contingencies (35%)					\$325,500
Subtotal of Pump Station(s)					\$1,255,500

CONSTRUCTION TOTAL **\$1,255,500**

Permitting and Mitigation **\$11,000**

Interest During Construction (12 months) **\$52,000**

TOTAL COST **\$1,318,500**

ANNUAL COSTS

Debt Service (6% for 20 years)					\$115,000
Electricity (\$0.09 kWh)					\$40,000
Operation & Maintenance					\$28,000
Raw Water Purchase			Kgal	\$0.25	\$122,000
Treatment			Kgal	\$0.00	\$0
Total Annual Costs					\$305,000

UNIT COSTS (Until Amortized)

Per Acre-Foot of treated water					\$203
Per 1,000 Gallons					\$0.62

UNIT COSTS (After Amortization)

Per Acre-Foot					\$127
Per 1,000 Gallons					\$0.39

WUGNAME: San Augustine Mining
STRATEGY: Angelina River
Quantity: 500 AF/Y 0.67 MGD

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	8 in.	26,400	LF	\$34	\$898,000
Right of Way Easements Rural (ROW)		12.1	ACRE	\$2,000	\$24,000
Engineering and Contingencies (30%)					\$269,000
Subtotal of Pipeline					\$1,191,000

Pump Station(s)	Size	Quantity	Unit	Unit Price	Cost
Pump with intake	50 HP	1	LS	\$871,000	\$871,000
Booster Pump Station	0 HP	1	LS	\$0	\$0
Engineering and Contingencies (35%)					\$304,850
Subtotal of Pump Station(s)					\$1,175,850

Terminal Storage	0.1 MG	1	LS	\$183,000	\$183,000
-------------------------	---------------	----------	-----------	------------------	------------------

CONSTRUCTION TOTAL **\$2,549,850**

Permitting and Mitigation **\$23,000**

Interest During Construction **\$55,000**
 (6 months)

TOTAL COST **\$2,627,850**

ANNUAL COSTS

Debt Service (6% for 20 years)					\$229,000
Electricity (\$0.09 kWh)					\$11,000
Operation & Maintenance					\$42,000
Raw Water Purchase			Kgal	\$0.50	\$81,000
Treatment			Kgal	\$0.00	\$0
Total Annual Costs					\$363,000

UNIT COSTS (Until Amortized)

Per Acre-Foot of treated water					\$726
Per 1,000 Gallons					\$2.23

UNIT COSTS (After Amortization)

Per Acre-Foot					\$268
Per 1,000 Gallons					\$0.82

WUGNAME: San Augustine Mining
STRATEGY: Purchase from LNVA
Quantity: 6,500 AF/Y 8.70 MGD

**CONSTRUCTION COSTS
 TRANSMISSION FACILITIES**

Pipeline	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	30 in.	26,400	LF	\$145	\$3,828,000
Right of Way Easements Rural (ROW)		12.1	ACRE	\$2,000	\$24,000
Engineering and Contingencies (30%)					\$1,148,000
Subtotal of Pipeline					\$5,000,000

Pump Station(s)	Size	Quantity	Unit	Unit Price	Cost
Pump with intake	250 HP	1	LS	\$1,727,000	\$1,727,000
Booster Pump Station	0 HP	1	LS	\$0	\$0
Engineering and Contingencies (35%)					\$604,450
Subtotal of Pump Station(s)					\$2,331,450

Terminal Storage	1.0 MG	1	LS	\$634,000	\$634,000
-------------------------	---------------	----------	-----------	------------------	------------------

CONSTRUCTION TOTAL **\$7,965,450**

Permitting and Mitigation **\$74,000**

Interest During Construction **\$173,000**
 (6 months)

TOTAL COST **\$8,212,450**

ANNUAL COSTS

Debt Service (6% for 20 years)					\$716,000
Electricity (\$0.09 kWh)					\$101,000
Operation & Maintenance					\$117,000
Raw Water Purchase			Kgal	\$0.50	\$1,059,000
Treatment			Kgal	\$0.00	\$0
Total Annual Costs					\$1,993,000

UNIT COSTS (Until Amortized)

Per Acre-Foot of treated water					\$307
Per 1,000 Gallons					\$0.94

UNIT COSTS (After Amortization)

Per Acre-Foot					\$196
Per 1,000 Gallons					\$0.60

SHCTY-2
Shelby County Other
Increase Supply from Carrizo-Wilcox Aquifer

Owner: Shelby County Other
Quantity: 350 AF/Y

Item	Size	Quantity	Unit	Unit Price	Cost
Capital Costs					
Wellfield and Treatment					
Wells	150 gpm	3	Ea.	\$80,964	\$242,900
Connection to Pump Station		3	Ea.	\$20,000	\$60,000
Storage Tank (Closed)	25,000 Gal	3	Ea.	\$20,000	\$60,000
Engineering and Contingencies (35% for well field)					\$127,000
Subtotal for Wellfield and Treatment					\$489,900
Transmission System					
Pipeline - Rural	6 inch	26,400	LF	\$26	\$686,400
Pipeline - Urban	6 inch	0	LF	\$39	\$0
Pump Station	22.0 HP	1	LS	\$575,000	\$575,000
Easement - Rural	15 Feet	9	AC	\$2,000	\$18,200
Easement - Urban	15 Feet	0	AC	\$20,000	\$0
Engineering and Contingencies (30% for pipelines, 35% for other items)					\$407,200
Subtotal for Transmission					\$1,686,800
TOTAL CONSTRUCTION COST					\$2,176,700
Interest During Construction			(6 months)		\$36,600
Permitting and Mitigation					\$12,600
Groundwater Rights/ Purchase					\$52,500
TOTAL CAPITAL COST					\$2,278,400
Annual Costs					
Debt Service (6 percent for 20 years)					\$198,600
Electricity (Transmission)					\$16,797
Well operation and treatment			Kgal	\$0.30	\$34,200
Operation and Maintenance of transmission					\$25,500
Total Annual Cost					\$275,097
UNIT COSTS (Until Amortized)					
Water Cost (\$ per ac-ft)					\$786
Water Cost (\$ per 1,000 gallons)					\$2.41
UNIT COSTS (After Amortization)					
Water Cost (\$ per ac-ft)					\$219
Water Cost (\$ per 1,000 gallons)					\$0.67

SHCTY-3
Shelby County - Other
Purchase Water from Sabine River Authority

Probable Owner: Shelby County Other
Quantity: 150 AF/Y

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	6 in.	26,400	LF	\$26	\$686,000
Pipeline Urban	6 in.	0	LF	\$39	\$0
Right of Way Easements Rural (ROW)		9.1	ACRE	\$2,000	\$18,000
Right of Way Easements Urban (ROW)		0.0	ACRE	\$20,000	\$0
Engineering and Contingencies (30%)					\$206,000
Subtotal of Pipeline					\$910,000

Pump Station(s)	Size	Quantity	Unit	Unit Price	Cost
Pump Station and Intake	8 HP	1	LS	\$529,000	\$529,000
Booster Pump Station	0 HP	0	LS	\$0	\$0
Engineering and Contingencies (35%)					\$185,150
Subtotal of Pump Station(s)					\$714,150

Surface Water Treatment	Size	Quantity	Unit	Unit Price	Cost
Water treatment plant	0.25 MGD	1	LS	\$1,250,000	\$1,250,000

CONSTRUCTION TOTAL **\$2,874,150**

Permitting and Mitigation **\$30,000**

Interest During Construction **\$120,000**
(12 months)

TOTAL COST **\$3,024,150**

ANNUAL COSTS

Debt Service (6% for 20 years)					\$263,700
Electricity (\$0.09 kWh)					\$1,100
Operation & Maintenance					\$24,000
Water Purchase Agreement with SRA			Kgal	\$0.50	\$24,400
Treatment Costs			Kgal	\$0.70	\$34,200
Total Annual Costs					\$347,400

UNIT COSTS (Until Amortized)

Per Acre-Foot of treated water		\$2,316
Per 1,000 Gallons		\$7.10

UNIT COSTS (After Amortization)

Per Acre-Foot		\$558
Per 1,000 Gallons		\$1.01

Notes: Cost for buying treated water is assumed to be \$1.50 per 1,000 gallons

SHLIV-1
Shelby County Livestock
Increase Supply from Carrizo-Wilcox Aquifer (Sabine Basin)

Owner: Shelby County Livestock
Quantity: 2,000 AF/Y

Item	Size	Quantity	Unit	Unit Price	Cost
Capital Costs					
Wellfield and Treatment					
Wells	300 gpm	8	Ea.	\$72,331	\$578,600
Engineering and Contingencies (35% for well field)					\$202,500
Subtotal for Wellfield and Treatment					\$781,100
Transmission System	ASSUME NO NEW TRANSMISSION				
TOTAL CONSTRUCTION COST					\$781,100
Interest During Construction			(2 months)		\$6,500
Permitting and Mitigation					\$0
Groundwater Rights/ Purchase					\$600,000
TOTAL CAPITAL COST					\$1,387,600
Annual Costs					
Debt Service (6 percent for 20 years)					\$121,000
Electricity				\$0.09	\$92,000
Total Annual Cost					\$213,000
UNIT COSTS (Until Amortized)					
Water Cost (\$ per ac-ft)					\$107
Water Cost (\$ per 1,000 gallons)					\$0.33
UNIT COSTS (After Amortization)					
Water Cost (\$ per ac-ft)					\$46
Water Cost (\$ per 1,000 gallons)					\$0.14

SHLIV-1
Shelby County Livestock
Increase Supply from Carrizo-Wilcox Aquifer (Neches Basin)

Owner: Shelby County Livestock
Quantity: 1,500 AF/Y

Item	Size	Quantity	Unit	Unit Price	Cost
Capital Costs					
Wellfield and Treatment					
Wells	300 gpm	6	Ea.	\$72,331	\$434,000
Engineering and Contingencies (35% for well field)					\$151,900
Subtotal for Wellfield and Treatment					\$585,900
Transmission System	ASSUME NO NEW TRANSMISSION				
TOTAL CONSTRUCTION COST					\$585,900
Interest During Construction			(2 months)		\$4,900
Permitting and Mitigation					\$0
Groundwater Rights/ Purchase					\$450,000
TOTAL CAPITAL COST					\$1,040,800
Annual Costs					
Debt Service (6 percent for 20 years)					\$90,700
Electricity				\$0.09	\$69,000
Total Annual Cost					\$159,700
UNIT COSTS (Until Amortized)					
Water Cost (\$ per ac-ft)					\$106
Water Cost (\$ per 1,000 gallons)					\$0.33
UNIT COSTS (After Amortization)					
Water Cost (\$ per ac-ft)					\$46
Water Cost (\$ per 1,000 gallons)					\$0.14

SHLIV-2
Shelby County - Livestock
Purchase Water from Toledo Bend Reservoir

Probable Owner: Shelby County Livestock
Quantity: 4,000 AF/Y

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	20 in.	26,400	LF	\$90	\$2,376,000
Pipeline Urban	20 in.	0	LF	\$135	\$0
Right of Way Easements Rural (ROW)		12.1	ACRE	\$2,000	\$24,000
Right of Way Easements Urban (ROW)		0.0	ACRE	\$20,000	\$0
Engineering and Contingencies (30%)					\$713,000
Subtotal of Pipeline					\$3,113,000

Pump Station(s)					
Pump with intake & building	110 HP	1	LS	\$1,052,000	\$1,052,000
Booster Pump Station	0 HP	0	LS	\$0	\$0
Engineering and Contingencies (35%)					\$368,200
Subtotal of Pump Station(s)					\$1,420,200

CONSTRUCTION TOTAL **\$4,533,200**

Permitting and Mitigation **\$41,000**

Interest During Construction **\$189,000**
(12 months)

TOTAL COST **\$4,763,200**

ANNUAL COSTS

Debt Service (6% for 20 years)					\$415,000
Electricity (\$0.09 kWh)				\$0.09	\$49,000
Operation & Maintenance					\$61,000
Raw Water Purchase			Kgal	\$0.50	\$652,000
Total Annual Costs					\$1,177,000

UNIT COSTS (Until Amortized)

Per Acre-Foot of raw water					\$294
Per 1,000 Gallons					\$0.90

UNIT COSTS (After Amortization)

Per Acre-Foot					\$191
Per 1,000 Gallons					\$0.58

SALIV-1
Shelby County Livestock
Increase Supply from Local Sources

Owner: Shelby County Livestock
Quantity: 500 AF/Y

Item	Size	Quantity	Unit	Unit Price	Cost
Capital Costs					
Stock Ponds					
Stock Ponds	50 AF/Y	10	Ea.	\$50,000	\$500,000
Engineering and Contingencies					\$175,000
Subtotal for Local Supply					\$675,000
TOTAL CONSTRUCTION COST					\$675,000
Interest During Construction			(6 months)		\$14,600
Permitting and Mitigation					\$0
TOTAL CAPITAL COST					\$689,600
Annual Costs					
Debt Service (6 percent for 20 years)					\$60,100
Total Annual Cost					\$60,100
UNIT COSTS (Until Amortized)					
Water Cost (\$ per ac-ft)					\$120
Water Cost (\$ per 1,000 gallons)					\$0.37
UNIT COSTS (After Amortization)					
Water Cost (\$ per ac-ft)					\$0
Water Cost (\$ per 1,000 gallons)					\$0.00

WUGNAME: Shelby Mining
STRATEGY: Angelina River
Quantity: 250 AF/Y 0.33 MGD

**CONSTRUCTION COSTS
 TRANSMISSION FACILITIES**

Pipeline	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	6 in.	10,560	LF	\$26	\$275,000
Right of Way Easements Rural (ROW)		4.8	ACRE	\$2,000	\$10,000
Engineering and Contingencies (30%)					\$83,000
Subtotal of Pipeline					\$368,000
Pump Station(s)					
Pump with intake	15 HP	1	LS	\$744,000	\$744,000
Booster Pump Station	0 HP	1	LS	\$0	\$0
Engineering and Contingencies (35%)					\$260,400
Subtotal of Pump Station(s)					\$1,004,400
Terminal Storage	0.05 MG	1	LS	\$125,000	\$125,000

CONSTRUCTION TOTAL **\$1,497,400**

Permitting and Mitigation **\$14,000**

Interest During Construction **\$32,000**
 (6 months)

TOTAL COST **\$1,543,400**

ANNUAL COSTS

Debt Service (6% for 20 years)		\$135,000
Electricity (\$0.09 kWh)		\$4,000
Operation & Maintenance		\$29,000
Raw Water Purchase	Kgal	\$41,000
Treatment	Kgal	\$0
Total Annual Costs		\$209,000

UNIT COSTS (Until Amortized)

Per Acre-Foot of treated water	\$836
Per 1,000 Gallons	\$2.56

UNIT COSTS (After Amortization)

Per Acre-Foot	\$296
Per 1,000 Gallons	\$0.91

WUGNAME: Shelby Mining
STRATEGY: Purchase from SRA
Quantity: 1,250 AF/Y 1.67 MGD

**CONSTRUCTION COSTS
 TRANSMISSION FACILITIES**

Pipeline	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	14 in.	26,400	LF	\$60	\$1,584,000
Right of Way Easements Rural (ROW)		12.1	ACRE	\$2,000	\$24,000
Engineering and Contingencies (30%)					\$475,000
Subtotal of Pipeline					\$2,083,000
Pump Station(s)					
Pump with intake	60 HP	1	LS	\$897,000	\$897,000
Booster Pump Station	0 HP	1	LS	\$0	\$0
Engineering and Contingencies (35%)					\$313,950
Subtotal of Pump Station(s)					\$1,210,950
Terminal Storage	0.5 MG	1	LS	\$438,000	\$438,000

CONSTRUCTION TOTAL **\$3,731,950**

Permitting and Mitigation **\$35,000**

Interest During Construction **\$81,000** (6 months)

TOTAL COST **\$3,847,950**

ANNUAL COSTS

Debt Service (6% for 20 years)					\$335,000
Electricity (\$0.09 kWh)					\$21,000
Operation & Maintenance					\$59,000
Raw Water Purchase			Kgal	\$0.50	\$204,000
Treatment			Kgal	\$0.00	\$0
Total Annual Costs					\$619,000

UNIT COSTS (Until Amortized)

Per Acre-Foot of treated water					\$495
Per 1,000 Gallons					\$1.52

UNIT COSTS (After Amortization)

Per Acre-Foot					\$227
Per 1,000 Gallons					\$0.70

SMITH COUNTY

Bullard

	2000	2010	2020	2030	2040	2050	2060	
Required groundwater, af/y			13	42	71	124	195	
Well Design, gpm (2*Reqd)		0	16	52	88	154	242	
Supplied groundwater, MGD		0.0000	0.0116	0.0375	0.0634	0.1107	0.1741	
County GW Parameters								
All. GPM/well	125							
Well Depth	800							
Cost /Well	86725							
No. of Wells		0	0.1289429	0.4165848	0.7042266	1.2299169	1.9341436	
Phasing of Wells			1			1		
Well Cost		\$0	\$86,725	\$0	\$0	\$86,725	\$0.00	\$173,450
Distribution Cost								
Length Dist. Pipe/Well	5280							
Total Length								
Pipe Diameter, in	6							
Head Loss/100 feet	0.132							
Depth to Water Surface	800							
Total Head Required	887							
Total Horsepower	40							
Cost of Pipeline	26	\$0	\$137,280	\$0	\$0	\$137,280	0	\$274,560
Ground Storage and Pressure	0	\$0	\$0	\$0	\$0	\$0	\$0	
Total Capital Cost		\$0	\$224,005	\$0	\$0	\$224,005	0	448010
Engineering & Cont. (30%)		\$0	\$67,202	\$0	\$0	\$67,202	\$0	\$134,403
Interest During Construction		\$0	\$12,134	\$0	\$0	\$12,134	\$0	\$24,267
Total Cost		\$0	\$303,340	\$0	\$0	\$303,340	\$0	\$606,680
Annual Cost								
New Debt Service,6%, 30yrs.		\$0	(\$22,037)	\$0	\$0	(\$22,037)	\$0	(\$44,075)
New Plus Existing		\$0	(\$22,037)	(\$22,037)	(\$22,037)	(\$22,037)	(\$22,037)	
O&M Cost								
Electricity		0	(7,846)	(7,846)	(7,846)	(15,693)	(15,693)	
O&M		\$0	(\$2,168)	(\$2,168)	(\$2,168)	(\$4,336)	(\$4,336)	
Transmission Line		\$0	(\$1,373)	(\$1,373)	(\$1,373)	(\$2,746)	(\$2,746)	
Total Annual Cost		\$0	(\$33,425)	(\$33,425)	(\$33,425)	(\$44,812)	(\$44,812)	
Unit Cost, \$/1000 gallons			(\$7.89)	(\$2.44)	(\$1.44)	(\$1.11)	(\$0.71)	

SMITH COUNTY

Community Water Co.

	2000	2010	2020	2030	2040	2050	2060	
Required groundwater, af/y		37	88	111	132	171	227	
Well Design, gpm (2*Reqd)		46	109	138	164	212	281	
Supplied groundwater, MGD		0.0330	0.0786	0.0991	0.1179	0.1527	0.2027	
County GW Parameters								
All. GPM/well	150							
Well Depth	1000							
Cost /Well	105450							
No. of Wells		0.3058261	0.7273702	0.9174784	1.0910553	1.4134126	1.8762846	
Phasing of Wells		1					1	
Well Cost		\$105,450	\$0	\$0	\$0	\$0	\$105,450	\$210,900
Distribution Cost								
Length Dist. Pipe/Well	5280							
Total Length								
Pipe Diameter, in	6							
Head Loss/100 feet	0.226							
Depth to Water Surface	20							
Total Head Required	112							
Total Horsepower	6							
Cost of Pipeline	26	\$137,280	\$0	\$0	\$0	\$0	137280	\$274,560
Ground Storage and Pressure	200000	\$200,000	\$0	\$0	\$0	\$0	\$200,000	
Total Capital Cost		\$442,730	\$0	\$0	\$0	\$0	442730	485460
Engineering & Cont. (30%)		\$132,819	\$0	\$0	\$0	\$0	\$132,819	\$145,638
Interest During Construction		\$23,981	\$0	\$0	\$0	\$0	\$23,981	\$26,296
Total Cost		\$599,530	\$0	\$0	\$0	\$0	\$599,530	\$657,394
Annual Cost								
New Debt Service,6%, 30yrs.		(\$43,555)	\$0	\$0	\$0	\$0	(\$43,555)	(\$47,759)
New Plus Existing		(\$43,555)	(\$43,555)	(\$43,555)	\$0	\$0	(\$43,555)	
O&M Cost								
Electricity		(1,188)	(1,188)	(1,188)	(1,188)	(1,188)	(2,376)	-7793.28221
O&M		(\$2,636)	(\$2,636)	(\$2,636)	(\$2,636)	(\$2,636)	(\$5,273)	-3060.4
Transmission Line		(\$3,373)	(\$3,373)	(\$3,373)	(\$3,373)	(\$3,373)	(\$6,746)	-3168
Total Annual Cost		(\$50,753)	(\$50,753)	(\$50,753)	(\$7,197)	(\$7,197)	(\$57,950)	(\$61,781)
Unit Cost, \$/1000 gallons		(\$4.21)	(\$1.77)	(\$1.40)	(\$0.17)	(\$0.13)	(\$0.78)	
Amount Provided								

SMITH COUNTY

Jackson WSC

	2000	2010	2020	2030	2040	2050	2060	
Required groundwater, af/y						28	68	
Well Design, gpm (2*Reqd)		0	0	0	0	35	84	
Supplied groundwater, MGD		0.0000	0.0000	0.0000	0.0000	0.0250	0.0607	
County GW Parameters								
All. GPM/well	85							
Well Depth	900							
Cost /Well	91205							
No. of Wells		0	0	0	0	0.4084164	0.9918685	
Phasing of Wells						1		
Well Cost		\$0	\$0	\$0	\$0	\$91,205	\$0.00	\$91,205
Distribution Cost								
Length Dist. Pipe/Well	5280							
Total Length								
Pipe Diameter, in	6							
Head Loss/100 feet	0.062							
Depth to Water Surface	20							
Total Head Required	103							
Total Horsepower	3							
Cost of Pipeline	26	\$0	\$0	\$0	\$0	\$137,280	0	\$137,280
Ground Storage and Pressure	250000	\$0	\$0	\$0	\$0	\$250,000	\$0	
Total Capital Cost		\$0	\$0	\$0	\$0	\$478,485	0	228485
Engineering & Cont. (30%)		\$0	\$0	\$0	\$0	\$143,546	\$0	\$68,546
Interest During Construction		\$0	\$0	\$0	\$0	\$25,918	\$0	\$12,376
Total Cost		\$0	\$0	\$0	\$0	\$647,949	\$0	\$309,407
Annual Cost								
New Debt Service,6%, 30yrs.		\$0	\$0	\$0	\$0	(\$47,073)	\$0	(\$22,478)
New Plus Existing		\$0	\$0	\$0	\$0	(\$47,073)	(\$47,073)	
O&M Cost								
Electricity		0	0	0	0	(621)	(621)	-7793.28221
O&M		\$0	\$0	\$0	\$0	(\$2,280)	(\$2,280)	-3060.4
Transmission Line		\$0	\$0	\$0	\$0	(\$3,873)	(\$3,873)	-3168
Total Annual Cost		\$0	\$0	\$0	\$0	(\$53,847)	(\$53,847)	(\$36,500)
Unit Cost, \$/1000 gallons						(\$5.90)	(\$2.43)	
Amount Provided								

SMITH COUNTY

Lindale

	2000	2010	2020	2030	2040	2050	2060	
Required groundwater, af/y					8	33	59	
Well Design, gpm (2*Reqd)		0	0	0	10	41	73	
Supplied groundwater, MGD		0.0000	0.0000	0.0000	0.0071	0.0295	0.0527	
County GW Parameters								
All. GPM/well	60							
Well Depth	1200							
Cost /Well	113480							
No. of Wells		0	0	0	0.1653114	0.6819096	1.2191717	
Phasing of Wells							1	
Well Cost		\$0	\$0	\$0	\$0	\$0	\$113,480	\$113,480
Distribution Cost								
Length Dist. Pipe/Well	5280							
Total Length								
Pipe Diameter, in	6							
Head Loss/100 feet	0.062							
Depth to Water Surface	1100							
Total Head Required	1183							
Total Horsepower	26							
Cost of Pipeline	26	\$0	\$0	\$0	\$0	\$0	137280	\$137,280
Ground Storage and Pressure		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Capital Cost		\$0	\$0	\$0	\$0	\$0	250760	250760
Engineering & Cont. (30%)		\$0	\$0	\$0	\$0	\$0	\$75,228	\$75,228
Interest During Construction		\$0	\$0	\$0	\$0	\$0	\$13,583	\$13,583
Total Cost		\$0	\$0	\$0	\$0	\$0	\$339,571	\$339,571
Annual Cost								
New Debt Service,6%, 30yrs.		\$0	\$0	\$0	\$0	\$0	(\$24,669)	(\$24,669)
New Plus Existing		\$0	\$0	\$0	\$0	\$0	(\$24,669)	
O&M Cost								
Electricity		0	0	0	0	0	(5,024)	-7793.28221
O&M		\$0	\$0	\$0	\$0	\$0	(\$2,837)	-3060.4
Transmission Line		\$0	\$0	\$0	\$0	\$0	(\$1,373)	-3168
Total Annual Cost		\$0	\$0	\$0	\$0	\$0	(\$33,904)	(\$38,691)
Unit Cost, \$/1000 gallons					\$0.00	\$0.00	(\$1.76)	
Amount Provided								

**SMITH COUNTY
Lindale Rural WSC**

	2000	2010	2020	2030	2040	2050	2060	
Required groundwater, af/y							74	
Well Design, gpm (2*Reqd)		0	0	0	0	0	92	
Supplied groundwater, MGD		0.0000	0.0000	0.0000	0.0000	0.0000	0.0661	
County GW Parameters								
All. GPM/well	100							
Well Depth	1200							
Cost /Well	117200							
No. of Wells		0	0	0	0	0	0.9174784	
Phasing of Wells							1	
Well Cost		\$0	\$0	\$0	\$0	\$0	\$117,200	\$117,200
Distribution Cost								
Length Dist. Pipe/Well	5280							
Total Length								
Pipe Diameter, in	6							
Head Loss/100 feet	0.094							
Depth to Water Surface	1100							
Total Head Required	1185							
Total Horsepower	43							
Cost of Pipeline	26	\$0	\$0	\$0	\$0	\$0	137280	\$137,280
Ground Storage and Pressure		\$0	\$0	\$0	\$0	\$0	\$0	
Total Capital Cost		\$0	\$0	\$0	\$0	\$0	254480	254480
Engineering & Cont. (30%)		\$0	\$0	\$0	\$0	\$0	\$76,344	\$76,344
Interest During Construction		\$0	\$0	\$0	\$0	\$0	\$13,784	\$13,784
Total Cost		\$0	\$0	\$0	\$0	\$0	\$344,608	\$344,608
Annual Cost								
New Debt Service,6%, 30yrs.		\$0	\$0	\$0	\$0	\$0	(\$25,035)	(\$25,035)
New Plus Existing		\$0	\$0	\$0	\$0	\$0	(\$25,035)	
O&M Cost								
Electricity		0	0	0	0	0	(8,386)	-7793.28221
O&M		\$0	\$0	\$0	\$0	\$0	(\$2,930)	-3060.4
Transmission Line		\$0	\$0	\$0	\$0	\$0	(\$1,373)	-3168
Total Annual Cost		\$0	\$0	\$0	\$0	\$0	(\$37,724)	(\$39,057)
Unit Cost, \$/1000 gallons							(\$1.56)	
Amount Provided								

Smith County Irrigation

	2000	2010	2020	2030	2040	2050	2060	
Required groundwater, af/y		5	34	65	96	128	162	
Well Design, gpm (2*Reqd)		6	42	81	119	159	201	
Supplied groundwater, MGD		0.0045	0.0304	0.0580	0.0857	0.1143	0.1446	
County GW Parameters								
All. GPM/well	50							
Well Depth	500							
Cost /Well	55150							
No. of Wells		0.1239836	0.8430882	1.6117863	2.3804844	3.1739792	4.0170674	
Phasing of Wells		1		1	1	1		
Well Cost		\$55,150	\$0	\$55,150	\$55,150	\$55,150	\$0.00	\$220,600
Distribution Cost								
Length Dist. Pipe/Well	400							
Total Length								
Pipe Diameter, in	6							
Head Loss/100 feet	0.027							
Depth to Water Surface	500							
Total Head Required	580							
Total Horsepower	10							
Cost of Pipeline	26	\$10,400	\$0	\$10,400	\$10,400	\$10,400	0	\$41,600
Ground Storage and Pressure		\$0	\$0	\$0	\$0	\$0	\$0	
Total Capital Cost		\$65,550	\$0	\$65,550	\$65,550	\$65,550	0	262200
Engineering & Cont. (30%)		\$19,665	\$0	\$19,665	\$19,665	\$19,665	\$0	\$78,660
Interest During Construction		\$3,551	\$0	\$3,551	\$3,551	\$3,551	\$0	\$14,203
Total Cost		\$88,766	\$0	\$88,766	\$88,766	\$88,766	\$0	\$355,063
Annual Cost								
New Debt Service,6%, 30yrs.		(\$6,449)	\$0	(\$6,449)	(\$6,449)	(\$6,449)	\$0	(\$25,795)
New Plus Existing		(\$6,449)	(\$6,449)	(\$12,897)	(\$12,897)	(\$19,346)	(\$12,897)	
O&M Cost								
Electricity		(2,053)	(2,053)	(4,105)	(6,158)	(8,211)	(8,211)	-7793.28221
O&M		(\$1,379)	(\$1,379)	(\$2,758)	(\$4,136)	(\$5,515)	(\$5,515)	-3060.4
Transmission Line		(\$104)	(\$104)	(\$208)	(\$312)	(\$416)	(\$416)	-3168
Total Annual Cost		(\$9,984)	(\$9,984)	(\$19,968)	(\$23,504)	(\$33,488)	(\$27,039)	(\$39,817)
Unit Cost, \$/1000 gallons		(\$6.13)	(\$0.90)	(\$0.94)	(\$0.75)	(\$0.80)	(\$0.51)	
Amount Provided								

WUGNAME: Smith_Bullard Phase 1
STRATEGY: New Wells Carrizo-Wilcox Aquifer
AMOUNT (ac-ft/yr): 100

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Water Well Construction			1 ea	\$ 86,725	\$ 86,725
Pipeline Connection to Water System	6 in.	5280	ea	\$ 26	\$ 137,280
Subtotal					\$ 224,005
Engineering and Contingencies (30%)					\$ 67,202
Mitigation and Permitting (1%)					\$ 2,240
Subtotal					\$ 293,447
Interest During Construction					\$ 12,227
TOTAL CAPITAL COST					\$ 305,674
ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 26,650
Pipeline O&M (1%)					\$ 1,373
Pump O&M (2.5%)					\$ 2,168
Chemicals			1000 gal	\$ 0.30	\$ 9,776
Electricity					\$ 11,770
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 51,736
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 25,086
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 517
Cost per 1000 gallons					\$ 1.59
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 251
Cost per 1000 gallons					\$ 0.77

WUGNAME: Smith_Community Water Company
STRATEGY: Purchase Water From the City of Tyler
AMOUNT (ac-ft/yr): 227

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Pipeline Connection to Water System	6 in.	26400	ea	\$ 26	\$ 686,400
Booster Pump Station	5 HP		1 ea	\$ 516,000	\$ 516,000
Subtotal					\$ 1,202,400
Engineering and Contingencies (30%)					\$ 360,720
Mitigation and Permitting (1%)					\$ 12,024
Subtotal					\$ 1,575,144
Interest During Construction					\$ 65,632
TOTAL CAPITAL COST					\$ 1,640,776
ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 143,050
Pipeline O&M (1%)					\$ 6,864
Pump O&M (2.5%)					\$ 17,160
Chemicals			1000 gal		\$ -
Electricity					\$ 6,582
Treated Water Purchase		73,968	1000 gal	\$ 3.00	\$ 221,905
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 395,561
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 252,511
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 1,743
Cost per 1000 gallons					\$ 5.35
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 1,112
Cost per 1000 gallons					\$ 3.41

WUGNAME: Smith_Lindale WSC
STRATEGY: New Wells Carrizo-Wilcox Aquifer
AMOUNT (ac-ft/yr): 80

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Water Well Construction			1 ea	\$ 117,200	\$ 117,200
Pipeline Connection to Water System	6 in.	5280	ea	\$ 26	\$ 137,280
Subtotal					\$ 254,480
Engineering and Contingencies (30%)					\$ 76,344
Mitigation and Permitting (1%)					\$ 2,545
Subtotal					\$ 333,369
Interest During Construction					\$ 13,890
TOTAL CAPITAL COST					\$ 347,259
ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 30,276
Pipeline O&M (1%)					\$ 1,373
Pump O&M (2.5%)					\$ 2,930
Chemicals			1000 gal	\$ 0.30	\$ 7,820
Electricity					\$ 23,539
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 65,938
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 35,662
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 824
Cost per 1000 gallons					\$ 2.53
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 446
Cost per 1000 gallons					\$ 1.37

WUGNAME: Smith_Irrigation
STRATEGY: New Wells Queen City Aquifer
AMOUNT (ac-ft/yr): 168

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Water Well Construction			4 ea	\$ 55,150	\$ 220,600
Pipeline Connection to Water System	6 in.	1600	ea	\$ 26	\$ 41,600
Subtotal					\$ 262,200
Engineering and Contingencies (30%)					\$ 78,660
Mitigation and Permitting (1%)					\$ 2,622
Subtotal					\$ 343,482
Interest During Construction					\$ 14,312
TOTAL CAPITAL COST					\$ 357,794
ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 31,194
Pipeline O&M (1%)					\$ 416
Pump O&M (2.5%)					\$ 5,515
Chemicals			1000 gal		\$ -
Electricity					\$ 2,208
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 39,333
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 8,139
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 234
Cost per 1000 gallons					\$ 0.72
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 48
Cost per 1000 gallons					\$ 0.15

WUGNAME: Smith_Manufacturing
STRATEGY: Purchase Water From the City of Tyler
AMOUNT (ac-ft/yr): 294

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Pipeline Connection to Water System	8 in.	15840	ea	\$ 34	\$ 538,560
Booster Pump Station	12 HP	1	ea	\$ 543,200	\$ 543,200
Subtotal					\$ 1,081,760
Engineering and Contingencies (30%)					\$ 324,528
Mitigation and Permitting (1%)					\$ 10,818
Subtotal					\$ 1,417,106
Interest During Construction					\$ 59,047
TOTAL CAPITAL COST					\$ 1,476,152
ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 128,698
Pipeline O&M (1%)					\$ 5,386
Pump O&M (2.5%)					\$ 13,464
Chemicals			1000 gal		\$ -
Electricity					\$ 3,863
Treated Water Purchase		95,800	1000 gal	\$ 3.00	\$ 287,401
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 438,811
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 310,113
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 1,493
Cost per 1000 gallons					\$ 4.58
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 1,055
Cost per 1000 gallons					\$ 3.24

WUGNAME: Smith_Mining
STRATEGY: New Wells Queen City Aquifer
AMOUNT (ac-ft/yr): 329

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Water Well Construction			7 ea	\$ 55,615	\$ 389,305
Pipeline Connection to Water System	6 in.	3500	ea	\$ 26	\$ 91,000
Subtotal					\$ 480,305
Engineering and Contingencies (30%)					\$ 144,092
Mitigation and Permitting (1%)					\$ 4,803
Subtotal					\$ 629,200
Interest During Construction					\$ 26,217
TOTAL CAPITAL COST					\$ 655,416
ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 57,142
Pipeline O&M (1%)					\$ 910
Pump O&M (2.5%)					\$ 9,733
Chemicals			1000 gal		\$ -
Electricity					\$ 4,323
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 72,108
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 14,966
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 219
Cost per 1000 gallons					\$ 0.67
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 45
Cost per 1000 gallons					\$ 0.14

SBLIV-1
San Augustine County Livestock
Increase Supply from Local Sources

Owner: San Augustine County Livestock
Quantity: 300 AF/Y

Item	Size	Quantity	Unit	Unit Price	Cost
Capital Costs					
Stock Ponds					
Stock Ponds	25 AF/Y	12	Ea.	\$34,000	\$408,000
Engineering and Contingencies					\$142,800
Subtotal for Local Supply					\$550,800
TOTAL CONSTRUCTION COST					\$550,800
Interest During Construction			(6 months)		\$11,900
Permitting and Mitigation					\$0
TOTAL CAPITAL COST					\$562,700
Annual Costs					
Debt Service (6 percent for 20 years)					\$49,100
Total Annual Cost					\$49,100
UNIT COSTS (Until Amortized)					
Water Cost (\$ per ac-ft)					\$164
Water Cost (\$ per 1,000 gallons)					\$0.50
UNIT COSTS (After Amortization)					
Water Cost (\$ per ac-ft)					\$0
Water Cost (\$ per 1,000 gallons)					\$0.00

**Sabine County
County - Other**

	2000	2010	2020	2030	2040	2050	2060
Neches							
Required groundwater, af/y		32	32	32	64	64	64
Well Design, gpm (2*Reqd)		40	40	40	79	79	79
Supplied groundwater, MGD		0.0286	0.0286	0.0286	0.0571	0.0571	0.0571
County GW Parameters							
All. GPM/well (125)	40						
Well Depth	1200						
Cost /Well	111620						
No. of Wells		0.9919	0.9919	0.9919	1.9837	1.9837	1.9837
Phasing of Wells		1	0	0	1	0	0
Well Cost	\$ 111,620.00	\$ -	\$ -	\$ -	\$ 111,620.00	\$ -	\$ -
Distribution Cost							
Length Dist. Pipe/Well	5280						
Total Length							
Pipe Diameter, in	2						
Head Loss/100 feet	0.176						
Depth to Water Surface	1000						
Total Head Required	1089						
Total Horsepower	16						
Cost of Pipeline	10	\$ 52,800.00	\$ -	\$ -	\$ 52,800.00	\$ -	\$ -
Booster Station and Ground Storage per 3 wells			0		0	0	0
Total Capital Cost	\$ 164,420.00	\$ -	\$ -	\$ -	\$ 164,420.00	\$ -	\$ -
Engineering & Cont. (30%)		\$49,326	\$0	\$0	\$49,326	\$0	\$0
Interest During Construction		\$8,906	\$0	\$0	\$8,906	\$0	\$0
Total Cost		\$222,652	\$0	\$0	\$222,652	\$0	\$0
Annual Cost							
New Debt Service,6%, 20yrs.		\$19,412	\$0	\$0	\$19,412	\$0	\$0
New Plus Existing		\$19,412	\$19,412	\$0	\$19,412	\$19,412	\$0
O&M Cost							
Electricity		4,625	4,625	4,625	9,251	9,251	9,251
O&M		\$2,791	\$2,791	\$2,791	\$5,581	\$5,581	\$5,581
Transmission Line			\$528	\$528	\$1,056	\$1,056	\$1,056
Total Annual Cost		\$26,828	\$27,356	\$7,944	\$35,300	\$35,300	\$15,888
Unit Cost, \$/1000 gallons		\$2.57	\$2.62	\$0.76	\$1.69	\$1.69	\$0.76
							\$124.12
							\$0.38

**Sabine County
Livestock**

	2000	2010	2020	2030	2040	2050	2060
Neches							
Required groundwater, af/y		50	50	50	100	100	100
Well Design, gpm (2*Reqd)		62	62	62	124	124	124
Supplied groundwater, MGD		0.0446	0.0446	0.0446	0.0893	0.0893	0.0893
County GW Parameters							
All. GPM/well (125)	70						
Well Depth	1200						
Cost /Well	114410						
No. of Wells		0.8856	0.8856	0.8856	1.7712	1.7712	1.7712
Phasing of Wells		1		0	1		
Well Cost	\$ 114,410.00	\$ -	\$ -	\$ -	\$ 114,410.00	\$ -	\$ -
Distribution Cost							
Length Dist. Pipe/Well	5280						
Total Length							
Pipe Diameter, in	2						
Head Loss/100 feet	0.176						
Depth to Water Surface	1000						
Total Head Required	1089						
Total Horsepower	28						
Cost of Pipeline	10	\$ 52,800.00	\$ -	\$ -	\$ 52,800.00	\$ -	\$ -
Booster Station and Ground Storage per 3 wells			0		0	0	0
Total Capital Cost	\$ 167,210.00	\$ -	\$ -	\$ -	\$ 167,210.00	\$ -	\$ -
Engineering & Cont. (30%)		\$50,163	\$0	\$0	\$50,163	\$0	\$0
Interest During Construction		\$9,057	\$0	\$0	\$9,057	\$0	\$0
Total Cost		\$226,430	\$0	\$0	\$226,430	\$0	\$0
Annual Cost							
New Debt Service,6%, 20yrs.		\$19,741	\$0	\$0	\$19,741	\$0	\$0
New Plus Existing		\$19,741	\$19,741	\$0	\$19,741	\$19,741	\$0
O&M Cost							
Electricity		8,094	8,094	8,094	16,189	16,189	16,189
O&M		\$2,860	\$2,860	\$2,860	\$5,721	\$5,721	\$5,721
Transmission Line		\$528	\$528	\$528	\$1,056	\$1,056	\$1,056
Total Annual Cost		\$31,224	\$31,224	\$11,483	\$42,707	\$42,707	\$22,965
Unit Cost, \$/1000 gallons		\$1.92	\$1.92	\$0.70	\$1.31	\$1.31	\$0.70

**San Augustine
Irrigation**

	2010	2020	2030	2040	2050	2060
Neches						
Required groundwater, af/y	90	90	90	90	90	90
Well Design, gpm (2*Reqd)	112	112	112	112	112	112
Supplied groundwater, MGD	0.0804	0.0804	0.0804	0.0804	0.0804	0.0804
County GW Parameters						
All. GPM/well (125)	125					
Well Depth	800					
Cost /Well	86725					
No. of Wells	0.8927	0.8927	0.8927	0.8927	0.8927	0.8927
Phasing of Wells	1	0	0	0	0	0
Well Cost	86725	0	0	0	0	0
Distribution Cost						
Length Dist. Pipe/Well	5280					
Total Length						
Pipe Diameter, in	4					
Head Loss/100 feet	0.176					
Depth to Water Surface	1500					
Total Head Required	1589					
Total Horsepower	72					
Cost of Pipeline	15 \$	79,200.00 \$	- \$	- \$	- \$	- \$
Booster Station and Ground						
Storage per 3 wells			0	0	0	0
Total Capital Cost	\$	165,925.00 \$	- \$	- \$	- \$	- \$
Engineering & Cont. (30%)		\$49,778	\$0	\$0	\$0	\$0
Interest During Construction		\$8,988	\$0	\$0	\$0	\$0
Total Cost		\$224,690	\$0	\$0	\$0	\$0
Annual Cost						
New Debt Service,6%, 20yrs.		\$19,590	\$0	\$0	\$0	\$0
New Plus Existing		\$19,590	\$19,590	\$0	\$0	\$0
O&M Cost						
Electricity		21,089	21,089	21,089	21,089	21,089
O&M		\$2,168	\$2,168	\$2,168	\$2,168	\$2,168
Transmission Line		\$792	\$792	\$792	\$792	\$792
Total Annual Cost		\$42,847	\$43,639	\$24,049	\$24,049	\$24,049
Unit Cost, \$/1000 gallons		\$1.46	\$1.49	\$0.82	\$0.82	\$0.82
						\$484.87

\$1.49

**San Augustine
Manufacturing**

	2000	2010	2020	2030	2040	2050	2060		
Required groundwater, af/y		2	3	4	5	6	7.25		
Well Design, gpm (2*Reqd)		2	4	5	6	7	9		
Supplied groundwater, MGD		0.0018	0.0027	0.0036	0.0045	0.0054	0.0065		
County GW Parameters									
All. GPM/well (125)	10								
Well Depth	800								
Cost /Well	76030								
No. of Wells		0.2480	0.3720	0.4959	0.6199	0.7439	0.8989		
Phasing of Wells		1	0	0	0	0	0		
Well Cost	\$	76,030.00	\$	-	\$	-	\$	-	
Distribution Cost									
Length Dist. Pipe/Well	5280								
Total Length									
Pipe Diameter, in	2								
Head Loss/100 feet	0.176								
Depth to Water Surface	1500								
Total Head Required	1589								
Total Horsepower	6								
Cost of Pipeline	10	\$	52,800.00	\$	-	\$	-	\$	-
Booster Station and Ground Storage per 3 wells			0		0		0		
Total Capital Cost	\$	128,830.00	\$	-	\$	-	\$	-	
Engineering & Cont. (30%)		\$38,649	\$0	\$0	\$0	\$0	\$0		
Interest During Construction		\$6,978	\$0	\$0	\$0	\$0	\$0		
Total Cost		\$174,457	\$0	\$0	\$0	\$0	\$0		
Annual Cost									
New Debt Service, 6%, 30yrs.		(\$12,674)	\$0	\$0	\$0	\$0	\$0		
New Plus Existing		(\$12,674)	(\$12,674)	(\$12,674)	\$0	\$0	\$0		
O&M Cost									
Electricity		(1,687)	(1,687)	(1,687)	(1,687)	(1,687)	(1,687)		
O&M		(\$1,901)	(\$1,901)	(\$1,901)	(\$1,901)	(\$1,901)	(\$1,901)		
Transmission Line		(\$528)	(\$528)	(\$528)	(\$528)	(\$528)	(\$528)		
Total Annual Cost		(\$16,790)	(\$16,790)	(\$16,790)	(\$4,116)	(\$4,116)	(\$4,116)		
Unit Cost, \$/1000 gallons		(\$25.76)	(\$17.17)	(\$12.88)	(\$2.53)	(\$2.10)	(\$1.74)		

**San Augustine
County Other**

	2000	2010	2020	2030	2040	2050	2060
Neches							
Required groundwater, af/y		1	0	0	0	0	13
Well Design, gpm (2*Reqd)		1	0	0	0	0	16
Supplied groundwater, MGD		0.0009	0.0000	0.0000	0.0000	0.0000	0.0116
County GW Parameters							
All. GPM/well (125)	20						
Well Depth	800						
Cost /Well	76960						
No. of Wells		0.0620	0.0000	0.0000	0.0000	0.0000	0.8059
Phasing of Wells		0	0	0	0	0	1
Well Cost	\$	- \$	- \$	- \$	- \$	- \$	\$ 76,960.00
Distribution Cost							
Length Dist. Pipe/Well	5280						
Total Length							
Pipe Diameter, in	2						
Head Loss/100 feet	0.176						
Depth to Water Surface	1500						
Total Head Required	1589						
Total Horsepower	11						
Cost of Pipeline	10 \$	- \$	- \$	- \$	- \$	- \$	\$ 52,800.00
Booster Station and Ground Storage per 3 wells			0	0	0	0	0
Total Capital Cost	\$	- \$	- \$	- \$	- \$	- \$	\$129,760.00
Engineering & Cont. (30%)		\$0	\$0	\$0	\$0	\$0	\$38,928
Interest During Construction		\$0	\$0	\$0	\$0	\$0	\$7,029
Total Cost		\$0	\$0	\$0	\$0	\$0	\$175,717
Annual Cost							
New Debt Service,6%, 30yrs.		\$0	\$0	\$0	\$0	\$0	(\$12,766)
New Plus Existing		\$0	\$0	\$0	\$0	\$0	(\$12,766)
O&M Cost							
Electricity		0	0	0	0	0	(3,374)
O&M		\$0	\$0	\$0	\$0	\$0	(\$1,924)
Transmission Line		\$0	\$0	\$0	\$0	\$0	(\$528)
Total Annual Cost		\$0	\$0	\$0	\$0	\$0	(\$18,592)
Unit Cost, \$/1000 gallons							(\$4.39)

**San Augustine
Livestock**

	2000	2010	2020	2030	2040	2050	2060		
Neches	2000								
Required groundwater, af/y		150	150	250	300	400	400		
Well Design, gpm (2*Reqd)		186	186	310	372	496	496		
Supplied groundwater, MGD		0.1339	0.1339	0.2232	0.2679	0.3571	0.3571		
County GW Parameters									
All. GPM/well (125)	130								
Well Depth	800								
Cost /Well	87190								
No. of Wells		1.4306	1.4306	2.3843	2.8612	3.8149	3.8149		
Phasing of Wells		1		1		1			
Well Cost	\$	87,190.00	\$	-	\$	87,190.00	\$	-	
Distribution Cost									
Length Dist. Pipe/Well	5280								
Total Length									
Pipe Diameter, in	2								
Head Loss/100 feet	0.176								
Depth to Water Surface	1500								
Total Head Required	1589								
Total Horsepower	75								
Cost of Pipeline	10	\$	52,800.00	\$	-	\$	52,800.00	\$	-
Booster Station and Ground Storage per 3 wells			0		0		0		
Total Capital Cost	\$	139,990.00	\$	-	\$	139,990.00	\$	-	
Engineering & Cont. (30%)		\$41,997	\$0	\$41,997	\$0	\$41,997	\$0		
Interest During Construction		\$7,583	\$0	\$7,583	\$0	\$7,583	\$0		
Total Cost		\$189,570	\$0	\$189,570	\$0	\$189,570	\$0		
Annual Cost									
New Debt Service,6%, 20yrs.		\$16,528	\$0	\$16,528	\$0	\$16,528	\$0		
New Plus Existing		\$16,528	\$16,528	\$16,528	\$16,528	\$16,528	\$16,528		
O&M Cost									
Electricity		21,933	21,933	43,865	43,865	65,798	65,798		
O&M		\$2,180	\$2,180	\$4,360	\$4,360	\$6,539	\$6,539		
Transmission Line		\$528	\$528	\$1,056	\$1,056	\$1,584	\$1,584		
Total Annual Cost		\$41,168	\$41,168	\$65,808	\$65,808	\$90,448	\$90,448		
Unit Cost, \$/1000 gallons		\$0.84	\$0.84	\$0.81	\$0.67	\$0.69	\$0.69		

**SBLIV-1
Sabine County Livestock
Increase Supply from Local Sources**

Owner: Sabine County Livestock
Quantity: 300 AF/Y

Item	Size	Quantity	Unit	Unit Price	Cost
Capital Costs					
Stock Ponds					
Stock Ponds	25 AF/Y	12	Ea.	\$34,000	\$408,000
Engineering and Contingencies					\$142,800
Subtotal for Local Supply					\$550,800
TOTAL CONSTRUCTION COST					\$550,800
Interest During Construction			(6 months)		\$11,900
Permitting and Mitigation					\$0
TOTAL CAPITAL COST					\$562,700
Annual Costs					
Debt Service (6 percent for 20 years)					\$49,100
Total Annual Cost					\$49,100
UNIT COSTS (Until Amortized)					
Water Cost (\$ per ac-ft)					\$164
Water Cost (\$ per 1,000 gallons)					\$0.50
UNIT COSTS (After Amortization)					
Water Cost (\$ per ac-ft)					\$0
Water Cost (\$ per 1,000 gallons)					\$0.00

**Nacogdoches County
D&M WSC**

	2000	2010	2020	2030	2040	2050	2060
Required groundwater, af/y		0	0	310	310	310	310
Well Design, gpm (2*Reqd)		0	0	384	384	384	384
Supplied groundwater, MGD		0.0000	0.0000	0.2768	0.2768	0.2768	0.2768
County GW Parameters							
All. GPM/well	400						
Well Depth	700						
Cost /Well	226300						
No. of Wells		0.0000	0.0000	0.9609	0.9609	0.9609	0.9609
Phasing of Wells			0	1	0	0	0
Well Cost		\$0	\$0	\$226,300	\$0	\$0	\$0
Distribution Cost							
Length Dist. Pipe/Well	5280						
Total Length							
Pipe Diameter, in	6						
Head Loss/100 feet	0.134						
Depth to Water Surface	1100						
Total Head Required	1187						
Total Horsepower	171						
Cost of Pipeline	26	\$0	\$0	\$137,280	\$0	\$0	0
Ground Storage and Pressure		\$0	\$0	\$0	\$0	\$0	\$0
Total Capital Cost		\$0	\$0	\$363,580	\$0	\$0	\$0
Engineering & Cont. (30%)		\$0	\$0	\$109,074	\$0	\$0	\$0
Interest During Construction		\$0	\$0	\$19,694	\$0	\$0	\$0
Total Cost		\$0	\$0	\$492,348	\$0	\$0	\$0
Annual Cost							
New Debt Service,6%, 20yrs.		\$0	\$0	\$42,925	\$0	\$0	\$0
New Plus Existing		\$0	\$0	\$42,925	\$42,925	\$0	\$0
O&M Cost							
Electricity		0	0	50,406	50,406	50,406	50,406
O&M		\$0	\$0	\$5,658	\$5,658	\$5,658	\$5,658
Transmission Line		\$0	\$0	\$1,373	\$1,373	\$1,373	\$1,373
Total Annual Cost		\$0	\$0	\$100,361	\$100,361	\$57,436	\$57,436
Unit Cost, \$/1000 gallons			#DIV/0!	\$0.99	\$0.99	\$0.57	\$0.57
Unit Cost, \$/acft				\$323.75	\$323.75	\$185.28	\$185.28
							\$323.75
							0.994

**Nacogdoches County
Lily Grove WSC**

	2000	2010	2020	2030	2040	2050	2060
Required groundwater, af/y			0	0	0	250	500
Well Design, gpm (2*Reqd)		0	0	0	0	310	620
Supplied groundwater, MGD		0.0000	0.0000	0.0000	0.0000	0.2232	0.4464
County GW Parameters							
All. GPM/well	600						
Well Depth	700						
Cost /Well	291400						
No. of Wells		0.0000	0.0000	0.0000	0.0000	0.5166	1.0332
Phasing of Wells			0			1	0
Well Cost		\$0	\$0	\$0	\$0	\$291,400	\$0
Distribution Cost							
Length Dist. Pipe/Well	5280						
Total Length							
Pipe Diameter, in	6						
Head Loss/100 feet	0.134						
Depth to Water Surface	1100						
Total Head Required	1187						
Total Horsepower	257						
Cost of Pipeline	26	\$0	\$0	\$0	\$0	\$137,280	0
Ground Storage and Pressure		\$0	\$0	\$0	\$0	\$0	\$0
Total Capital Cost		\$0	\$0	\$0	\$0	\$428,680	0
Engineering & Cont. (30%)		\$0	\$0	\$0	\$0	\$128,604	\$0
Interest During Construction		\$0	\$0	\$0	\$0	\$23,220	\$0
Total Cost		\$0	\$0	\$0	\$0	\$580,504	\$0
Annual Cost							
New Debt Service,6%, 20yrs.		\$0	\$0	\$0	\$0	\$50,611	\$0
New Plus Existing		\$0	\$0	\$0	\$0	\$50,611	\$50,611
O&M Cost							
Electricity		0	0	0	0	75,609	75,609
O&M		\$0	\$0	\$0	\$0	\$7,285	\$7,285
Transmission Line		\$0	\$0	\$0	\$0	\$1,373	\$1,373
Total Annual Cost		\$0	\$0	\$0	\$0	\$134,877	\$134,877
Unit Cost, \$/1000 gallons						\$1.66	\$0.83
Unit Cost, \$/acft						540	270
							270
							0.83

**Nacogdoches County
Swift WSC**

	2000	2010	2020	2030	2040	2050	2060
Required groundwater, af/y		350	350	350	350	350	350
Well Design, gpm (2*Reqd)		434	434	434	434	434	434
Supplied groundwater, MGD		0.3125	0.3125	0.3125	0.3125	0.3125	0.3125
County GW Parameters							
All. GPM/well	450						
Well Depth	700						
Cost /Well	230600						
No. of Wells		0.9643	0.9643	0.9643	0.9643	0.9643	0.9643
Phasing of Wells		1	0	0	0	0	0
Well Cost		\$230,600	\$0	\$0	\$0	\$0	\$0
Distribution Cost							
Length Dist. Pipe/Well	5280						
Total Length							
Pipe Diameter, in	6						
Head Loss/100 feet	0.134						
Depth to Water Surface	1100						
Total Head Required	1187						
Total Horsepower	193						
Cost of Pipeline	26	\$137,280	\$0	\$0	\$0	\$0	0
Ground Storage and Pressure		\$0	\$0	\$0	\$0	\$0	\$0
Total Capital Cost		\$367,880	\$0	\$0	\$0	\$0	0
Engineering & Cont. (30%)		\$110,364	\$0	\$0	\$0	\$0	\$0
Interest During Construction		\$19,927	\$0	\$0	\$0	\$0	\$0
Total Cost		\$498,171	\$0	\$0	\$0	\$0	\$0
Annual Cost							
New Debt Service,6%, 20yrs.		\$43,433	\$0	\$0	\$0	\$0	\$0
New Plus Existing		\$43,433	\$43,433	\$0	\$0	\$0	\$0
O&M Cost							
Electricity		56,706	56,706	56,706	56,706	56,706	56,706
O&M		\$5,765	\$5,765	\$5,765	\$5,765	\$5,765	\$5,765
Transmission Line		\$1,373	\$1,373	\$1,373	\$1,373	\$1,373	\$1,373
Total Annual Cost		\$107,277	\$107,277	\$63,844	\$63,844	\$63,844	\$63,844
Unit Cost, \$/1000 gallons		\$0.94	\$0.94	\$0.56	\$0.56	\$0.56	\$0.56
Unit Cost, \$/acft		\$306.51	\$306.51	\$182.41	\$182.41	\$182.41	\$182.41
							182
							0.560

**Nacogdoches County
Livestock**

	2000	2010	2020	2030	2040	2050	2060
Required groundwater, af/y		0	0	322	644	966	1350
Well Design, gpm (2*Reqd)		0	0	399	798	1198	1674
Supplied groundwater, MGD		0.0000	0.0000	0.2875	0.5750	0.8625	1.2054
County GW Parameters							
All. GPM/well	400						
Well Depth	700						
Cost /Well	226300						
No. of Wells		0.0000	0.0000	0.9981	1.9961	2.9942	4.1844
Phasing of Wells		0	0	1	1	1	1
Well Cost		\$0	\$0	\$226,300	\$226,300	\$226,300	\$226,300
Distribution Cost							
Length Dist. Pipe/Well	5280						
Total Length							
Pipe Diameter, in	6						
Head Loss/100 feet	0.134						
Depth to Water Surface	1100						
Total Head Required	1187						
Total Horsepower	171						
Cost of Pipeline	26	\$0	\$0	\$137,280	\$137,280	\$137,280	137280
Ground Storage and Pressure		\$0	\$0	\$0	\$0	\$0	\$0
Total Capital Cost		\$0	\$0	\$363,580	\$363,580	\$363,580	363580
Engineering & Cont. (30%)		\$0	\$0	\$109,074	\$109,074	\$109,074	\$109,074
Interest During Construction		\$0	\$0	\$19,694	\$19,694	\$19,694	\$19,694
Total Cost		\$0	\$0	\$492,348	\$492,348	\$492,348	\$492,348
Annual Cost							
New Debt Service,6%, 20yrs.		\$0	\$0	\$42,925	\$42,925	\$42,925	\$42,925
New Plus Existing		\$0	\$0	\$42,925	\$85,850	\$85,850	\$85,850
O&M Cost							
Electricity		0	0	50,406	100,811	151,217	201,623
O&M		\$0	\$0	\$5,658	\$11,315	\$16,973	\$22,630
Transmission Line		\$0	\$0	\$1,373	\$2,746	\$4,118	\$5,491
Total Annual Cost		\$0	\$0	\$100,361	\$200,722	\$258,158	\$315,594
Unit Cost, \$/1000 gallons				\$0.96	\$0.96	\$0.82	\$0.72
Unit Cost, \$/acft				312	312	267	234
							\$233.77
							\$0.72

**Trinity County
County - Other**

	2000	2010	2020	2030	2040	2050	2060				
Neches											
Required groundwater, af/y		0	0	0	60	60	60				
Well Design, af/y (2*Reqd)		0	0	0	120	120	120				
Well Design, gpm (2*Reqd)		0	0	0	74	74	74				
Supplied groundwater, MGD		0.0000	0.0000	0.0000	0.0536	0.0536	0.0536				
County GW Parameters											
All. GPM/well (125)	75										
Well Depth	375										
Cost /Well	47225										
No. of Wells		0.0000	0.0000	0.0000	0.9919	0.9919	0.9919				
Phasing of Wells		0	0	0	1	0	0				
Well Cost	\$	-	\$	-	\$	47,225.00	\$	-			
Distribution Cost											
Length Dist. Pipe/Well	5280										
Total Length											
Pipe Diameter, in	6										
Head Loss/100 feet	0.176										
Depth to Water Surface	1500										
Total Head Required	1589										
Total Horsepower	43										
Cost of Pipeline	26	\$	-	\$	-	\$	137,280.00	\$	-	\$	-
Booster Station and Ground Storage per 3 wells			0		0	0	0				
Total Capital Cost	\$	-	\$	-	\$	184,505.00	\$	-	\$	-	
Engineering & Cont. (30%)		\$0	\$0	\$0	\$55,352	\$0	\$0				
Interest During Construction		\$0	\$0	\$0	\$9,994	\$0	\$0				
Total Cost		\$0	\$0	\$0	\$249,851	\$0	\$0				
Annual Cost											
New Debt Service, 6%, 20yrs.		\$0	\$0	\$0	\$21,783	\$0	\$0				
New Plus Existing		\$0	\$0	\$0	\$21,783	\$21,783	\$21,783				
O&M Cost											
Electricity		0	0	0	12,653	12,653	12,653				
O&M			\$0	\$0	\$1,181	\$1,181	\$1,181				
Transmission Line		\$0	\$0	\$0	\$1,373	\$1,373	\$1,373				
Total Annual Cost		\$0	\$0	\$0	\$36,990	\$36,990	\$36,990				
Unit Cost, \$/1000 gallons					\$1.89	\$1.89	\$1.89				
Unit Cost, \$/ac-ft							\$616.50				

TYLER COUNTY

County Other

	2000	2010	2020	2030	2040	2050	2060
Required groundwater, af/y			251	251	251	251	251
Well Design, gpm (2*Reqd)		0	311	311	311	311	311
Supplied groundwater, MGD		0.0000	0.2241	0.2241	0.2241	0.2241	0.2241
County GW Parameters							
All. GPM/well (100)	300						
Well Depth	355						
Cost /Well	133175						
No. of Wells		0.0000	1.0373	1.0373	1.0373	1.0373	1.0373
Phasing of Wells		0	1	0	0	0	0
Well Cost		\$0	\$133,175	\$0	\$0	\$0	\$0.00
Distribution Cost							
Length Dist. Pipe/Well	5280						
Total Length							
Pipe Diameter, in	6						
Head Loss/100 feet	0.42						
Depth to Water Surface	300						
Total Head Required	402						
Total Horsepower	44						
Cost of Pipeline	26	\$0	\$137,280	\$0	\$0	\$0	0
Booster Station and Ground							
Storage per 3 wells		\$0	\$0	\$0	\$0	\$0	0
Total Capital Cost		\$0	\$270,455	\$0	\$0	\$0	\$0
Engineering & Cont. (30%)		\$0	\$81,137	\$0	\$0	\$0	\$0
Interest During Construction		\$0	\$14,650	\$0	\$0	\$0	\$0
Total Cost		\$0	\$366,241	\$0	\$0	\$0	\$0
Annual Cost							
New Debt Service,6%, 20yrs.		\$0	\$31,931	\$0	\$0	\$0	\$0
New Plus Existing		\$0	\$31,931	\$31,931	\$0	\$0	\$0
O&M Cost							
Electricity		0	12,808	12,808	12,808	12,808	12,808
O&M		\$0	\$3,329	\$3,329	\$3,329	\$3,329	\$3,329
Transmission Line		\$0	\$1,373	\$1,373	\$1,373	\$1,373	\$1,373
Total Annual Cost		\$0	\$49,441	\$49,441	\$17,510	\$17,510	\$17,510
Unit Cost, \$/1000 gallons			\$0.60	\$0.60	\$0.21	\$0.21	\$0.21

WWPNAME:
STRATEGY:
AMOUNT (ac-ft/yr):

ANRA
Lake Columbia
75,700

Dam	Cost
Embankment	\$27,097,000
Internal Drainage	\$575,000
Soil Cement Slope Protection	\$3,092,000
Service Spillway	\$5,657,000
Outlet Works	\$1,166,000
Miscellaneous Items	\$4,970,000
Engineering and Contingencies	\$14,895,000
Geotechnical Investigations	\$585,000
Subtotal for Dam	\$58,036,000
Conflict Resolution	
Communications	\$2,361,000
Electric Utilities	\$14,485,000
Oil and Gas	\$3,671,000
Water Utilities	\$155,000
State and County Roads ¹	\$35,144,000
Railroad	\$27,609,000
Road and Railroad Erosion Protection	\$4,019,000
Engineering and Contingencies	\$27,505,000
Subtotal for Conflicts	\$114,949,000
Land	
Land and Easement Purchase	\$23,496,000
Survey, Appraisal, Legal costs	\$2,603,000
Contingencies	\$5,220,000
Subtotal for Land	\$31,319,000
Mitigation	
Archeological/Historical Resources	\$11,026,000
Aquatic/Terrestrial Resources	\$16,535,000
Subtotal for Mitigation	\$27,561,000
TOTAL COST	\$231,865,000

ANNUAL COSTS

Debt Service (6% for 40 years)	\$15,410,000
Operation & Maintenance	\$870,500
Total Annual Costs	\$16,280,500

UNIT COSTS (Until Amortized)

Per Acre-Foot of treated water	\$215
Per 1,000 Gallons	\$0.66

UNIT COSTS (After Amortization)

Per Acre-Foot	\$11.50
Per 1,000 Gallons	\$0.04

WWPNAME: ANRA
STRATEGY: Regional Water Treatment Facilities
Quantity: 5,100 AF/Y 10.00 MGD

CONSTRUCTION COSTS

Pipeline	Size	Quantity	Unit	Unit Price	Cost
Segment A: WTP to Troup	24 in.	63,360	LF	\$116	\$7,350,000
Segment B: Troup to Arp	12 in.	34,320	LF	\$52	\$1,785,000
Segment C: Troup to Whitehouse	16 in.	39,600	LF	\$69	\$2,732,000
Segment D: Arp to New London	8 in.	36,960	LF	\$34	\$1,257,000
Segment E: WTP to New Summerfield	12 in.	13,200	LF	\$52	\$686,000
Right of Way Easements Rural (ROW)		86.1	ACRE	\$2,000	\$172,000
Engineering and Contingencies (30%)					\$4,143,000
Subtotal of Pipeline					\$4,315,000

Pump Station(s)	Size	Quantity	Unit	Unit Price	Cost
Pump with intake & building	1400 HP	1	LS	\$4,515,000	\$4,515,000
Engineering and Contingencies (35%)					\$1,580,250
Subtotal of Pump Station(s)					\$6,095,250

Water Treatment Plant	10 MGD	1	LS	\$22,400,000	\$22,400,000
------------------------------	--------	---	----	--------------	---------------------

Storage Tanks	0.5 MG	1	LS	\$438,000	\$438,000
----------------------	--------	---	----	-----------	------------------

CONSTRUCTION TOTAL **\$33,248,250**

Permitting and Mitigation **\$494,000**

Interest During Construction (12 months) **\$1,385,000**

TOTAL COST **\$35,127,250**

ANNUAL COSTS

Debt Service (6% for 20 years)					\$3,063,000
Electricity (\$0.09 kWh)					\$234,000
Operation & Maintenance					\$311,950
Raw Water Purchase			Kgal	\$0.66	\$1,097,000
Treatment			Kgal	\$0.70	\$1,163,000
Total Annual Costs					\$5,868,950

UNIT COSTS (Until Amortized)

Per Acre-Foot of treated water					\$1,151
Per 1,000 Gallons					\$3.53

UNIT COSTS (After Amortization)

Per Acre-Foot					\$550
Per 1,000 Gallons					\$0.99

Notes: Cost for buying raw water is assumed to be the unit costs for developing Lake Columbia.

Table

Obtain Water from Forest Grove Reservoir and Transport to New WTP Near Athens

WWPNAME: Athens MWA
STRATEGY: Forest Grove Reservoir/ TRWD
Quantity: 2000 ac-ft/yr

CONSTRUCTION COSTS

TRANSMISSION FACILITIES

Pipeline	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	18 in.	13,500	LF	\$77	\$1,039,500
Right of Way Easements (Rural)	30 ft.	9	Acre	\$2,000	\$18,000
Engineering and Contingencies (30%)					\$312,000
Subtotal of Pipeline					\$1,369,500

Intake and Pump Station	80 HP	1	EA	\$949,000	\$949,000
Engineering and Contingencies (35%)					\$332,000
Subtotal of Pump Station(s)					\$1,281,000

Permitting and Mitigation		1	LS		\$19,900
---------------------------	--	---	----	--	----------

CONSTRUCTION TOTAL **\$2,670,400**

Interest During Construction **(18 months)** **\$165,000**

TOTAL CAPITAL COST **\$2,835,400**

ANNUAL COSTS RAW WATER

Debt Service (6% for 30 years)					\$206,000
Raw water purchase			Kgal	\$0.50	\$325,851
Electricity (\$0.09 kWh)					\$27,000
Facility Operation & Maintenance					\$43,400

Total Annual Costs **\$602,251**

Per Acre-Foot of raw water					\$301
Per 1,000 Gallons of raw water					\$0.92

UNIT COSTS - (After Amortization)

Per Acre-Foot of raw water					\$198
Per 1,000 Gallons of raw water					\$0.61

Table

Additional Lake Athens with 1.5 MGD Water Treatment Plant Expansion at Lake Athens

Probable Owner: Athens MWA
 Amount: 1,000 Acre-Feet/Year

CONSTRUCTION COSTS

Pump Station(s)

Expand intake at Athens by 1.5 MGD	1.5 MGD	1	LS	\$164,000	\$164,000
Engineering and Contingencies (35%)					\$57,000
Subtotal of Pump Station(s)					\$221,000
Permitting and Mitigation		1	LS		\$2,000

WATER TREATMENT FACILITIES

Additional Treatment Capacity at Lake	1.5 MGD	1	LS	\$4,025,000	\$4,025,000
Engineering and Contingencies (35%)					\$1,409,000
Subtotal of Treatment					\$5,434,000
Permitting of treatment plant					\$48,300

CONSTRUCTION TOTAL **\$5,705,300**

Interest During Construction **\$238,000**
 (12 months)

TOTAL CAPITAL COST **\$5,943,300**

ANNUAL COSTS TREATED WATER

Debt Service (6% for 30 years)					\$431,800
Electricity (\$0.09 kWh)					\$14,850
Facility Operation & Maintenance					\$4,900
Water Treatment (\$.70/1,000 gal finished water)	273700	Kgal		\$0.70	\$191,600

Total Annual Costs **\$643,150**

UNIT COSTS (During Amortization)

Per Acre-Foot of treated water					\$643
Per 1,000 Gallons of treated water					\$1.97

UNIT COSTS (After Amortization)

Per Acre-Foot of treated water					\$211
Per 1,000 Gallons of treated water					\$0.65

Table

Water Treatment Plant Expansion at City of Athens - Forest Grove

Probable Owner: Athens MWA
 Amount: 1,960 Acre-Feet/Year

CONSTRUCTION COSTS

WATER TREATMENT FACILITIES

New Treatment Plant at City	3.5 MGD	1	LS	\$11,463,000	\$11,463,000
Engineering and Contingencies (35%)					\$4,012,000
Subtotal of Treatment					\$15,475,000

Permitting of treatment plant					\$137,556
-------------------------------	--	--	--	--	-----------

CONSTRUCTION TOTAL					\$15,612,556
---------------------------	--	--	--	--	---------------------

Interest During Construction			(18 months)		\$963,000
-------------------------------------	--	--	--------------------	--	------------------

TOTAL CAPITAL COST					\$16,575,556
---------------------------	--	--	--	--	---------------------

ANNUAL COSTS TREATED WATER

Debt Service (6% for 30 years)					\$1,204,200
Electricity (\$0.09 kWh)					\$0
Facility Operation & Maintenance					\$0
Water Treatment (\$.70/1,000 gal finished water)		1960	af/y		\$447,100

Total Annual Costs					\$1,651,300
---------------------------	--	--	--	--	--------------------

UNIT COSTS (During Amortization)

Per Acre-Foot of treated water					\$843
Per 1,000 Gallons of treated water					\$2.59

UNIT COSTS (After Amortization)

Per Acre-Foot of treated water					\$228
Per 1,000 Gallons of treated water					\$0.70

WWPNAME: Jacksonville
STRATEGY: Lake Columbia
Quantity: 1,700 AF/Y 2.65 MGD

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	16 in.	23,400	LF	\$69	\$1,615,000
Pipeline Urban	16 in.	3,000	LF	\$103	\$309,000
Right of Way Easements Rural (ROW)		10.7	ACRE	\$2,000	\$21,000
Right of Way Easements Urban (ROW)		1.4	ACRE	\$20,000	\$28,000
Engineering and Contingencies (30%)					\$577,000
Subtotal of Pipeline					\$2,550,000

Pump Station(s)					
Pump with intake & building	100 HP	1	LS	\$1,002,000	\$1,002,000
Booster Pump Station	0 HP	1	LS	\$0	\$0
Engineering and Contingencies (35%)					\$350,700
Subtotal of Pump Station(s)					\$1,352,700

Water Treatment Facility					
New Water Treatment Plant	3 MGD	1	LS	\$10,600,000	\$10,600,000
Engineering and Contingencies (35%)					\$3,710,000
Subtotal of WTP					\$14,310,000

CONSTRUCTION TOTAL **\$18,212,700**

Permitting and Mitigation **\$162,000**

Interest During Construction (12 months) **\$759,000**

TOTAL COST **\$19,133,700**

ANNUAL COSTS					
Debt Service (6% for 20 years)					\$1,668,000
Electricity (\$0.09 kWh)					\$28,000
Operation & Maintenance					\$53,000
Raw Water Purchase			Kgal	\$0.66	\$366,000
Treatment			Kgal	\$0.70	\$388,000
Total Annual Costs					\$2,503,000

UNIT COSTS (Until Amortized)					
Per Acre-Foot of treated water					\$1,472
Per 1,000 Gallons					\$4.52

UNIT COSTS (After Amortization)					
Per Acre-Foot					\$491
Per 1,000 Gallons					\$1.51

WWPNAME: LNVA
STRATEGY: Purchase from SRA
Quantity: 36,000 AF/Y 41.75 MGD

**CONSTRUCTION COSTS
 TRANSMISSION FACILITIES**

Pipeline	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	54 in.	77,000	LF	\$317	\$24,409,000
Right of Way Easements Rural (ROW)		35.4	ACRE	\$2,000	\$71,000
Engineering and Contingencies (30%)					\$7,323,000
Subtotal of Pipeline					\$31,803,000

Pump Station(s)	Size	Quantity	Unit	Unit Price	Cost
Pump with intake	1100 HP	1	LS	\$4,052,000	\$4,052,000
Booster Pump Station	0 HP	1	LS	\$0	\$0
Engineering and Contingencies (35%)					\$1,418,200
Subtotal of Pump Station(s)					\$5,470,200

CONSTRUCTION TOTAL **\$37,273,200**

Permitting and Mitigation **\$342,000**

Interest During Construction **\$1,553,000**
(12 months)

TOTAL COST **\$39,168,200**

ANNUAL COSTS

Debt Service (6% for 20 years)					\$3,415,000
Electricity (\$0.09 kWh)					\$377,000
Operation & Maintenance					\$415,000
Raw Water Purchase			Kgal	\$0.15	\$1,760,000
Treatment			Kgal	\$0.00	\$0
Total Annual Costs					\$5,967,000

UNIT COSTS (Until Amortized)

Per Acre-Foot of treated water					\$166
Per 1,000 Gallons					\$0.51

UNIT COSTS (After Amortization)

Per Acre-Foot					\$71
Per 1,000 Gallons					\$0.22

WWPNAME: Lufkin
STRATEGY: Increase Groundwater - Carrizo-Wilcox
Quantity: 4,650 AF/Y 8.30 MGD

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Groundwater Water Treatment Plant Improvments					
Remove Existing Plant Piping		1	LS	\$ 54,000	\$54,000
Replace Plant Piping		1	LS	\$ 433,000	\$433,000
Rehabilitate Ground Storage Tanks	2.1 MGD	2	EA	\$ 633,500	\$1,267,000
Decommission Clarifier		1	LS	\$ 65,000	\$65,000
Construct Chlorine Building		1	LS	\$ 542,000	\$542,000
Construct Booster Pump Building		1	LS	\$ 1,354,000	\$1,354,000
Water Main to Existing City Main on Loop 287	16 -inch	7,000	LF	\$ 43	\$303,000
Construct All-weather access road to FM 842		2,500	LF	\$ 136	\$341,000
Site Fencing		1	LS	\$ 76,000	\$76,000
SCADA Station		1	LS	\$ 54,000	\$54,000
Electrical (Including flow meters)		4	EA	\$ 74,500	\$298,000
Aerators		2	EA	\$ 189,500	\$379,000
Subtotal Ground Water Treatment Plant Improvments					\$5,166,000
Auxillary Booster Station Improvments					
Upgrade Station Bypass	24 -inch	200	LF	\$ 270	\$54,000
Renovate Pump Station Building		1	LS	\$ 32,000	\$32,000
SCADA Station		1	LS	\$ 54,000	\$54,000
Electrical (Including flow meter)		1	EA	\$233,000	\$233,000
Subtotal Auxillary Booster Station Improvments					\$373,000
Water Well Improvments					
Plug Wells # 1 and #3		2	EA	\$81,000	\$162,000
SCADA Stations		6	EA	\$54,000	\$325,000
Electrical (Including flow meters)		6	EA	\$39,667	\$238,000
Subtotal Water Well Improvments					\$725,000
Pipeline					
Pipeline	24 -inch	48000	LF	\$ 82	\$3,936,000
Values		15	EA	\$ 8,840	\$133,000
Subtotal Pipeline					\$4,069,000
Project Subtotal					\$10,333,000
Engineering & Contingency (30%)					\$3,100,000
Total Project without Easements					\$13,433,000
Easements					\$100,000
Total Project with Easements					\$13,533,000
Interest during construction (12 months)					\$564,000
Total Capital Costs					\$14,097,000
ANNUAL COSTS					
Debt Service (6% for 20 years)					\$1,229,000
Electricity					\$244,000
Treatment (\$0.30/ kgal)					\$455,000
Operation & Maintenance					\$58,800
Total Annual Costs					\$1,986,800
UNIT COSTS (Until Amortized)					
Per Acre-Foot of treated water					\$427
Per 1,000 Gallons					\$1.31
UNIT COSTS (After Amortization)					
Per Acre-Foot					\$163
Per 1,000 Gallons					\$0.50

WWPNAME: Lufkin
STRATEGY: Develop Lake Kurth
Raw Water Quantity: 6,800 AF/Y
Treated Water Quantity: 11,600 15.0 MGD

Phase 1: Raw Water Improvements:

Angelina River Intake and Pump Station	Size	Quantity	Unit	Unit Price	Cost
New Stop Logs		3	EA	\$5,333	\$16,000
Replace Slide Gate		1	EA	\$43,000	\$43,000
SCADA Station		1	EA	\$54,000	\$54,000
Electrical (Including flow meter)		1	EA	\$76,000	\$76,000
<i>Subtotal Angelina River Intake and Pump Station</i>					<i>\$189,000</i>

Kurth Lake Intake and Pump Station

Rebuild Linkbelt Screen		1	LS	\$162,000	\$162,000
Rebuild Trash Bar Screens		2	EA	\$11,000	\$22,000
SCADA Station		1	EA	\$54,000	\$54,000
Electrical (Including flow meter)		1	EA	\$119,000	\$119,000
<i>Subtotal Kurth Lake Intake</i>					<i>\$357,000</i>

Engineering and Contingencies (35%) ***\$191,100***

CONSTRUCTION TOTAL **\$737,100**

Permitting and Mitigation **\$7,000**
Interest During Construction (6 months) **\$16,000**

TOTAL COST **\$760,100**

ANNUAL COSTS

Debt Service (6% for 20 years) \$66,000
 Operation & Maintenance \$361,700
Total Annual Costs **\$427,700**

UNIT COSTS (Until Amortized)

Per Acre-Foot of treated water \$63
 Per 1,000 Gallons \$0.19

UNIT COSTS (After Amortization)

Per Acre-Foot \$53
 Per 1,000 Gallons \$0.16

Phase 2: Treated Water Supply Pipeline from WTP to Lufkin	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	36 in.	31,680	LF	\$184	\$5,829,000
Pipeline Urban	36 in.	5,280	LF	\$276	\$1,457,000
Right of Way Easements Rural (ROW)		14.5	ACRE	\$2,000	\$29,000
Right of Way Easements Urban (ROW)		2.4	ACRE	\$20,000	\$48,000
Engineering and Contingencies (30%)					\$2,186,000
Subtotal of Pipeline					\$9,549,000
Storage Facilities					
Ground Storage	3	1	EA	\$1,215,000	\$1,215,000
Engineering and Contingencies (35%)					\$425,000
Subtotal of Storage					\$1,640,000
Pump Station(s)					
Pump Station	600 HP	1	LS	\$2,150,000	\$2,150,000
Booster Pump Station	0 HP	1	LS	\$0	\$0
Engineering and Contingencies (35%)					\$752,500
Subtotal of Pump Station(s)					\$2,902,500
Water Treatment Facility					
New Water Treatment Plant	15 MGD	1	LS	\$29,100,000	\$29,100,000
Engineering and Contingencies (35%)					\$10,185,000
Subtotal of WTP					\$39,285,000
CONSTRUCTION TOTAL					\$53,376,500
Permitting and Mitigation					\$128,000
Interest During Construction					\$2,224,000
			(12 months)		
TOTAL COST					\$55,728,500
ANNUAL COSTS					
Debt Service (6% for 20 years)					\$4,859,000
Electricity (\$0.09 kWh)					\$193,000
Operation & Maintenance					\$188,000
Raw Water Purchase			Kgal	\$0.50	\$0
Treatment			Kgal	\$0.70	\$2,646,000
Total Annual Costs					\$7,886,000
UNIT COSTS (Until Amortized)					
Per Acre-Foot of treated water					\$680
Per 1,000 Gallons					\$2.09
UNIT COSTS (After Amortization)					
Per Acre-Foot					\$261
Per 1,000 Gallons					\$0.80

WWPNAME:	Lufkin	
STRATEGY:	Develop Water from Sam Rayburn	
Quantity to Customers	0	2.0 MGD
Treated Water Quantity	11,210	15.0 MGD

Expand Treated Water Supply	Size	Quantity	Unit	Unit Price	Cost
Pipeline					
Pipeline to Angelina County customers	12 in.	0	LF	\$52	\$0
Pipeline to Angelina County customers	6 in.	0	LF	\$26	\$0
Pipeline from Sam Rayburn	36 in.	65,500	LF	\$276	\$18,078,000
Right of Way Easements Rural (ROW)		30.1	ACRE	\$2,000	\$60,000
Engineering and Contingencies (30%)					\$5,423,000
Subtotal of Pipeline					\$23,561,000
Storage Facilities					
Additional Storage at WTP	5.00 MG	1	EA	\$1,303,000	\$1,303,000
Engineering and Contingencies (35%)					\$456,000
Subtotal of Storage					\$1,759,000
Pump Station(s)					
Lake Intake and Pump Station	600 HP	1	LS	\$2,860,000	\$2,860,000
Booster Pump Station	500 HP	0	LS	\$2,032,000	\$0
Engineering and Contingencies (35%)					\$1,001,000
Subtotal of Pump Station(s)					\$3,861,000
Water Treatment Facility					
Expand Water Treatment Plant	10 MGD	1	LS	\$16,000,000	\$16,000,000
Engineering and Contingencies (35%)					\$5,600,000
Subtotal of WTP					\$21,600,000
CONSTRUCTION TOTAL					\$50,781,000
Permitting and Mitigation					\$267,000
Interest During Construction					\$2,116,000
					(12 months)
TOTAL COST					\$53,164,000
ANNUAL COSTS					
Debt Service (6% for 20 years)					\$4,635,000
Electricity (\$0.09 kWh)					\$10,145,000
Operation & Maintenance					\$342,000
Raw Water Purchase					Kgal \$0.00 \$0
Treatment					Kgal \$0.70 \$2,557,000
Total Annual Costs					\$17,679,000
UNIT COSTS (Until Amortized)					
Per Acre-Foot of treated water					\$1,577
Per 1,000 Gallons					\$4.84
UNIT COSTS (After Amortization)					
Per Acre-Foot					\$1,164
Per 1,000 Gallons					\$3.57

WWPNAME: Nacogdoches
STRATEGY: Lake Columbia
Quantity: 8,551 AF/Y 11.44 MGD

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline to Lake Nacogdoches	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	30 in.	21,120	LF	\$145	\$3,062,000
Right of Way Easements Rural (ROW)		9.7	ACRE	\$2,000	\$19,000
Engineering and Contingencies (30%)					\$919,000
Subtotal of Pipeline					\$4,000,000

Pump Station(s)	Size	Quantity	Unit	Unit Price	Cost
Pump with intake & building	400 HP	1	LS	\$2,423,000	\$2,423,000
Booster Pump Station	0 HP	1	LS	\$0	\$0
Engineering and Contingencies (35%)					\$848,050
Subtotal of Pump Station(s)					\$3,271,050

Water Treatment Facility	Size	Quantity	Unit	Unit Price	Cost
Expand Existing Water Treatment Plant	15 MGD	1	LS	\$20,900,000	\$20,900,000
Engineering and Contingencies (35%)					\$7,315,000
Subtotal of WTP					\$28,215,000

CONSTRUCTION TOTAL **\$35,486,050**

Permitting and Mitigation **\$317,000**

Interest During Construction **\$1,479,000**
 (12 months)

TOTAL COST **\$37,282,050**

ANNUAL COSTS

Debt Service (6% for 20 years)					\$3,250,000
Electricity (\$0.09 kWh)					\$138,000
Operation & Maintenance					\$110,000
Raw Water Purchase			Kgal	\$0.66	\$1,839,000
Treatment			Kgal	\$0.70	\$1,950,000
Total Annual Costs					\$7,287,000

UNIT COSTS (Until Amortized)

Per Acre-Foot of treated water					\$852
Per 1,000 Gallons					\$2.61

UNIT COSTS (After Amortization)

Per Acre-Foot					\$472
Per 1,000 Gallons					\$1.45

Nacogdoches - Toledo Bend via Center

TRANSMISSION	Combined Cost
New Water Plant-10 mgd Pump Station	\$22,400,000
Intake at Logansport (600 HP)	\$2,860,000
Center (800 HP)	\$2,516,000
 Storage at Swift Transmission	
30" line, 359,600 ft.	\$52,142,000
ROW Costs	\$495,000
Total Capital Cost	\$80,413,000
Engineering & Cont.	\$25,364,000
Interest During Construction	\$8,641,981
Total Cost	\$114,418,981
 Annual Cost	
Debt Service,6%, 30yrs.	\$8,312,414
O&M Cost	
Treatment Plant	\$1,180,395
Pump Station	
Electricity	453,176
O&M	\$134,400
Transmission Line	\$521,420
Total Annual Cost	\$10,601,806
 Capacity (af/y)	5,175
 Unit Cost/AF	\$2,049
Unit Cost/1000 gallons	\$6.29

WWPNAME: City of Nacogdoches
STRATEGY: New Wells in Carizzo-Wilcox Aquifer
AMOUNT (ac-ft/yr): 2800

CAPITAL COSTS	Size	Quantity	Units	Unit Price	Cost
Water Well Construction	12 in.		5 ea	\$ 307,500	\$ 1,537,500
Connection to Water System			5 ea	\$ 100,000	\$ 500,000
Subtotal					\$ 2,037,500
Engineering and Contingencies (30%)					\$ 611,250
Mitigation and Permitting (1%)					\$ 20,375
Subtotal					\$ 2,669,125
Interest During Construction					\$ 57,832
TOTAL CAPITAL COST					\$ 2,726,957
ANNUAL COSTS	Size	Quantity	Units	Unit Price	Cost
Debt Service					\$ 237,749
Pipeline O&M (1%)					\$ 5,000
Pump O&M (2.5%)					\$ 38,438
Chemicals			1000 gal	\$ 0.30	\$ 273,680
Electricity					\$ 169,769
TOTAL ANNUAL COST w/ AMORTIZATION					\$ 724,635
TOTAL ANNUAL COST AFTER AMORTIZATION					\$ 486,887
UNIT COSTS (Until Amortized)					
Cost per acre-ft					\$ 259
Cost per 1000 gallons					\$ 0.79
UNIT COSTS (After Amortization)					
Cost per acre-ft					\$ 174
Cost per 1000 gallons					\$ 0.53

WWPNAME: City of Tyler
STRATEGY: Lake Palestine Expansion
Quantity: 16,815 AF/Y 30.00 MGD

CONSTRUCTION COSTS
TRANSMISSION FACILITIES

Pipeline	Size	Quantity	Unit	Unit Price	Cost
Pipeline Rural	36 in.	23,400	LF	\$184	\$4,306,000
Pipeline Urban	36 in.	3,000	LF	\$276	\$828,000
Right of Way Easements Rural (ROW)		10.7	ACRE	\$2,000	\$21,000
Right of Way Easements Urban (ROW)		1.4	ACRE	\$20,000	\$28,000
Engineering and Contingencies (30%)					\$1,540,000
Subtotal of Pipeline					\$6,723,000

Pump Station(s)					
Booster Pump Station	1400 HP	1	LS	\$3,395,000	\$3,395,000
Engineering and Contingencies (35%)					\$1,188,250
Subtotal of Pump Station(s)					\$4,583,250

Water Treatment Facility					
Expand Water Treatment Plant	30 MGD	1	LS	\$47,600,000	\$47,600,000
Engineering and Contingencies (35%)					\$16,660,000
Subtotal of WTP					\$64,260,000

CONSTRUCTION TOTAL **\$75,566,250**

Permitting and Mitigation **\$674,000**

Interest During Construction **\$3,149,000**
 (12 months)

TOTAL COST **\$79,389,250**

ANNUAL COSTS

Debt Service (6% for 20 years)					\$6,922,000
Electricity (\$0.09 kWh)					\$296,000
Operation & Maintenance					\$164,000
Raw Water Purchase			Kgal	\$0.50	\$2,740,000
Treatment			Kgal	\$0.70	\$3,835,000
Total Annual Costs					\$13,957,000

UNIT COSTS (Until Amortized)

Per Acre-Foot of treated water					\$830
Per 1,000 Gallons					\$2.55

UNIT COSTS (After Amortization)

Per Acre-Foot					\$418
Per 1,000 Gallons					\$1.28

WWPNAME:
STRATEGY:
Quantity:

Sabine River Authority
Toledo Bend Pipeline Project
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			1773	AC	\$17,730,000
Urban ROW			304	AC	\$18,240,000

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

\$3,231,778,000

Permitting and Mitigation

\$24,813,000

Interest During Construction

\$396,231,000

TOTAL COST

\$3,652,822,000

Capital Cost by User:

SRA	100,000 AF/Y	\$475,648,000
NTMWD	200,000 AF/Y	\$1,239,758,000
TRWD	200,000 AF/Y	\$1,937,416,000

ANNUAL COSTS for SRA

Debt Service (6% for 30 years)		\$34,555,000
Electricity (\$0.09 kWh)		\$20,793,400
Operation & Maintenance		\$4,403,511
Raw Water Purchase		\$0
Total Annual Costs		\$59,751,911

UNIT COSTS (Until Amortized)

Per Acre-Foot of treated water		\$598
Per 1,000 Gallons		\$1.83

UNIT COSTS (After Amortization)

Per Acre-Foot		\$252
Per 1,000 Gallons		\$0.77

This page intentionally left blank