

APPENDIX C - ITEMIZED COST ESTIMATES

CROOKED RIVER RANCH - 2012 WATER MASTER PLAN UPDATE - 20-YEAR C.I.P.

Construction Items	Description	Preliminary Cost Estimate	Phase	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	20-Year Toti
1	Install control improvements for standpipe and booster station	\$9,500	1	\$9,500																					\$9,500
2a	Install pipe upgrades 1, 2, & 3	\$1,124,300	1		\$374,767	\$374,767	\$374,767																		\$1,124,300
	Install pipe upgrade 11	\$846,984	2 to 3						\$52,937	\$52,937	\$52,937	\$52,937	\$52,937	\$52,937	\$52,937	\$52,937	\$52,937	\$52,937	\$52,937	\$52,937	\$52,937	\$52,937	\$52,937	\$52,937	\$846,984
	Install pipe upgrade 12	\$464,446	2 to 3						\$464,446																\$464,446
2b	Install pipe upgrade 8	\$329,400	2 to 3						\$20,588	\$20,588	\$20,588	\$20,588	\$20,588	\$20,588	\$20,588	\$20,588	\$20,588	\$20,588	\$20,588	\$20,588	\$20,588	\$20,588	\$20,588	\$20,588	\$329,400
	Install pipe upgrade 13	\$211,200	2 to 3						\$13,200	\$13,200	\$13,200	\$13,200	\$13,200	\$13,200	\$13,200	\$13,200	\$13,200	\$13,200	\$13,200	\$13,200	\$13,200	\$13,200	\$13,200	\$13,200	\$211,200
	Install pipe upgrade 14	\$1,004,600	2 to 3						\$62,788	\$62,788	\$62,788	\$62,788	\$62,788	\$62,788	\$62,788	\$62,788	\$62,788	\$62,788	\$62,788	\$62,788	\$62,788	\$62,788	\$62,788	\$62,788	\$1,004,600
3d	Install new booster at standpipe	\$719,000	1		\$719,000																				\$719,000
	Install parallel 180,000 gallon standpipe next to existing	\$570,100	2 to 3						\$570,100																\$570,100
	Pipe Well 4 to exist standpipe	\$106,800	1		\$106,800																				\$106,800
	Repairs to existing mains due to pressure increase	Variable			\$30,000	\$29,000	\$28,000	\$27,000	\$26,000	\$25,000															\$165,000
	Install pipe upgrade 9	\$0	Not needed with 2970'HGL																						\$0
	Increase Reservoir Discharge to 16"	\$0	Not needed with 2970'HGL																						\$0
4	Complete new well, install pumping equipment (complete)	\$1,379,100	2					\$1,379,100																	\$1,379,100
5	Install new small booster station for Canyon	\$45,000	1 to 2		\$45,000																				\$45,000
6	Upgrade System Controls / Communications	\$30,000	1		\$30,000																				\$30,000
7	Install new Hydrants throughout system	To be determined	1 to 4												\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$250,000
8	Upsize remaining 4" and 6" mains to 8".	To be determined	4																						\$0
9	Circulation Pump in existing standpipe	To be determined	1 if Item # Implemented																						\$0
10	Install backup generator and Automatic Transfer Switch for new well	To be determined	Not recommended																						\$0
Annual Total				\$9,500	\$1,305,567	\$403,767	\$402,767	\$1,406,100	\$1,210,058	\$174,512	\$149,512	\$149,512	\$149,512	\$149,512	\$174,512	\$174,512	\$174,512	\$174,512	\$174,512	\$174,512	\$174,512	\$174,512	\$174,512	\$174,512	\$7,255,430
Maintenance (New infrastructure)																									
M-4-1	Pull Well, maintenance	\$20,000												\$20,000									\$20,000		\$40,000
M-4-2	Pull Well, replace	\$120,000																					\$120,000		\$120,000
M-3d-1	Booster Pump Service	\$3,000	1k per pump							\$3,000										\$3,000					\$6,000
M-3d-2	Replace windings in booster pumps	\$7,500	2.5k per pump												\$7,500										\$7,500
M-3d-3	Replace booster pumps	\$30,000	10k per pump																				\$30,000		\$30,000
M-3d-4	Annual Operations	\$30,000	1/2 FTE empl.		\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$600,000
M-3d-5	Building maintenance	\$2,000								\$2,000					\$2,000						\$2,000			\$2,000	\$8,000
Annual Total				\$0	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$35,000	\$30,000	\$30,000	\$30,000	\$50,000	\$39,500	\$30,000	\$30,000	\$30,000	\$30,000	\$35,000	\$30,000	\$30,000	\$30,000	\$202,000	\$811,500
Power(New infrastructure)																									
P-4	New Well	\$31,233			31,233	31,233	31,233	31,233	31,233	31,233	31,233	31,233	31,233	31,233	31,233	31,233	31,233	31,233	31,233	31,233	31,233	31,233	31,233		\$624,657
P-3d	Booster pumps	\$7,349			7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349		\$146,977
Annual Total				\$0	\$38,582	\$38,582	\$38,582	\$38,582	\$38,582	\$38,582	\$38,582	\$38,582	\$38,582	\$38,582	\$38,582	\$38,582	\$38,582	\$38,582	\$38,582	\$38,582	\$38,582	\$38,582	\$38,582		\$771,634

Combined Annual Total= \$9,500 \$1,296,985 \$395,185 \$394,185 \$1,397,518 \$1,201,476 \$170,930 \$140,930 \$140,930 \$140,930 \$160,930 \$175,430 \$165,930 \$165,930 \$165,930 \$165,930 \$170,930 \$165,930 \$165,930 \$165,930 \$337,930

CROOKED RIVER RANCH - 2012 WATER MASTER PLAN UPDATE - COMPARISON OF ALTERNATIVES, 20-YEAR BASIS

Description		Preliminary Cost Estimate	Phase	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	Item Total
3a	Install new 770K gallon at-grade reservoir and booster station	\$1,587,300			\$1,587,300																				\$1,587,300
M-3d-1	Booster Pump Service	3000	0	0	0	0	0	0	0	3000	0	0	0	0	0	0	0	0	0	3000	0	0	0	0	\$6,000
M-3d-2	Replace windings in booster pumps	7500	0	0	0	0	0	0	0	0	0	0	0	0	7500	0	0	0	0	0	0	0	0	0	\$7,500
M-3d-3	Replace booster pumps	30000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30000	\$30,000
M-3d-4	Annual Operations	30000	0	0	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	30000	\$600,000
M-3d-5	Building maintenance	2000	0	0	0	0	0	0	0	2000	0	0	0	0	2000	0	0	0	0	2000	0	0	0	2000	\$8,000
	Power for Booster Station (annually)	\$7,349			7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	7,349	\$146,977
Annual Total				\$0	\$1,624,649	\$37,349	\$37,349	\$37,349	\$37,349	\$42,349	\$37,349	\$37,349	\$37,349	\$37,349	\$46,849	\$37,349	\$37,349	\$37,349	\$37,349	\$42,349	\$37,349	\$37,349	\$37,349	\$69,349	

20-year total= \$2,385,777

\$2,385,777

Description		Preliminary Cost Estimate	Phase	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	Item Total
3b	Install new 240,000K gal. reservoir and booster station.	\$1,680,100			\$1,680,100																				\$1,680,100
	Install booster on exist standpipe																								
	Pipe Well 4 to exist standpipe	\$106,800			\$106,800																				
M-3d-1	Booster Pump Service	\$6,000		\$0	\$0	\$0	\$0	\$0	\$0	\$6,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$6,000	\$0	\$0	\$0	\$0	\$12,000
M-3d-2	Replace windings in booster pumps	\$15,000		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$15,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
M-3d-3	Replace booster pumps	\$60,000		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$60,000	\$60,000	
M-3d-4	Annual Operations	\$60,000		\$0	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	
M-3d-5	Building maintenance	\$4,000		\$0	\$0	\$0	\$0	\$0	\$0	\$4,000	\$0	\$0	\$0	\$0	\$4,000	\$0	\$0	\$0	\$0	\$4,000	\$0	\$0	\$0	\$4,000	
	Power for Booster Station (annually)	\$14,698			14,698	14,698	14,698	14,698	14,698	14,698	14,698	14,698	14,698	14,698	14,698	14,698	14,698	14,698	14,698	14,698	14,698	14,698	14,698	14,698	\$293,955
Annual Total				\$0	\$1,861,598	\$74,698	\$74,698	\$74,698	\$74,698	\$84,698	\$74,698	\$74,698	\$74,698	\$74,698	\$93,698	\$74,698	\$74,698	\$74,698	\$74,698	\$84,698	\$74,698	\$74,698	\$74,698	\$138,698	

20-year total= \$3,383,855

\$3,383,855

Description		Preliminary Cost Estimate	Phase	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	Item Total
3c	Install new elevated tank	\$3,529,600	1		\$3,529,600																				\$3,529,600
	Install pipe upgrade 9	\$0	1 to 3	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0											\$0
	Increase Reservoir Discharge to 16"	\$0	2					\$0																	\$0
	Increased pump time for well 4 = Increased power	\$1,947			\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$38,937
Annual Total				\$0	\$3,531,547	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	\$1,947	

20-year total= \$3,568,537

\$3,568,537

Description		Preliminary Cost Estimate	Phase	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	Item Total	
3d	Install new booster at standpipe	\$719,000	1		\$719,000																				\$719,000	
	Install parallel 180,000 gallon standpipe next to existing	\$570,100	2 to 3					\$570,100																	\$570,100	
	Pipe Well 4 to exist standpipe	\$106,800	1		\$106,800																				\$106,800	
	Repairs to existing mains due to pressure increase	Variable		\$0	\$30,000	\$29,000	\$28,000	\$27,000	\$26,000	\$25,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$165,000	
	Install pipe upgrade 9	\$0		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0										\$0	
	Increase Reservoir Discharge to 16"	\$0						\$0																		\$0
M-3d-1	Booster Pump Service	\$3,000		\$0	\$0	\$0	\$0	\$0	\$0	\$3,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,000	\$0	\$0	\$0	\$0		\$6,000
M-3d-2	Replace windings in booster pumps	\$7,500		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$7,500	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0		\$7,500
M-3d-3	Replace booster pumps	\$30,000		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$30,000		\$30,000
M-3d-4	Annual Operations	\$30,000		\$0	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000		\$600,000
M-3d-5	Building maintenance	\$2,000		\$0	\$0	\$0	\$0	\$0	\$0	\$2,000	\$0	\$0	\$0	\$0	\$2,000	\$0	\$0	\$0	\$0	\$2,000	\$0	\$0	\$0	\$2,000		\$8,000
	Power for Booster Station (annually)	\$7,349			\$7,349	\$7,349	\$7,349	\$7,349	\$7,349	\$7,349	\$7,349	\$7,349	\$7,349	\$7,349	\$7,349	\$7,349	\$7,349	\$7,349	\$7,349	\$7,349	\$7,349	\$7,349	\$7,349	\$7,349		\$146,977
Annual Total				\$0	\$893,149	\$66,349	\$65,349	\$634,449	\$63,349	\$67,349	\$37,349	\$37,349	\$37,349	\$37,349	\$37,349	\$46,849	\$37,349	\$37,349	\$37,349	\$37,349	\$42,349	\$37,349	\$37,349	\$37,349	\$69,349	

20-year total= \$2,359,377

\$2,359,377

Install pipe upgrade 9	\$993,500
Increase Reservoir Discharge to 16"	\$147,600

CROOKED RIVER RANCH - 2012 WATER MASTER PLAN UPDATE - POWER USE ESTIMATES

Existing Well 4			Existing Well 2			Existing Booster Station		
Annual Pumped=	109,500,000	gallons	Annual Pumped=	109,500,000	gallons	Annual Pumped=	27,375,000	gallons (Assumed 1/2 of Well 2)
Rate=	800	gpm	Rate=	800	gpm	Rate=	400	gpm
Motor size=	200	HP	Motor size=	150	HP	Motor size=	25	HP
Assumed motor efficiency=	0.9		Assumed motor efficiency=	0.9		Assumed motor efficiency=	0.9	
Cost of power=	0.06	\$ / kW-hr	Cost of power=	0.06	\$ / kW-hr	Cost of power=	0.06	\$ / kW-hr
Motor size=	149	kW	Motor size=	112	kW	Motor size=	19	kW
Motor input power=	166	kW	Motor input power=	124	kW	Motor input power=	21	kW
Pump run time=	2281	hours	Pump run time=	2281	hours	Pump run time=	1141	hours
Annual Power Utilization=	378,028	kW-hr	Annual Power Utilization=	283,521	kW-hr	Annual Power Utilization=	23,627	kW-hr
Annual Power Cost=	\$22,682		Annual Power Cost=	\$17,011		Annual Power Cost=	\$1,418	
At Buildout								
ADD=	375	gpd/service						
Buildout Services=	2060	services						
Annual Use=	281,962,500	gallons						
Well 4			New Well (elevated hydraulic grade line)			Option 3a(New Booster at Fire Station, 2925' HGL)		
Annual Pumped=	140,981,250	gallons	Annual Pumped=	140,981,250	gallons	Annual Pumped=	140,981,250	gallons(=new well)
Rate=	800	gpm	Rate=	1122	gpm	Average Rate=	268	gpm
Motor size=	200	HP	Motor size=	300	HP	Average Motor size=	15	HP
Assumed motor efficiency=	0.9		Assumed motor efficiency=	0.9		Assumed motor efficiency=	0.8	
Cost of power=	0.06	\$ / kW-hr	Cost of power=	0.06	\$ / kW-hr	Cost of power=	0.06	\$ / kW-hr
Motor size=	149	kW	Motor size=	224	kW	Motor size=	11	kW
Motor input power=	166	kW	Motor input power=	249	kW	Motor input power=	14	kW
Pump run time=	2937	hours	Pump run time=	2094	hours	Pump run time=	8760	hours
Annual Power Utilization=	486,712	kW-hr	Annual Power Utilization=	520,547	kW-hr	Annual Power Utilization=	122,481	kW-hr
Annual Power Cost=	\$29,203		Annual Power Cost=	\$31,233		Annual Power Cost=	\$7,349	
						Option 3b(New Booster at standpipe, new booster at fire station, Increased HGL)		
						Annual Pumped=	140,981,250	gallons(=well 4)
						Average Rate=	268	gpm
						Average Motor size=	15	HP
						Assumed motor efficiency=	0.8	
						Cost of power=	0.06	\$ / kW-hr
						Motor size=	11	kW
						Motor input power=	14	kW
						Pump run time=	8760	hours
						Annual Power Utilization=	122,481	kW-hr
						Annual Power Cost=	\$7,349	(standpipe booster)
						Annual Power Cost=	\$7,349	(fire station booster)
						Total Annual Booster Sta. Power Cost=	\$14,698	
						Option 3c(Elevated Storage Tank)		
						Increased Well Power Cost=	\$1,947	
						Option 3d(New Booster at standpipe, Increased HGL)		
						Annual Pumped=	140,981,250	gallons(=well 4)
						Average Rate=	268	gpm
						Average Motor size=	15	HP
						Assumed motor efficiency=	0.8	
						Cost of power=	0.06	\$ / kW-hr
						Motor size=	11	kW
						Motor input power=	14	kW
						Pump run time=	8760	hours
						Annual Power Utilization=	122,481	kW-hr
						Annual Power Cost=	\$7,349	(standpipe booster)

Column1	Column2	Column3	Column4	Column5	Column6
ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	EXTENDED TOTAL
1	Mobilization, 5%	1	LS	\$34,679	\$34,679
	Segment 1				
2	New 8" main	2250	LF	\$80	\$180,000
3	Remove existing 6"	1195	LF	\$5	\$5,975
4	New Hydrants	0	EA	\$2,000	\$0
5	New Bends/Fittings	4	EA	\$500	\$2,000
6	New Gate Valves	3	EA	\$1,000	\$3,000
	Segment 2				
7	New 8" main	3362	LF	\$80	\$268,960
8	Remove existing 6"	1172	LF	\$5	\$5,860
9	New Hydrants	2	EA	\$2,000	\$4,000
10	New Bends/Fittings	10	EA	\$500	\$5,000
11	New Gate Valves	5	EA	\$1,000	\$5,000
	Segment 3				
12	New 8" main	2368	LF	\$80	\$189,440
13	Remove existing 6"	2368	LF	\$5	\$11,840
14	New Hydrants	3	EA	\$2,000	\$6,000
15	New Bends/Fittings	5	EA	\$500	\$2,500
16	New Gate Valves	4	EA	\$1,000	\$4,000
	Miscellaneous				
17	Service Tie-overs	25	EA	\$500	\$12,500
18	Watermain Chlorination and Testing per ODOT Stds.	1	LS	\$8,778	\$8,778
	SUBTOTAL				\$749,532
	Project Contingency (20%)				\$149,906
	Engineering and Design (15%)				\$112,430
	Project Administration, Legal, etc. (15%)				\$112,430
	TOTAL				\$1,124,298

ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	EXTENDED TOTAL
1	Mobilization, 5%	1	LS	\$13,798	\$13,798
	Segment 4				
2	New 8" main	2880	LF	\$80	\$230,400
3	Remove existing 6"	2880	LF	\$5	\$14,400
4	New Hydrants	3	EA	\$2,000	\$6,000
5	New Bends/Fittings	20	EA	\$500	\$10,000
6	New Gate Valves	4	EA	\$1,000	\$4,000
7	Service Tie-overs	16	EA	\$500	\$8,000
8	Watermain Chlorination and Testing per ODOT Stds.	1	LS	\$3,168	\$3,168
	SUBTOTAL				\$289,766
	Project Contingency (20%)				\$57,953
	Engineering and Design (15%)				\$43,465
	Project Administration, Legal, etc. (15%)				\$43,465
	TOTAL				\$434,650

ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	EXTENDED TOTAL
1	Mobilization, 5%	1	LS	\$6,688	\$6,688
	Segment 5				
2	New 8" main	1362	LF	\$80	\$108,960
3	Remove existing 6"	1362	LF	\$5	\$6,810
4	New Hydrants	2	EA	\$2,000	\$4,000
5	New Bends/Fittings	7	EA	\$500	\$3,500
6	New Gate Valves	3	EA	\$1,000	\$3,000
7	Service Tie-overs	12	EA	\$500	\$6,000
8	Watermain Chlorination and Testing per ODOT Stds.	1	LS	\$1,498	\$1,498
	SUBTOTAL				\$140,457
	Project Contingency (20%)				\$28,091
	Engineering and Design (15%)				\$21,068
	Project Administration, Legal, etc. (15%)				\$21,068
	TOTAL				\$210,685

ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	EXTENDED TOTAL
1	Mobilization, 5%	1	LS	\$242,645	\$242,645
	Segment 6				
2	New 8" main	4864	LF	\$80	\$389,120
3	Remove existing 6"	4864	LF	\$5	\$24,320
4	New Hydrants	5	EA	\$4,500	\$22,500
5	New Bends/Fittings	9	EA	\$500	\$4,500
6	New Gate Valves	6	EA	\$1,000	\$6,000
7	Service Tie-overs	67	EA	\$500	\$33,500
8	Watermain Chlorination and Testing per ODOT Stds.	1	LS	\$5,350	\$5,350
	SUBTOTAL				\$727,936
	Project Contingency (20%)				\$145,587
	Engineering and Design (15%)				\$109,190
	Project Administration, Legal, etc. (15%)				\$109,190
	TOTAL				\$1,091,903

ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	EXTENDED TOTAL
1	Mobilization, 5%	1	LS	\$211,414	\$211,414
	Segment 7				
2	New 8" main	4185	LF	\$80	\$334,800
3	Remove existing 6"	4185	LF	\$5	\$20,925
4	New Hydrants	5	EA	\$4,500	\$22,500
5	New Bends/Fittings	20	EA	\$500	\$10,000
6	New Gate Valves	6	EA	\$1,000	\$6,000
7	Service Tie-overs	48	EA	\$500	\$24,000
8	Watermain Chlorination and Testing per ODOT Stds.	1	LS	\$4,604	\$4,604
	SUBTOTAL				\$634,243
	Project Contingency (20%)				\$126,849
	Engineering and Design (15%)				\$95,136
	Project Administration, Legal, etc. (15%)				\$95,136
	TOTAL				\$951,364

ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	EXTENDED TOTAL
1	Mobilization, 5%	1	LS	\$10,458	\$10,458
	Segment 8				
2	New 12" main	1958	LF	\$90	\$176,220
3	Remove existing 8"	1958	LF	\$5	\$9,790
4	New Hydrants	2	EA	\$4,500	\$9,000
5	New Bends/Fittings	7	EA	\$500	\$3,500
6	New Gate Valves	3	EA	\$1,000	\$3,000
7	Service Tie-overs	11	EA	\$500	\$5,500
8	Watermain Chlorination and Testing per ODOT Stds.	1	LS	\$2,154	\$2,154
	SUBTOTAL				\$219,622
	Project Contingency (20%)				\$43,924
	Engineering and Design (15%)				\$32,943
	Project Administration, Legal, etc. (15%)				\$32,943
	TOTAL				\$329,433

ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	EXTENDED TOTAL
1	Mobilization, 5%	1	LS	\$31,539	\$31,539
	Segment 9				
2	New 12" main	5747	LF	\$90	\$517,230
3	Remove existing 8"	5747	LF	\$5	\$28,735
4	New Hydrants	6	EA	\$4,500	\$27,000
5	New Bends/Fittings	15	EA	\$500	\$7,500
6	New Gate Valves	7	EA	\$1,000	\$7,000
7	Service Tie-overs	74	EA	\$500	\$37,000
8	Watermain Chlorination and Testing per ODOT Stds.	1	LS	\$6,322	\$6,322
	SUBTOTAL				\$662,326
	Project Contingency (20%)				\$132,465
	Engineering and Design (15%)				\$99,349
	Project Administration, Legal, etc. (15%)				\$99,349
	TOTAL				\$993,489

ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	EXTENDED TOTAL
1	Mobilization, 5%	1	LS	\$12,553	\$12,553
	Segment 10				
2	New 8" main	2463	LF	\$80	\$197,040
3	Remove existing 4"	2463	LF	\$5	\$12,315
4	New Hydrants	3	EA	\$4,500	\$13,500
5	New Bends/Fittings	10	EA	\$500	\$5,000
6	New Gate Valves	4	EA	\$1,000	\$4,000
7	Service Tie-overs	33	EA	\$500	\$16,500
8	Watermain Chlorination and Testing per ODOT Stds.	1	LS	\$2,709	\$2,709
	SUBTOTAL				\$263,618
	Project Contingency (20%)				\$52,724
	Engineering and Design (15%)				\$39,543
	Project Administration, Legal, etc. (15%)				\$39,543
	TOTAL				\$395,426

ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	EXTENDED TOTAL
1	Mobilization, 5%	1	LS	\$3,391	\$3,391
	Pipe Well 4 to Standpipe				
2	New 8" main	1200	LF	\$50	\$60,000
3	New Bends/Fittings	5	EA	\$500	\$2,500
4	New Gate Valves	4	EA	\$1,000	\$4,000
5	Watermain Chlorination and Testing per ODOT Stds.	1	LS	\$1,320	\$1,320
	SUBTOTAL				\$71,211
	Project Contingency (20%)				\$14,242
	Engineering and Design (15%)				\$10,682
	Project Administration, Legal, etc. (15%)				\$10,682
	TOTAL				\$106,817

ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	EXTENDED TOTAL
1	Mobilization, 5%	1	LS	\$41,633	\$41,633
Segment 11					
2	New 8" main	5705	LF	\$80	\$456,400
3	Remove existing 6"	5705	LF	\$5	\$28,525
4	New Hydrants	6	EA	\$4,500	\$27,000
5	New Bends/Fittings	10	EA	\$500	\$5,000
6	New Gate Valves	7	EA	\$1,000	\$7,000
7	Service Tie-overs	30	EA	\$500	\$15,000
Segment 12					
8	New 12" main	3230	LF	\$80	\$258,400
9	New Hydrants	4	EA	\$4,500	\$18,000
10	New Bends/Fittings	5	EA	\$500	\$2,500
11	New Gate Valves	5	EA	\$1,000	\$5,000
12	Service Tie-overs	0	EA	\$500	\$0
7	Watermain Chlorination and Testing per ODOT Stds.	1	LS	\$9,829	\$9,829
SUBTOTAL					\$874,286
Project Contingency (20%)					\$174,857
Engineering and Design (15%)					\$131,143
Project Administration, Legal, etc. (15%)					\$131,143
TOTAL					\$1,311,429

ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	EXTENDED TOTAL
1	Mobilization, 5%	1	LS	\$4,684	\$4,684
	Reservoir Discharge				
2	New 16" main	850	LF	\$100	\$85,000
3	Remove existing 12"	850	LF	\$5	\$4,250
4	New Hydrants	0	EA	\$2,000	\$0
5	New Bends/Fittings	3	EA	\$500	\$1,500
6	New Gate Valves	2	EA	\$1,000	\$2,000
7	Service Tie-overs	0	EA	\$500	\$0
8	Watermain Chlorination and Testing per ODOT Stds.	1	LS	\$935	\$935
	SUBTOTAL				\$98,369
	Project Contingency (20%)				\$19,674
	Engineering and Design (15%)				\$14,755
	Project Administration, Legal, etc. (15%)				\$14,755
	TOTAL				\$147,554

ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	EXTENDED TOTAL
1	Mobilization, 5%	1	LS	\$31,891	\$31,891
	Segment 14				
2	New 12" main	6044	LF	\$90	\$543,960
3	Remove existing 6"	6044	LF	\$5	\$30,220
4	New Hydrants	7	EA	\$4,500	\$31,500
5	New Bends/Fittings	5	EA	\$500	\$2,500
6	New Gate Valves	8	EA	\$1,000	\$8,000
7	Service Tie-overs	30	EA	\$500	\$15,000
8	Watermain Chlorination and Testing per ODOT Stds.	1	LS	\$6,648	\$6,648
	SUBTOTAL				\$669,720
	Project Contingency (20%)				\$133,944
	Engineering and Design (15%)				\$100,458
	Project Administration, Legal, etc. (15%)				\$100,458
	TOTAL				\$1,004,580

ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	EXTENDED TOTAL
1	Mobilization, 5%	1	LS	\$6,703	\$6,703
	Segment 13				
2	New 12" main	1213	LF	\$90	\$109,170
3	Remove existing 8"	1213	LF	\$5	\$6,065
4	New Hydrants	2	EA	\$4,500	\$9,000
5	New Bends/Fittings	5	EA	\$500	\$2,500
6	New Gate Valves	3	EA	\$1,000	\$3,000
7	Service Tie-overs	6	EA	\$500	\$3,000
8	Watermain Chlorination and Testing per ODOT Stds.	1	LS	\$1,334	\$1,334
	SUBTOTAL				\$140,773
	Project Contingency (20%)				\$28,155
	Engineering and Design (15%)				\$21,116
	Project Administration, Legal, etc. (15%)				\$21,116
	TOTAL				\$211,159

NEW WELL

Column1	Column2	Column3	Column4	Column5	Column6
ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	EXTENDED TOTAL
New Well					
1	Mobilize & Demobilize drill rig and equipment, 25% of New Well cost	1	LS	\$110,498	\$110,498
2	Obtain the required OWRD Start Card and prepare required Well Log	1	EA	\$300	\$300
3	Construct oversized surface seal bore hole (nominal 20" diameter).	25	LF	\$335	\$8,375
4	Furnish and install 16" O.D. x .375" wall steel casing	25	LF	\$85	\$2,125
5	Furnish materials, labor and equipment for surface seal	25	LF	\$90	\$2,250
6	Drill nominal 20" bore hole (from 25' to 810')	785	LF	\$310.00	\$243,350
7	Drill nominal 12" bore hole (from 810' to 960')	150	LF	\$250.00	\$37,500
8	Furnish and install temporary conductor to transfer water from high production zone at +/-600' to surface during drilling	600	LF	\$80.00	\$48,000
9	Furnish cement for 20" bore loss zones and furnish labor, equipment, and incidentals to install and drill our bore cement and condition bore hole	50	CY	\$150.00	\$7,500
10	Furnish and install 16" x .375 blank wall steel casing (from surface to 690')	690	LF	\$65.00	\$44,850
11	Furnish and install 16" x .375 pre-perforated wall steel casing (from 690' to 810')	120	LF	\$105.00	\$12,600
12	Furnish labor and equipment to develop well (8 hours)	8	HR	\$450.00	\$3,600
13	Furnish, install and remove test pump column and appurtenances, max 610' set	1	LS	\$17,500.00	\$17,500
14	Furnish and install temporary above ground watertight piping to convey 1200gpm test water with minimum 8" dia.	1	LS	\$3,000.00	\$3,000
15	Test well at 1200gpm	24	HR	\$210.00	\$5,040
16	Record drawdown and recover per OWRD "Pump Test Requirements for Groundwater Rights Holders" requirements	1	LS	\$1,500.00	\$1,500
17	Furnish Materials and complete a well alignment drift survey with graphed output and color televising	1	LS	\$4,500.00	\$4,500
WELL DRILL SUBTOTAL					\$552,488
Pumping Equipment					
18	Furnish and install pump, 250HP (verify HP and pump after drilling), column, shaft, bowls, etc.	1	LS	\$157,500	\$157,500
19	Furnish and install a pump control panel with VFD, main disconnect, MCC, meter base, all pump electrical equipment and controls within the pump building as required for a complete and operational system.	1	LS	\$50,000	\$50,000
20	Furnish materials and construct pedestal, dishcharge head, interior valving, meter, piping, prelube, cla-val feed lines, pipe supports, floor penetrations, to within 5' of building, complete.	1	LS	\$42,000	\$42,000
21	Construction of concrete slab for pump station	200	SF	\$12	\$2,400
22	Construction of new pump stationbuilding	200	SF	\$150	\$30,000
23	Furnish materials and construct the required power service to well house, complete with vaults, trench, conduit, wiring	1	LS	\$30,000	\$30,000
24	Power company cost for electrical design and wiring including design and build of the sectionalizing cabinet, wiring to transformer, transformer, complete.	1	LS	\$40,000	\$40,000
25	Incidental items for a complete and operational system	1	LS	\$15,000	\$15,000
PUMP EQUIPMENT SUBTOTAL					\$366,900
COMBINED SUBTOTAL					\$919,388
Project Contingency (20%)					\$183,878
Engineering and Design (15%)					\$137,908
Project Administration, Legal, etc. (15%)					\$137,908
TOTAL					\$1,379,081

Column1	Column2	Column3	Column4	Column5	Column6
ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	EXTENDED TOTAL
1	Mobilization, 5%	1	LS	\$300	\$300
	Standpipe				
2	Adjustment to standpipe controls to keep water level high	1	LS	\$2,000	\$2,000
	Cistern				
3	New Pressure Control, Radio	1	LS	\$3,000	\$3,000
	Incidental				
4	Incidental items for a complete and operational system	1	LS	\$1,000	\$1,000
				SUBTOTAL	\$6,300
				Project Contingency (20%)	\$1,260
				Engineering and Design (15%)	\$945
				Project Administration, Legal, etc. (15%)	\$945
				TOTAL	\$9,450

OPTION 3a - New At-Grade Reservoir for 2060 customers, 580,000 gallons of effective storage on 5' dead storage

Column1	Column2	Column3	Column4	Column5	Column6
ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	EXTENDED TOTAL
1	Mobilization, 5%	1	LS	\$50,304	\$50,304
	Welded Steel Tank				
2	At-grade welded steel tank, 81' dia. X 20' high	770,888	Gallon	\$0.83	\$639,837
3	Site Prep	1	LS	\$5,000	\$5,000
	Pump Station				
4	New package pump station/controls, etc. delivered to site	1	LS	\$100,000	\$100,000
	Installation of pump station including piping connections to				
5	underground	1	LS	\$20,000	\$20,000
6	Construction of concrete slab for pump station	500	SF	\$12	\$6,000
7	Construction of new pump station building	500	SF	\$150	\$75,000
	New backup generator (Diesel w/Automatic Transfer Switch, 24-				
	hour base tank, Sound Attenuated Weatherproof Enclosure, and				
8	Fuel Spill Containment Box)	1	EA	\$85,000	\$85,000
	Site Work				
9	Yard Piping	550	LF	\$60	\$33,000
10	Yard Valving	1	LS	\$12,000	\$12,000
11	Asphalt Parking (2" AC on 6" of 3/4"-0" Agg Base)	3000	SF	\$3	\$9,000
12	Site Fencing	550	LF	\$35	\$19,250
13	New Fire Department Hydrant	1	EA	\$2,000	\$2,000
14	Reservoir Access Road (6" of 3/4"-0" Agg Base)	1800	SF	\$1	\$1,800
				SUBTOTAL	\$1,058,191
				Project Contingency (20%)	\$211,638
				Engineering and Design (15%)	\$158,729
				Project Administration, Legal, etc. (15%)	\$158,729
				TOTAL	\$1,587,287

OPTION 3b - New At-Grade Reservoir, 180,000 gallons of effective storage on 5' dead storage. Two new booster stations

Column1	Column2	Column3	Column4	Column5	Column6
ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	EXTENDED TOTAL
1	Mobilization, 5%	1	LS	\$31,513	\$31,513
	Welded Steel Tank				
2	At-grade welded steel tank, 44' dia. X 20' high	240,000	Gallon	\$1.10	\$264,000
3	Site Prep	1	LS	\$5,000	\$5,000
	Pump Station at New At-Grade Reservoir				
4	New package pump station/controls, etc. delivered to site	1	LS	\$100,000	\$100,000
5	Installation of pump station including piping connections to underground	1	LS	\$20,000	\$20,000
6	Construction of concrete slab for pump station	500	SF	\$12	\$6,000
7	Construction of new pump station building	500	SF	\$150	\$75,000
8	New backup generator (Diesel w/Automatic Transfer Switch, 24-hour base tank, Sound Attenuated Weatherproof Enclosure, and Fuel Spill Containment Box)	1	EA	\$85,000	\$85,000
	Site Work at New At-Grade Reservoir				
9	Yard Piping	550	LF	\$60	\$33,000
10	Yard Valving	1	LS	\$12,000	\$12,000
11	Asphalt Parking (2" AC on 6" of 3/4"-0" Agg Base)	3000	SF	\$3	\$9,000
12	Site Fencing	550	LF	\$35	\$19,250
13	New Fire Department Hydrant	1	EA	\$2,000	\$2,000
14	Reservoir Access Road (6" of 3/4"-0" Agg Base)	1800	SF	\$1	\$1,800
	Pump Station at Existing Standpipe				
15	New package pump station/controls, etc. delivered to site	1	LS	\$100,000	\$100,000
16	Installation of pump station including piping connections to underground	1	LS	\$20,000	\$20,000
17	Construction of concrete slab for pump station	500	SF	\$12	\$6,000
18	Construction of new pump station building	500	SF	\$150	\$75,000
19	New backup generator (Diesel w/Automatic Transfer Switch, 24-hour base tank, Sound Attenuated Weatherproof Enclosure, and Fuel Spill Containment Box)	1	EA	\$85,000	\$85,000
20	Furnish materials and construct the required power service to pump station, complete with vaults, trench, conduit, wiring	1	LS	\$30,000	\$30,000
21	Power company cost for electrical design and wiring including design and build of the sectionalizing cabinet, wiring to transformer, transformer, complete.	1	LS	\$40,000	\$40,000
22	Incidental items for a complete and operational system	1	LS	\$15,000	\$15,000
	Site Work at Existing Standpipe				
1	Yard Piping	150	LF	\$60	\$9,000
2	Yard Valving	1	LS	\$30,000	\$30,000
3	Asphalt Parking (2" AC on 6" of 3/4"-0" Agg Base)	3000	SF	\$3	\$9,000
4	Site Fencing	500	LF	\$35	\$17,500
5	Additional Control Upgrades	1	LS	\$20,000	\$20,000
6					\$0
	SUBTOTAL				\$1,120,063
	Project Contingency (20%)				\$224,013
	Engineering and Design (15%)				\$168,009
	Project Administration, Legal, etc. (15%)				\$168,009
	TOTAL				\$1,680,094

OPTION 3c - New Elevated Reservoir for 2060 customers, 400,000 gallons of effective storage on 5' dead storage

Column1	Column2	Column3	Column4	Column5	Column6
ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	EXTENDED TOTAL
1	Mobilization, 5%	1	LS	\$124,500	\$124,500
	Elevated Pedesphere Tank				
2	Elevated Pedesphere Tank (1MG, incl. basic foundation, erection, painting)	1,000,000	Gallon	\$2.40	\$2,400,000
3	Site Prep	1	LS	\$5,000	\$5,000
	Site Work				
4	Water Yard Piping, valving, appurtenances, etc.	1	LS	\$50,000	\$50,000
5	Site parking, access, fencing	1	LS	\$30,000	\$30,000
6	Fire Department Hydrant	1	LS	\$5,000	\$5,000
7	New backup generator for new Well (Diesel w/Automatic Transfer Switch, 24-hour base tank, Sound Attenuated Weatherproof Enclosure, and Fuel Spill Containment Box)	0	EA	\$85,000	\$0
				SUBTOTAL	\$2,614,500
				Project Contingency (20%)	\$522,900
				Engineering and Design, Project Administration, Legal, etc. (15%)	\$392,175
				TOTAL	\$3,529,575

OPTION 3d - New booster station at existing standpipe

Column1	Column2	Column3	Column4	Column5	Column6
ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	EXTENDED TOTAL
1	Mobilization, 5%	1	LS	\$22,825	\$22,825
Pump Station at Existing Standpipe					
2	New package pump station/controls, etc. delivered to site	1	LS	\$100,000	\$100,000
Installation of pump station including piping connections to underground					
3		1	LS	\$20,000	\$20,000
4	Construction of concrete slab for pump station	500	SF	\$12	\$6,000
5	Construction of new pump stationbuilding	500	SF	\$150	\$75,000
New backup generator (Diesel w/Automatic Transfer Switch, 24-hour base tank, Sound Attenuated Weatherproof Enclosure, and Fuel Spill Containment Box)					
6		1	EA	\$85,000	\$85,000
Furnish materials and construct the required power service to pump station, complete with vaults, trench, conduit, wiring					
7		1	LS	\$30,000	\$30,000
Power company cost for electrical design and wiring including design and build of the sectionalizing cabinet, wiring to transformer, transformer, complete.					
8		1	LS	\$40,000	\$40,000
9	Incidental items for a complete and operational system	1	LS	\$15,000	\$15,000
Site Work at Existing Standpipe					
10	Yard Piping	150	LF	\$60	\$9,000
11	Yard Valving	1	LS	\$30,000	\$30,000
12	Asphalt Parking (2" AC on 6" of 3/4"-0" Agg Base)	3000	SF	\$3	\$9,000
13	Site Fencing	500	LF	\$35	\$17,500
14	Additional Control Upgrades	1	LS	\$20,000	\$20,000
Backup Power for New Well					
New backup generator for new Well (Diesel w/Automatic Transfer Switch, 24-hour base tank, Sound Attenuated Weatherproof Enclosure, and Fuel Spill Containment Box)					
15		0	EA	\$85,000	\$0
SUBTOTAL					\$479,325
Project Contingency (20%)					\$95,865
Engineering and Design (15%)					\$71,899
Project Administration, Legal, etc. (15%)					\$71,899
TOTAL					\$718,988

Option to add additional 180,000 gallon standpipe

Column1	Column2	Column3	Column4	Column5	Column6
ITEM NO.	DESCRIPTION	QUANTITY	UNITS	UNIT COST	EXTENDED TOTAL
1	Mobilization, 5% (excluding standpipe)	1	LS	\$980	\$980
Welded Steel Standpipe					
2	Welded steel standpipe, 21' dia. X 70' high	180,000	Gallon	\$2	\$360,000
3	Site Prep	1	LS	\$5,000	\$5,000
4	Site Work to connect to system				
5	Conduit and trenching for power/communications	100	LF	\$16	\$1,600
Site Work at Existing Standpipe					\$0
6	Yard Piping	100	LF	\$60	\$6,000
7	Yard Valving	1	LS	\$5,000	\$5,000
8	Additional Control Upgrades	1	LS	\$2,000	\$2,000
SUBTOTAL					\$380,580
Project Contingency (20%)					\$76,116
Engineering and Design (15%)					\$57,087
Project Administration, Legal, etc. (15%)					\$57,087
TOTAL					\$570,870