City of Iona
Water System Improvements Project - Option 1

Scope

1.0 million gallon water storage tank	$1,546,970
Well, well house & generator	$522,720
Transmission line along 49th N to 55th East	$756,090
Connecting line to original townsite	$377,160
Generator for Well 2	$85,860
Total Including Contingency	**$3,288,780**

Costs

Construction	$3,288,780
Engineering	$464,000
Utilities & permitting	$43,500
Administration, bond attorney, city attorney, single act audit & interest	$156,000
Total	**$3,952,280**

Funding Plan

Total project cost	$3,952,280	$3,952,280
DEQ principal forgiveness	$0	$0
USCOE 595 grant	$0	$700,000
City cash	$0	$0
Amount of Loan	**$3,952,280**	**$3,252,280**
Estimated Increase to Monthly Home Water Rate	**$19.69**	**$16.02**

Prepared by Schiess & Associates, 10/17/2017

Iona Water System Improvements Estimate of Probable Cost for Option 1

Scope Includes a New Concrete Tank, Well and Well House at Heuer-Smith Property above 49th N, Transmission Line on 49th N from Tank Site to 55th East and a Transmission Line from 55th E along 49th N and through a Landowner Easement South to Original Townsite, thence West to Olsen Ave

Construction

Item No.	Item	Quantity	Unit	Unit Cost	Extended Cost
1	Stripping and grubbing of tank site	1	Lump Sum	$4,500	$4,500
2	Rock excavation for tank	1,200	Cubic Yard	$40	$48,000
3	Smoothing course of crushed 3/4" gravel	420	Ton	$20	$8,400
4	1,000,000 gallon prestressed concrete tank & foundation (DN Tanks type with appurtenances)	1	Lump Sum	$1,150,000	$1,150,000
5	Rock excavation for tank site piping	200	Lineal Foot	$80	$16,000
6	Site piping (inlet, outlet, overflow, drain)	200	Lineal Foot	$74	$14,800
7	SCADA link at tank	1	Lump Sum	$12,000	$12,000
8	Single phase power, breakers for lighting, depth sensor and control box	1	Lump Sum	$10,000	$10,000
9	16" butterfly valves w/box on tank site	3	Each	$7,000	$21,000
10	16" DI fittings on tank site (elbows)	6	Each	$3,500	$21,000
11	Overflow discharge structure	1	Lump Sum	$15,000	$15,000
12	Tank mixer	1	Lump Sum	$40,000	$40,000
13	Erosion control measures and seeding	1	Lump Sum	$4,000	$4,000
14	Rock excavation for transmission line from tank to Hillside Canal	1,100	Lineal Foot	$80	$88,000
15	Asphalt removal on Telford Rd preparatory to pipe lay	2,860	Square Yard	$5	$14,300
16	Hydrants along transmission line	8	Each	$4,500	$36,000
17	16" PVC C900 DR18 water pipe from tank site to 55th East on 49th N	3,875	Lineal Foot	$60	$232,500
18	Not used	0	Lineal Foot	$50	$0
19	Not used	0	Lineal Foot	$12	$0
20	16" butterfly valves w/box	6	Each	$7,000	$42,000
21	16" DI fittings (tees, elbows & cross)	6	Each	$3,500	$21,000
22	Water service connections near tank site (saddle, corp. stop, meter box and service line)	2	Each	$2,500	$5,000
23	Bore & casing under Hillside Canal	100	Lineal Foot	$400	$40,000
24	Assume half the bore distance at Hillside Canal to be bored through lava bedrock	50	Lineal Foot	$800	$40,000
25	Bore & casing under East Center Canal	60	Lineal Foot	$400	$24,000
26	Bore & casing under railroad ROW	100	Lineal Foot	$400	$40,000
27	Connection to piping at 55th east (6" gate valve, reducer, extension of 6" line & disinfection)	1	Lump Sum	$6,000	$6,000
28	Pitrun restoration on Telford Rd	1,430	Ton	$15	$21,450
29	Roadbase restoration on Telford Rd	510	Ton	$20	$10,200
30	Asphalt restoration on Telford Rd	320	Ton	$100	$32,000
31	New well producing 1,375 gpm to match existing Well 1 (365' deep)	1	LS	$180,000	$180,000
32	Well house for new well (20x24 masonry block building)	480	SF	$90	$43,200
33	Electrical & ventilation for new well house	1	LS	$30,000	$30,000
34	New well pump system including 150 Hp vertical turbine motor/pump with water lube column and shaft	1	LS	$65,000	$65,000
35	Piping and valves in well house	1	LS	$35,000	$35,000
36	Diesel generator and automatic transfer switch for new well pump	1	LS	$80,000	$80,000
37	SCADA link for well house and tank	1	LS	$12,000	$12,000
38	Construction staking	1	Lump Sum	$8,000	$8,000
39	Lay 16" line along Telford Rd. then a 12" waterline through an easement acquired by landowner to connect 12" line to original townsite waterlines (see attached estimate)	4,950	Lineal Foot	$66	$327,450
40	Diesel generator and automatic transfer switch for Well 2	1	Lump Sum	$75,000	$75,000
41	Mobilization	1	Lump Sum	$172,370	$172,370
Subtotal construction					$3,045,170
Contingency at 8%					$243,610
Total construction cost					**$3,288,780**

Engineering

Item No.	Item	Est. Amount
1	Addendum to Planning Study & Bond Election Planning/Support	$10,000
2	Environmental Review	$20,000
3	Funding support	$10,000
4	Design survey	$5,000
5	Geotechnical engineering report for storage tank	$15,000
6	Drilling for bedrock along waterline alignment and on a grid at tank site (+/-50 holes), survey and brief letter report	$7,000
7	Well/tank site and well design submittal with bid boilerplate to DEQ	$20,000
8	Preliminary engineering report to DEQ (less well site and well design approval)	$40,000
9	Final design engineering of well house, tank and water transmission line and submittal to DEQ with bid boilerplate	$155,000
10	Green Project Reserve (GPR) justification to DEQ	$5,000
11	Bid services (bid well first, then everything else in a second bid)	$25,000
12	Construction engineering	$70,000
13	Field observation and inspections	$60,000
14	O&M manual	$15,000
15	Record drawings and closeout	$7,000
Subtotal engineering		**$464,000**

Utilities & Permitting

Item No.	Item	Est. Amount
1	Railroad permitting (application fee, documentary fee and license agreement fee)	$4,000
2	County roadway permitting (fee to obtain permit accomplished by bonded contractor for two bores and a street asphalt cut)	$200
3	Building permitting & state electrical and plumbing permits (tank & well house accomplished by contractor)	$3,000
4	Well drilling permit ($200 plus fill out paperwork accomplished by Driller)	$300
5	Water right transfer to new well site to add new point of diversion	$3,000
6	Water quality testing of new well water	$3,000
7	Three phase primary power to meter (may include power pole, primary conductor to transformer and meter)	$25,000
8	Canal permitting with Progressive Irrigation District (estimate of labor to fill out permit form and attend meeting)	$2,000
9	Easement through landowner property for transmission line from 49th N to Dayton St.	$3,000
Subtotal utilities and permitting		**$43,500**

Other Soft Costs

Item No.	Item	Est. Amount
1	Administration	$80,000
2	Bond attorney	$12,500
3	City attorney	$6,000
4	Single act audit	$12,500
5	Construction period interest	$45,000
Subtotal other soft costs		**$156,000**

Total Estimated Project Cost $3,952,280

Prepared by Schiess Associates, 10/17/2017

Rate Impact to Each Home (EDU) - Option 1

a	Total project cost		$3,952,280	$3,952,280
b	Amount of projected DEQ principal forgiveness		$0	$0
c	Amount of USCOE 595 program grant funds		$0	$700,000
d	Amount of city capital improvement reserves applied to project		$0	$0
e	DEQ loan amount	=a-b-c-d	$3,952,280	$3,252,280
f	Loan interest rate (%)		3.00	3.00
g	Payback period (years)		30	30
h	Estimated annual loan payment		$201,642	$165,929
i	Existing O&M costs	from 2016 audit & accounting	$250,370	$250,370
j	Projected additional O&M costs of this project		$14,004	$14,004
k	Total estimated annual costs	=h+i+j	$466,016	$430,303
l	Amount of users (EDU's) at start of loan payback	from connection fee calculations	891	891
m	Estimated monthly rate per home for loan payback	=h/l/12	$18.86	$15.52
n	Estimated monthly rate per home for O&M after project is complete	=(i+j)/l	$24.73	$24.73
o	Estimated monthly loan reserve per home (collect 10% of annual loan payment until 10% loan reserve is achieved)	=h*.10/l/12	$1.89	$1.55
p	Estimated monthly capital reserve per home (collect approximately 0.71% of annual asset depreciation)		$4.22	$4.22
q	New monthly rate of each home after project is complete	=m+n+o+p	$49.69	$46.02
r	Current monthly rate of each home		$30.00	$30.00
s	Estimated rate increase per home to fund project	=q-r	$19.69	$16.02

City of Iona
Water System Improvements Project - Option 2

Scope

1.0 million gallon water storage tank	$1,546,970
Well, well house & generator	$522,720
Transmission line along 49th N to 55th East	$812,690
Connecting waterline through proposed Thomasville Estates	$110,670
Generator for Well 2	$85,860
Total Including Contingency	**$3,078,910**

Costs

Construction	$3,078,910
Engineering	$439,000
Utilities & permitting	$40,500
Administration, bond attorney, city attorney, single act audit & interest	$151,000
Total	**$3,709,410**

Funding Plan

Total project cost	$3,709,410	$3,709,410
DEQ principal forgiveness	$0	$0
USCOE 595 grant	$0	$700,000
City cash	$0	$0
Amount of Loan	**$3,709,410**	**$3,009,410**
Estimated Increase to Monthly Home Water Rate	**$18.42**	**$14.74**

Prepared by Schiess & Associates, 10/17/2017

Iona Water System Improvements Estimate of Probable Cost for Option 2

Estimate of Probable Cost for New Concrete Tank, Well and Well House at Heuer-Smith Property above Telford Road and Transmission Line on Telford Road From Tank Site to 55th East. City to Only Pay Upsize Costs of 49th N Waterline and Waterline through Proposed Thomasville Estates

Construction

Item No.	Item	Quantity	Unit	Unit Cost	Extended Cost
1	Stripping and grubbing of tank site	1	Lump Sum	$4,500	$4,500
2	Rock excavation for tank	1,200	Cubic Yard	$40	$48,000
3	Smoothing course of crushed 3/4" gravel	420	Ton	$20	$8,400
4	1,000,000 gallon prestressed concrete tank & foundation (DN Tanks type with appurtenances)	1	Lump Sum	$1,150,000	$1,150,000
5	Rock excavation for tank site piping	200	Lineal Foot	$80	$16,000
6	Site piping (inlet, outlet, overflow, drain)	200	Lineal Foot	$74	$14,800
7	SCADA link at tank	1	Lump Sum	$12,000	$12,000
8	Single phase power, breakers for lighting, depth sensor and control box	1	Lump Sum	$10,000	$10,000
9	16" butterfly valves w/box on tank site	3	Each	$7,000	$21,000
10	16" DI fittings on tank site (elbows)	6	Each	$3,500	$21,000
11	Overflow discharge structure	1	Lump Sum	$15,000	$15,000
12	Tank mixer	1	Lump Sum	$40,000	$40,000
13	Erosion control measures and seeding	1	Lump Sum	$4,000	$4,000
14	Rock excavation for transmission line from tank to Hillside Canal	1,100	Lineal Foot	$80	$88,000
15	Asphalt removal on Telford Rd preparatory to pipe lay	4,850	Square Yard	$5	$24,250
16	Hydrants along transmission line	8	Each	$4,500	$36,000
17	16" PVC C900 DR18 water pipe from tank site to 55th East on 49th N	3,875	Lineal Foot	$60	$232,500
18	Upsize of waterline along 49th N from 55th East west to entrypoint into proposed Thomasville Estates (city pay only upsize from 8" to 16" PVC)	1,990	Lineal Foot	$28	$55,720
19	Upsize of waterline through proposed Thomasville Estates (city pay only upsize from 8" to 12" PVC)	3,150	Lineal Foot	$13	$40,950
20	16" butterfly valves w/box	6	Each	$7,000	$42,000
21	16" DI fittings (tees, elbows & cross)	5	Each	$3,500	$17,500
22	Water service connections near tank site (saddle, corp. stop, meter box and service line)	2	Each	$2,500	$5,000
23	Bore & casing under Hillside Canal	100	Lineal Foot	$400	$40,000
24	Assume half the bore distance at Hillside Canal to be bored through lava bedrock	50	Lineal Foot	$800	$40,000
25	Bore & casing under East Center Canal	60	Lineal Foot	$400	$24,000
26	Bore & casing under railroad ROW	100	Lineal Foot	$400	$40,000
27	Connection to piping at 55th east (6" gate valve, reducer, extension of 6" line & disinfection)	1	Lump Sum	$6,000	$6,000
28	Pitrun restoration on Telford Rd	2,430	Ton	$15	$36,450
29	Roadbase restoration on Telford Rd	860	Ton	$20	$17,200
30	Asphalt restoration on Telford Rd	530	Ton	$100	$53,000
31	New well producing 1,375 gpm to match existing Well 1 (365' deep)	1	LS	$180,000	$180,000
32	Well house for new well (20x24 masonry block building)	480	SF	$90	$43,200
33	Electrical & ventilation for new well house	1	LS	$30,000	$30,000
34	New well pump system including 150 Hp vertical turbine motor/pump with water lube column and shaft	1	LS	$65,000	$65,000
35	Piping and valves in well house	1	LS	$35,000	$35,000
36	Diesel generator and automatic transfer switch for new well pump	1	LS	$80,000	$80,000
37	SCADA link for well house and tank	1	LS	$12,000	$12,000
38	Construction staking	1	Lump Sum	$6,000	$6,000
39	Not used	0	Lineal Foot	$66	$0
40	Diesel generator and automatic transfer switch for Well 2	1	Lump Sum	$75,000	$75,000
41	Mobilization	1	Lump Sum	$161,370	$161,370
Subtotal construction					$2,850,840
Contingency at 8%					$228,070
Total construction cost					**$3,078,910**

Engineering

Item No.	Item	Est. Amount
1	Addendum to Planning Study & Bond Election Planning/Support	$10,000
2	Environmental Review	$20,000
3	Funding support	$10,000
4	Design survey	$5,000
5	Geotechnical engineering report for storage tank	$15,000
6	Drilling for bedrock along waterline alignment and on a grid at tank site (+/-50 holes), survey and brief letter report	$7,000
7	Well/tank site and well design submittal with bid boilerplate to DEQ	$20,000
8	Preliminary engineering report to DEQ (less well site and well design approval)	$40,000
9	Final design engineering of well house, tank and water transmission line and submittal to DEQ with bid boilerplate	$140,000
10	Green Project Reserve (GPR) justification to DEQ	$5,000
11	Bid services (bid well first, then everything else in a second bid)	$25,000
12	Construction engineering	$65,000
13	Field observation and inspections	$55,000
14	O&M manual	$15,000
15	Record drawings and closeout	$7,000
Subtotal engineering		**$439,000**

Utilities & Permitting

Item No.	Item	Est. Amount
1	Railroad permitting (application fee, documentary fee and license agreement fee)	$4,000
2	County roadway permitting (fee to obtain permit accomplished by bonded contractor for two bores and a street asphalt cut)	$200
3	Building permitting & state electrical and plumbing permits (tank & well house accomplished by contractor)	$3,000
4	Well drilling permit ($200 plus fill out paperwork accomplished by Driller)	$300
5	Water right transfer to new well site to add new point of diversion	$3,000
6	Water quality testing of new well water	$3,000
7	Three phase primary power to meter (may include power pole, primary conductor to transformer and meter)	$25,000
8	Canal permitting with Progressive Irrigation District (estimate of labor to fill out permit form and attend meeting)	$2,000
Subtotal utilities and permitting		**$40,500**

Other Soft Costs

Item No.	Item	Est. Amount
1	Administration	$80,000
2	Bond attorney	$12,500
3	City attorney	$6,000
4	Single act audit	$12,500
5	Construction period interest	$40,000
Subtotal other soft costs		**$151,000**

Total Estimated Project Cost $3,709,410

Prepared by Schiess Associates, 10/17/2017

Rate Impact to Each Home (EDU) - Option 2

a	Total project cost		$3,709,410	$3,709,410
b	Amount of projected DEQ principal forgiveness		$0	$0
c	Amount of USCOE 595 program grant funds		$0	$700,000
d	Amount of city capital improvement reserves applied to project		$0	$0
e	DEQ loan amount	=a-b-c-d	$3,709,410	$3,009,410
f	Loan interest rate (%)		3.00	3.00
g	Payback period (years)		30	30
h	Estimated annual loan payment		$189,251	$153,538
i	Existing O&M costs	from 2016 audit & accounting	$250,370	$250,370
j	Projected additional O&M costs of this project		$14,004	$14,004
k	Total estimated annual costs	=h+i+j	$453,625	$417,912
l	Amount of users (EDU's) at start of loan payback	from connection fee calculations	891	891
m	Estimated monthly rate per home for loan payback	=h/l/12	$17.70	$14.36
n	Estimated monthly rate per home for O&M after project is complete	=(i+j)/l	$24.73	$24.73
o	Estimated monthly loan reserve per home (collect 10% of annual loan payment until 10% loan reserve is achieved)	=h*.10/l/12	$1.77	$1.44
p	Estimated monthly capital reserve per home (collect approximately 0.71% of annual asset depreciation)		$4.22	$4.22
q	New monthly rate of each home after project is complete	=m+n+o+p	$48.42	$44.74
r	Current monthly rate of each home		$30.00	$30.00
s	Estimated rate increase per home to fund project	=q-r	$18.42	$14.74