

8.2.1 Alternative 1 – IDEQ Compliance

\$9,600,000 Total Capital Cost

Alternative 1-IDEQ Compliance addresses deficiencies identified at the Springs Collection System, including replacing the springs transmission main, and several distribution system projects. The project consists of the following components:

- SS-1: Seamans Creek New Springs Collection System.
- TD-1: Seamans Creek Springs Collection Transmission Reconstruction
- TD-2: Highway 75 Watermain Improvements
- TD-3: Leak Detection Project
- LE-1: Seamans Creek Springs Land Purchase and Easements

This project provides the following benefits to the PWS:

- Addresses deficiencies at the Springs Collection System
- Replaces Springs Transmission Main
- Replaces undersized mains along Highway 75
- Identifies high priority leaks in distribution system

Table 8-1: Proposed Project Alternatives

Project ID	Project Description	Project Cost	Alternative 1 IDEQ COMPLIANCE	Alternative 2 CRITICAL INFRASTRUCTURE	ALTERNATIVE 3 ALL PROJECTS
Construction					
SS-1	SS-1 Seamans Creek New Springs Collection System	\$1,160,000	\$1,160,000	\$1,160,000	\$1,160,000
SS-2	New Groundwater Well and Well Facility	\$1,950,000		\$1,950,000	\$1,950,000
SS-3	Generator at Chantrelle Well Facility	\$240,000		\$240,000	\$240,000
SS-4	Generator at Chestnut Well Facility	\$200,000		\$200,000	\$200,000
TD-1	Seamans Creek Springs System Transmission Main	\$6,080,000	\$6,080,000	\$6,080,000	\$6,080,000
TD-2a	Hwy 75 Watermain Improvement Project - Phase 1	\$800,000	\$800,000	\$800,000	\$800,000
TD-2b	Hwy 75 Watermain Improvement Project - Phase 2	\$1,220,000			\$1,220,000
TD-3	Leak Detection Survey	\$500,000	\$500,000	\$500,000	\$500,000
TD-4	Leak Repair Project	\$830,000		\$830,000	\$830,000
TD-5	Undersized Main Replacement	\$3,055,000		\$3,055,000	\$3,055,000
TD-6	Forbis Lane and Melrose Street	\$1,530,000			\$1,530,000
TD-7	Valves and Hydrants	\$800,000			\$800,000
TD-8	Service Meters and Connections	\$995,000			\$995,000
BP-1	Transmission Main to Strahorn Booster Pumping Station	\$720,000		\$720,000	\$720,000
CC-1	Communications and Control Equipment	\$750,000			\$750,000
LE-1	Land Acquisition	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
AM-1	Lead Line Inventory	\$55,000		\$55,000	\$55,000
AM-2	Asset Management Plan	\$100,000			\$100,000
Phase Total (Rounded to \$1000)			\$9,540,000	\$16,590,000	\$21,985,000
Admin/Legal and CWIP					
Legal Fees—Local Attorney			\$40,000	\$45,000	\$75,000
AIS, Davis-Bacon Monitoring and Compliance			\$20,000	\$25,000	\$50,000
Total, Admin/Legal and Interest			\$60,000	\$70,000	\$125,000
Total Projected Expenditures			\$9,600,000	\$16,660,000	\$22,110,000

Table 8-4: Forecasted User Rates

Description	Alternative 1 IDEQ COMPLIANCE	Alternative 2 CRITICAL INFRASTRUCTURE	ALTERNATIVE 3 Remaining Projects
Timeframe	2024 - 2026	2026 - 2033	2033 - 2043
Total Projected Expenditures ³	\$9,600,000	\$7,060,000	\$5,450,000
Forecasted EDU	1125	1528	1930
Grant/Loan ²	34%/66%	34%/66%	34%/66%
Loan ³	\$6,336,000	\$4,659,600	\$3,597,000
Annual Payment ^{1, 3}	(\$406,436)	(\$298,900)	(\$230,737)
		(\$406,436)	(\$406,436)
			(\$298,900)
Short Lived Asset Annual Cost ³	(\$9,000)	(\$16,000)	(\$21,000)
Debt Monthly Rate Impact per EDU ³	(\$30.77)	(\$39.34)	(\$41.32)
Capital Reserve per EDU ³	(\$5.00)	(\$5.00)	(\$5.00)
Subtotal per EDU ³	(\$35.77)	(\$44.34)	(\$46.32)
Current Rate per EDU ³	(\$33.70)	(\$33.70)	(\$33.70)
Total Rate per EDU ³	(\$69.47)	(\$78.04)	(\$80.02)

Notes:

1. Loan conditions are 20 years at 2.5% annual interest.
2. Funding package includes 34% grant and 66% loan.
3. All costs and rates are in 2023 dollars.

7.1.1 SS-1: Seamans Creek New Springs Collection System

Engineer's Opinion of Probable Cost: \$1,160,000

This project includes the construction of a new spring collection system. The new collection system would be placed within the same drainage, upstream from the current system. The new spring collection system would consist of buried perforated pipe and connected into a new transmission line (**Section 7.3.1**). The project would also include the construction of a new diversion structure and correcting identified deficiencies in the existing spring system. The diversion structure would be installed at the point where the springs tie together and would consist of a knife gate and overflow structure. The proposed chlorination system would include a flow paced chemical feed pump that ties into the system after the altitude valve, with a mixer in the storage reservoir to ensure adequate contact time for chlorination. Additionally, this project includes the reconstruction of the Lower Springs System, as well as, the demolition of all observation ports, weir boxes, etc. on the Upper Springs System.

Cost of land and easements are broken out separately in LE-1 (**Section 7.5.1**). The cost of replacing the Seaman Creek Springs Transmission Line is included in TD-1 (**Section 7.3.1**).

Alternative Recommendation

Major components of this alternative include the following:

- Construction of spring collection system, approximately 15 feet in depth
- Install 12-inch perforated pipe in an approximate 36-inch bed of drain rock
- Wrap drain rock with nonwoven geotextile.
- Connect groundwater collection to new transmission main.
- Install chlorination and mixing in existing water storage reservoir.
- Maintain dewatering of excavation in portions during construction.
- Reconstruct the Lower Springs at a greater depth
- Replace remaining CMP pipe connecting the Upper Springs System to the rest of the springs.

The location of the new springs collection system is shown in **Figure 7-1**.

A summary of the benefits and constraints associated with this alternative are summarized in **Table 7-2** below.

Table 7-2: SS-1 Benefits and Limitations

Benefits	Limitations
<ul style="list-style-type: none">• Improve Springs Collection System capacity• Reduce possibility of contamination• Increase available water supply• Elimination of aging collection system	<ul style="list-style-type: none">• Unknown groundwater and soil conditions• Risk of turbid groundwater due to soil type• Site disruption during construction

PROJECT : City of Bellevue - Water Facility Plan



LOCATION FACTOR: 1

JOB # : 287.0020

DATE : 10/19/2023

LOCATION : Bellevue, Idaho

BY : EM

ELEMENT : **SS-1** Seamans Creek New Springs Collection System

REVIEWED BY: MGW

SPEC. NO.	DESCRIPTION	QUAN	UNIT	MATERIAL	LABOR	SUB	EQUIP	UNIT COST	SUBTOTAL	TOTAL
	Spring Collection Piping (12-inch Perforated Pipe)	600	FT	\$75.00	\$65.00	\$ -	\$65.00	\$205.00	\$123,000	
	12" Distribution Main - DR18 C900 PVC	2400	FT	\$67.00	\$41.00	\$ -	\$31.00	\$139.00	\$333,600	
	Isolation Valves - Size 12"	6	EA	\$5,000.00	\$2,000.00	\$ -	\$1,000.00	\$8,000.00	\$48,000	
	Connect to Existing	1	EA	\$11,300.00	\$6,600.00	\$ -	\$5,000.00	\$22,900.00	\$22,900	
	Flowmeter	1	LS	\$12,500.00	\$5,500.00	\$ -	\$3,000.00	\$21,000.00	\$21,000	
	Abandonment of Existing	1	LS	\$25,000.00	\$40,000.00	\$ -	\$10,000.00	\$75,000.00	\$75,000	
	Overflow Structure	1	LS	\$25,000.00	\$40,000.00	\$ -	\$10,000.00	\$75,000.00	\$75,000	
	Subtotal Unit Cost									\$698,500
									Mobilization and Demobilization (7.5%)	\$52,000
									Contingency (25%)	\$175,000
									Estimated Construction Subtotal	\$925,500
									Total Engineering	\$231,000
									Basic Services (15%)	\$139,000
									Construction Observation (5%)	\$46,000
									Additional Services (5%)	\$46,000
									Estimated Total Project Cost	\$1,160,000

The cost estimate herein is based on our perception of current conditions at the project location. This estimate reflects our professional opinion of accurate costs at this time and is subject to change as the project design matures. Mountain Waterworks has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Mountain Waterworks cannot and does not warrant or guarantee that bids or actual construction costs will not vary from the costs presented herein.

7.3.1 TD-1: Seamans Creek Springs Collection Transmission Reconstruction

Engineer's Opinion of Probable Cost: \$6,080,000

This project includes the costs of constructing a new water transmission main that will be located within Muldoon Canyon Road. The new transmission main would generally be constructed within the Muldoon Canyon Road right of way with the exception of a section along a private road that would require an easement. The cost of this easement is broken out separately in **Section 7.5**. The pipe alignment and resulting easement is necessary due to the vertical topography of Muldoon Canyon Road, as the transmission main is gravity fed, it must maintain a steadily downhill pipe slope and the existing roadway vertical alignment precludes this. The transmission main will be chlorinated to achieve 4-log virus removal, due to site constraints, chlorination will require an additional easement along Muldoon Canyon Road to house a small building to house chlorination infrastructure. Chlorine calculations can be found in **Appendix J**. To achieve the required contact time, the chlorination building should be sited a minimum of 1,600 feet up the canyon from the new transmission main tie in point. This project will also include a booster station and 2-inch distribution line to provide water to the few services near the springs.

Alternative Recommendation

Major components of this alternative include the following:

- Construction of approximately 16,000 feet of 16-inch HDPE transmission main.
- Abandonment of existing transmission main.
- Installation of combination air valves.
- Chlorination.

Table 7-6: TD-1 Benefits and Limitations

Benefits	Limitations
<ul style="list-style-type: none">• Reduce leaks in system.• Transmission main in a known and accessible location• New transmission main is constructed of a resilient material	<ul style="list-style-type: none">• Completion requires additional easements.

A preliminary alignment of the new Seamans Creek Springs transmission main is shown in **Figure 7-2**.

PROJECT : City of Bellevue - Water Facility Plan



LOCATION FACTOR: 1

JOB # : 287.0020

DATE : 10/19/2023

LOCATION : Bellevue, Idaho

BY : EM

ELEMENT : TD-16" Transmission Main

REVIEWED BY: MGW

SPEC. NO.	DESCRIPTION	QUAN	UNIT	MATERIAL	LABOR	SUB	EQUIP	OTHER	UNIT COST	SUBTOTAL	TOTAL
	16" Transmission Main - DR 11 HDPE	16000	FT	\$ 65.00	\$ 44.00	\$ -	\$ 33.00	\$ -	\$ 142.00	\$ 2,272,000.00	
	2" Water Service - SIDR7 HDPE	12000	FT	\$ 8.00	\$ 7.00	\$ -	\$ 5.00	\$ -	\$ 20.00	\$ 240,000.00	
	Construction Survey	1	LS	\$ -	\$ -	\$25,000.00	\$ -	\$ -	\$ 25,000.00	\$ 25,000.00	
	Traffic Control	1	LS	\$ -	\$ -	\$15,000.00	\$ -	\$ -	\$ 15,000.00	\$ 15,000.00	
	Erosion & Sediment Control	1	LS	\$ -	\$ -	\$15,000.00	\$ -	\$ -	\$ 15,000.00	\$ 15,000.00	
	Dewatering	1	LS	\$ -	\$ -	\$ -	\$ -	\$20,000.00	\$ 20,000.00	\$ 20,000.00	
	Exploratory Excavation	20	HR	\$ -	\$ 350.00	\$ -	\$ 350.00	\$ -	\$ 700.00	\$ 14,000.00	
	Isolation Valves - 16" Butterfly	12	EA	\$ 8,400.00	\$ 1,600.00	\$ -	\$ 1,200.00	\$ -	\$ 11,200.00	\$ 134,400.00	
	Air-Release Valve Stations - 2"	12	EA	\$ 10,400.00	\$ 3,300.00	\$ -	\$ 2,500.00	\$ -	\$ 16,200.00	\$ 194,400.00	
	Connect to Existing Main - Size Varies	2	EA	\$ 11,300.00	\$ 6,600.00	\$ -	\$ 5,000.00	\$ -	\$ 22,900.00	\$ 45,800.00	
	Gravel Surface Restoration - 12' Width	14000	SY	\$ 7.00	\$ 5.00	\$ -	\$ 3.00	\$ -	\$ 15.00	\$ 210,000.00	
	Asphalt Surface Restoration -8' Width	3640	SY	\$ 7.00	\$ 4.00	\$ 54.00	\$ 2.00	\$ -	\$ 67.00	\$ 243,880.00	
	Chlorination	1	LS	\$0.00	\$0.00	\$0.00	\$0.00	\$175,000.00	\$ 175,000.00	\$ 175,000.00	
	Booster Station	1	LS	\$0.00	\$0.00	\$0.00	\$0.00	\$65,000.00	\$ 65,000.00	\$ 65,000.00	
	Subtotal Unit Cost										\$ 3,670,000.00
	Mobilization and Demobilization (7.5%)										\$ 276,000.00
	Contingency (25%)										\$ 918,000.00
	Estimated Construction Subtotal										\$ 4,864,000.00
	Total Engineering										\$ 1,216,000.00
	Basic Services (15%)										\$ 730,000.00
	Construction Observation (5%)										\$ 243,000.00
	Additional Services (5%)										\$ 243,000.00
	Estimated Total Project Cost										\$ 6,080,000.00

The cost estimate herein is based on our perception of current conditions at the project location. This estimate reflects our professional opinion of accurate costs at this time and is subject to change as the project design matures. Mountain Waterworks has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Mountain Waterworks cannot and does not warrant or guarantee that bids or actual construction costs will not vary from the costs presented herein.


7.6.1 LE-1: Seamans Creek Springs Land Purchase and Easements

Engineer's Opinion of Probable Cost: \$1,000,000

The City of Bellevue does not currently own the land nor have a permanent easement for the existing springs collection system. Part of the proposed layout of the New Springs Transmission Main, Project TD-1, is along a private road. This project includes the costs of purchasing a permanent easement from the landowner. This project is to purchase the land of the proposed new springs collection system. In addition, this project would also acquire a permanent easement for the Upper Springs System and the portion of Project TD-1 that runs along a private road. The location of the easements for the Seamans Creek Springs is shown in Figure 7-1. Land appraisals will be required.

Table 7-15: LE-1 Seamans Creek Springs Land Purchase and Easements

Benefits	Limitations
<ul style="list-style-type: none"> Secure, perpetual access to critical water infrastructure 	<ul style="list-style-type: none"> None.

PROJECT : City of Bellevue - Water Facility Plan				LOCATION FACTOR: 1							
JOB # : 287.0020				DATE : 10/19/2023							
LOCATION : Bellevue, Idaho				BY : EM							
ELEMENT : LE-1 Land Acquisition - Springs and Transmission Main				REVIEWED BY : MGW							
SPEC. NO.	DESCRIPTION	QUAN	UNIT	MATERIAL	LABOR	SUB	EQUIP	OTHER	UNIT COST	SUBTOTAL	TOTAL
	Transmission Main Easement	1	LS	\$ -	\$ -	\$ -	\$ -	\$ 150,000.00	\$ 150,000.00	\$ 150,000.00	
	Springs Easement (Upper Springs to Overflow)	1	LS	\$ -	\$ -	\$ -	\$ -	\$ 250,000.00	\$ 250,000.00	\$ 250,000.00	
	Spring Land Acquisition	1	LS	\$ -	\$ -	\$ -	\$ -	\$ 250,000.00	\$ 250,000.00	\$ 250,000.00	
	Chlorination Lot	1	LS	\$ -	\$ -	\$ -	\$ -	\$ 100,000.00	\$ 100,000.00	\$ 100,000.00	
	Survey and Recording	1	EA	\$ -	\$ -	\$ -	\$ -	\$ 50,000.00	\$ 50,000.00	\$ 50,000.00	
	Subtotal Unit Cost										\$ 800,000.00
										Contingency (25%)	
										\$ 200,000.00	
										Estimated Subtotal	
										\$ 1,000,000.00	
										Estimated Total Project Cost	
										\$ 1,000,000.00	
<p><small>The cost estimate herein is based on our perception of current conditions at the project location. This estimate reflects our professional opinion of accurate costs at this time and is subject to change as the project design matures. Mountain Waterworks has no control over variances in the cost of labor, materials, equipment, services provided by others, contractor's methods of determining prices, competitive bidding or market conditions, practices or bidding strategies. Mountain Waterworks cannot and does not warrant or guarantee that bids or actual construction costs will not vary from the costs presented herein.</small></p>											

7.3.2 TD-2: Highway 75 Watermain Improvements

Phase 1 - Engineer's Opinion of Probable Cost: \$800,000

Phase 2 - Engineer's Opinion of Probable Cost: \$1,220,000

This project includes the cost of replacing the watermain along Highway 75 between Spruce Street and Pine Street with 12-inch polyethylene wrapped ductile iron pipe with nitrile gaskets. As this watermain lies within the highway right of way, the pipe diameter was chosen to be oversized to prevent any capacity constraints within the material life of the pipe. This project also includes the replacement of the watermain crossing the highway at Cedar Street and Birch Street. As this distribution main lies within the highway, this project will be phased to line up with timing of Idaho Transportation Department improvements along Highway 75 through town. Phase 1 will occur when the highway is expanded between Birch Street and Spruce Street. The TD-2 alternative is illustrated in **Figure 7-3**. This project assumes that ITD will cover surface restoration, and that the service connections will be up to and not including the meters.

Alternative Recommendations

Major components of Phase 1 of this alternative include the following:

- Replace approximately 1,250 feet of undersized main with 12-inch water main.
- Replace approximately 10 service connections.
- Install 6 gate valves, from 4 inch to 12 inch in size.
- Abandon existing mains in place.
- Connect to existing, 4 connections.

Major components of Phase 2 of this alternative include the following:

- Replace approximately 2,000 feet of undersized main with 12-inch polyethylene wrapped ductile iron water main.
- Replace approximately 20 service connections.
- Install 10 gate valves, from 4 inch to 12 inch in size.
- Abandon existing mains in place.
- Connect to existing, 4 connections.

Table 7-7: TD-2 Benefits and Limitations

Benefits	Limitations
<ul style="list-style-type: none">• Reduce leaks in system• Remove undersized main• Improved hydraulic capacity	<ul style="list-style-type: none">• Completion dependent on Idaho Transportation Department

