

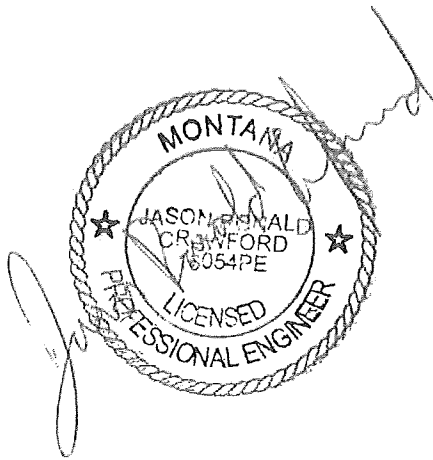
TRIPLE TREE
ENGINEERING



Appendix B

Preliminary Engineering Report 2022 Update

Whitehall Water System PER



August 2022

THE ABOVE HEREBY CERTIFY THAT THIS PRELIMINARY ENGINEERING REPORT WAS PREPARED BY THEM OR UNDER THEIR DIRECT SUPERVISION, AND THAT THEY ARE A DULY REGISTERED PROFESSIONAL ENGINEER(S) IN THE STATE OF MONTANA



Appendix B

0	Executive Summary	1
0.1	Introduction	1
0.2	Additional Alternatives Considered	2
0.3	Selection of an Additional Alternative	3
0.4	Proposed Projects	3
1	Additional System Needs.....	4
1.1	Existing Storage Tank	4
1.2	Existing Treatment System	4
2	Alternatives Considered	5
2.1	Previously Analyzed Alternatives.....	5
2.2	Additional Alternatives	5
2.2.1	Alternative 7- Replace Tank	5
2.2.2	Alternative 8 - IX Treatment Plant at Rec Complex Using Existing Wells	7
3	Selection of an Alternative	11
3.1	Life Cycle Cost Analysis	11
3.2	Non-Monetary Factors.....	11
3.2.1	Public Health and Safety	12
3.2.2	Public Acceptance.....	12
3.2.3	Local Economic Affect.....	12
3.2.4	Environmental Impacts	13
3.2.5	Impacts to Existing Facilities	13
3.2.6	Reliability.....	13
3.2.7	Operational Ease	13
3.3	Comparative Summary	13
4	Proposed Project	14
4.1	Project Schedule	15
4.2	Permit Requirements	15
4.3	Sustainability Considerations	15
4.4	Total Project Cost Estimate	15
4.5	Funding Strategy.....	16
5	Conclusions and Recommendations	18



Appendix A – Tank Inspection

Appendix B – ISO Hydrant Test Results

Appendix C – DEQ AC Pipe Guidance

Appendix D – USDA Environmental Report



0 EXECUTIVE SUMMARY

0.1 Introduction

This 2022 PER Update is intended to make necessary changes to the findings from the earlier 2018 and 2019 Preliminary Engineering Report efforts.

Early in 2017 Whitehall entered into an Administration Order On Consent (AOC) to address their water system uranium maximum contaminant level (MCL) violations. The Town has been in violation since 2015 when they were ordered to begin uranium monitoring. The AOC includes steps to address the violation including preparation of a preliminary engineering report (PER).

In November of 2017 the Town of Whitehall obtained the services of Triple Tree Engineering to complete a Water System PER that we will refer to as the 2018 PER. The 2018 PER was completed in April of 2018 and updated in December of 2018. The PER was updated again in December of 2019. The 2018 PER and subsequent PER Updates document the study, conclusions, and recommendations for the Town's water system facilities. The reports identified the planning area, evaluated the existing condition and operation of the existing facility, identified existing problems within the system, established and prioritized recommended courses of action and funding strategies for water improvements. The study evaluated the needs of the Town and the requirements to meet State and Federal regulations for a 20-year planning period.

The alternatives evaluated in the 2018 PER, 2018 PER Update, and 2019 PER Update were as follows:

2018 PER

- Alternative 1 -No Action
- Alternative 2 – New Surface Water Source
- Alternative 3 – New Ground Water Source
- Alternative 4A – IX Treatment Plant at Rec Complex Using Existing Wells
- Alternative 4B- IX Treatment Plant at Rec Complex Using 1 Existing Well and 1 New Well
- Alternative 4C – IX Treatment Plant in Old Firehall Using Existing Wells

2018 PER Update

- Alternative 4D – IX Treatment Plant at New Town Hall Using Existing Wells
- Alternative 4E- IX Treatment Plat at New Town Hall Using 1 Existing Well and 1 New Well

The recommended alternative for implementation from the above mentioned PER's was Alternative 4D – IX Treatment Plant at New Town Hall Using Existing Wells.

Unfortunately, the Uranium Project was not selected by USDA RD for fiscal year 2019 funding. However, it was projected for the USDA RD fiscal year 2020 cycle. In accordance with the AOC, construction of the Uranium Project was supposed to be complete by August of 2020 but because of the funding delays DEQ granted an extension to November of 2021. Due to changes



with the schedule, the Town decided to pursue additional system needs at the same time. After discussions with USDA RD, it was decided that it would be beneficial for the Town to address these additional system needs all at once to help save on the administrative and bidding costs associated with an infrastructure project. For the additional water system needs to be addressed with the previously identified projects and with USDA RD funds the 2019 PER Update was required. The following two additional alternatives were evaluated with the 2019 PER Update:

2019 PER Update

- Alternative 5 – Recoat Tank, Replace AC Main, and Provide Distribution System Loop Through Alley
- Alternative 6 – Recoat Tank, Replace AC Main, and Provide Distribution System Loop Through School Property

The 2019 PER Update identified the tank lining and improvements to the existing distribution system as the priority items. The recommended alternative for implementation from the 2019 PER Update was Alternative 5 – Recoat Tank, Replace AC Main, and Provide Distribution System Loop Through School Alley.

The Town applied for and has been awarded the following grants for implementation of the project:

- \$125,000 – DNRC RRGL
- \$625,000 - TSEP
- \$450,000 – CDBG
- \$270,000 – WRDA1
- \$200,544 - EPA Wiin
- \$2,000,000 – ARPA Comp.

The Town also applied to USDA RD and SRF for a combination of principle forgiveness and loan as follows:

- \$900,000 – USDA RD Loan
- \$500,000 – SRF A Loan (forgiveness)
- \$500,000 – SRF B Loan

Design of the improvements commenced in 2020. During that process, the condition of the tank continued to deteriorate, and it was discovered that the proposed location of the IX Treatment Facility had an insufficient footprint for the proposed equipment. As a result of the changing situation, new alternatives became necessary.

0.2 Additional Alternatives Considered

Through the design phase spurred by previous PER efforts, shortcomings and insufficiencies have necessitated additional alternatives:

- Alternative 7 – Replace Tank



- Alternative 8 – IX Treatment Plant at Rec Complex Using Existing Wells

0.3 Selection of an Additional Alternative

The recommended preferred alternative from the 2018 PER and 2018 PER Update was **Alternative 4D – IX Treatment Plant at New Town Hall Using Existing Wells**. The recommended preferred additional alternative from the 2019 Update was **Alternative 5- Recoat Tank, Replace AC Main, and Provide Distribution System Loop Through Alley**.

The additional alternatives developed in this PER Update reflect issues that have been identified during the design phase for previously selected alternatives.

Through the design phase of implementation of Alternative 4D, it became apparent that the Town Hall building does not have the room to house an IX Treatment Plant. Additionally, the condition of the existing tank has deteriorated significantly rendering Alternative 5 infeasible.

0.4 Proposed Projects

Alternatives 7 and 8 are both recommended for implementation. Each alternative is necessary to sufficiently address the Town's supply shortcomings.

Alternative 7 calls for the replacement of the existing water tank with a new structure. The 1 MG Type III Water Storage Tank from DN Tanks was selected based on the up-front costs combined with the expected life-cycle costs for the tank maintenance. Other tanks and tank configurations were analyzed but found inferior for this application due to space, longevity/ease of maintenance, or complete life-cycle cost.

Alternative 8 calls for the construction of a new facility to house the IX Treatment Plant and specifies the location as shown in Figure 1, below:

The total cost of the projects is **\$8,364,544** and the funding strategy is as follows:

SRF B Loan -	\$500,000
SRF A Loan Forgiveness -	\$500,000
EPA Wiin Grant -	\$200,544
ARPA Competitive Grant -	\$2,000,000
MCEP -	\$625,000
CDBG -	\$450,000
Renewable Resource Grant -	\$125,000
USACE WRDA 1 -	\$270,000
USACE WRDA 2 -	\$1,440,000
USDA RD Overrun -	\$1,324,000
USDA RD -	\$900,000
Local Contribution -	\$30,000
Total -	\$8,364,544



1 ADDITIONAL SYSTEM NEEDS

1.1 Existing Storage Tank

In September of 2017, the Town contracted Midco Diving to conduct a tank inspection. The inspection included the following findings:

- interior floor coating failure, staining, lifting, corrosion, and pitting
- interior ladder staining and bolt corrosion
- interior walls leaking seam, staining, and bolt corrosion
- support columns coating failure, corrosion, and column base bolt corrosion

The tank inspection report is included in Appendix A.

During the April 2018 PER and December 2018 PER Update the Town was planning to recoat the interior of the tank with their regular O&M budget. With the extents of the Uranium Project, the Town decided to complete the recoating of the interior of the tank at the same time as the Uranium Project. However, the tank degradation has increased and accelerated to render the previously proposed rehabilitation infeasible. As a result, a new tank is now necessary.

1.2 Existing Treatment System

The existing treatment system was found to be in non-compliance with drinking water standards. As a result, Alternative 4D was selected and developed which included a new IX Treatment System in the Town Hall building. During the design phase, Alternative 4D was deemed infeasible due to the required footprint of the IX Treatment System. As a result, a new facility must be constructed to house the proposed treatment system.



2 ALTERNATIVES CONSIDERED

2.1 Previously Analyzed Alternatives

The alternatives analyzed in the April 2018 PER, the December 2018 PER Update, and 2019 PER Update are as follows:

2018 PER

- Alternative 1 -No Action
- Alternative 2 – New Surface Water Source
- Alternative 3 – New Ground Water Source
- Alternative 4A – IX Treatment Plant at Rec Complex Using Existing Wells
- Alternative 4B- IX Treatment Plant at Rec Complex Using 1 Existing Well and 1 New Well
- Alternative 4C – IX Treatment Plant in Old Firehall Using Existing Wells

2018 PER Update

- **Alternative 4D – IX Treatment Plant at New Town Hall Using Existing Wells**
- Alternative 4E- IX Treatment Plat at New Town Hall Using 1 Existing Well and 1 New Well

2019 PER Update

- **Alternative 5 – Recoat Tank, Replace AC Main, and Provide Distribution System Loop Through Alley**
- Alternative 6 – Recoat Tank, Replace AC Main, and Provide Distribution System Loop Through School Property

2.2 Additional Alternatives

The following additional alternatives are intended to replace the previously selected Alternative 4D and 5.

2.2.1 *Alternative 7- Replace Tank*

Description

This alternative is designed to supplement Alternative 5 from the 2019 PER Update. Due to changing circumstances, Alternative 5's tank coating treatment is no longer viable, and the existing tank is no longer salvageable. The distribution system improvements included within Alternative 5 are still viable and necessary.

Previous planning efforts showed that a pre-stressed concrete tank would be the best tank alternative based on the up-front cost, life-cycle cost analysis, and maintenance requirements. The proposed tank would be situated on the Town's property near the existing tank.

Design Criteria

The following design criteria would apply:

1. MT DEQ Circular 1 – Standards for Water Works



The following projected water demands will be used as the basis for design:

- Average Day Demand 150 gpm (215,801 gpd)
- Peak Day Demand 763 gpm (665,864 gpd)

Environmental Impacts

General environmental considerations including a Uniform Environmental Checklist and Environmental Review Form were discussed in depth in the previous PER. Various state and federal environmental agencies were contacted and asked to comment on the project. All correspondence to and from those agencies was included in the 2018 PER. The environmental information presented in the 2018 PER has not been repeated in this update.

A new USDA RD Environmental Report (ER) was prepared to include the new tank and new treatment facility. The new USDA ER is included in Appendix D.

Adverse environmental impacts are not expected with the implementation of this additional alternative. All the work is expected to take place in areas that have been previously disturbed. There are no known previously undisturbed areas, wetlands, floodplains, endangered species, historical or archaeological properties, or other areas of environmental concern in the project area.

Land Requirements

The Town owns the land the water tank is to be located on. The town is coordinating with the neighboring property owner who is willing to provide additional land if necessary. There is no known land acquisition or permitting requirements. A site title opinion from the Town's attorney will be required prior to moving the project forward.

Potential Construction Problems

There are no anticipated construction problems that cannot be addressed.

The primary concern will be the interruption of service when the new tank is connected to the water lines. The project will be phased such that the interruption is minimal, and the public is aware of the outage.

Sustainability Considerations

To the extent practical, the final design will include provisions to minimize water waste and energy consumption. Both are in the financial interests of the Town of Whitehall and good engineering practice entails their consideration.

Cost Estimates

The cost estimate is included in the following table. We do not anticipate additional O&M costs associated with this additional alternative. Costs were based on estimates received from the tank supplier.



Table 1 – Alternative 7 – Replace Tank

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
TANK, MIXER, CONTROLS	LS	1	\$1,220,000	\$1,220,000
SITE GRADING & SECURITY FENCING	LS	1	\$103,500	\$103,500
ALTERNATE 8 CONSTRUCTION COST				\$1,323,500
CONTINGENCY				\$397,050
TOTAL CONSTRUCTION COST				\$1,720,550
ENGINEERING AND ADMINISTRATION				\$304,700
TOTAL COST				\$2,025,250

2.2.2 Alternative 8 – IX Treatment Plant at Rec Complex Using Existing Wells

Description

This alternative is designed to replace Alternative 4D from the 2018 PER Update. The space allocated for the treatment facility within the Town Hall was not sufficient to house the required treatment technologies.

This alternative has been investigated previously. Specifically, Alternatives 4A and 4B from the 2018 PER investigated the potential of placing a new treatment facility on one of the Town's baseball fields. This alternative reevaluates Alternative 4A that was previously considered.

Design Criteria

The following design criteria would apply:

1. MT DEQ Circular 1 – Standards for Water Works

The following projected water demands will be used as the basis for design:

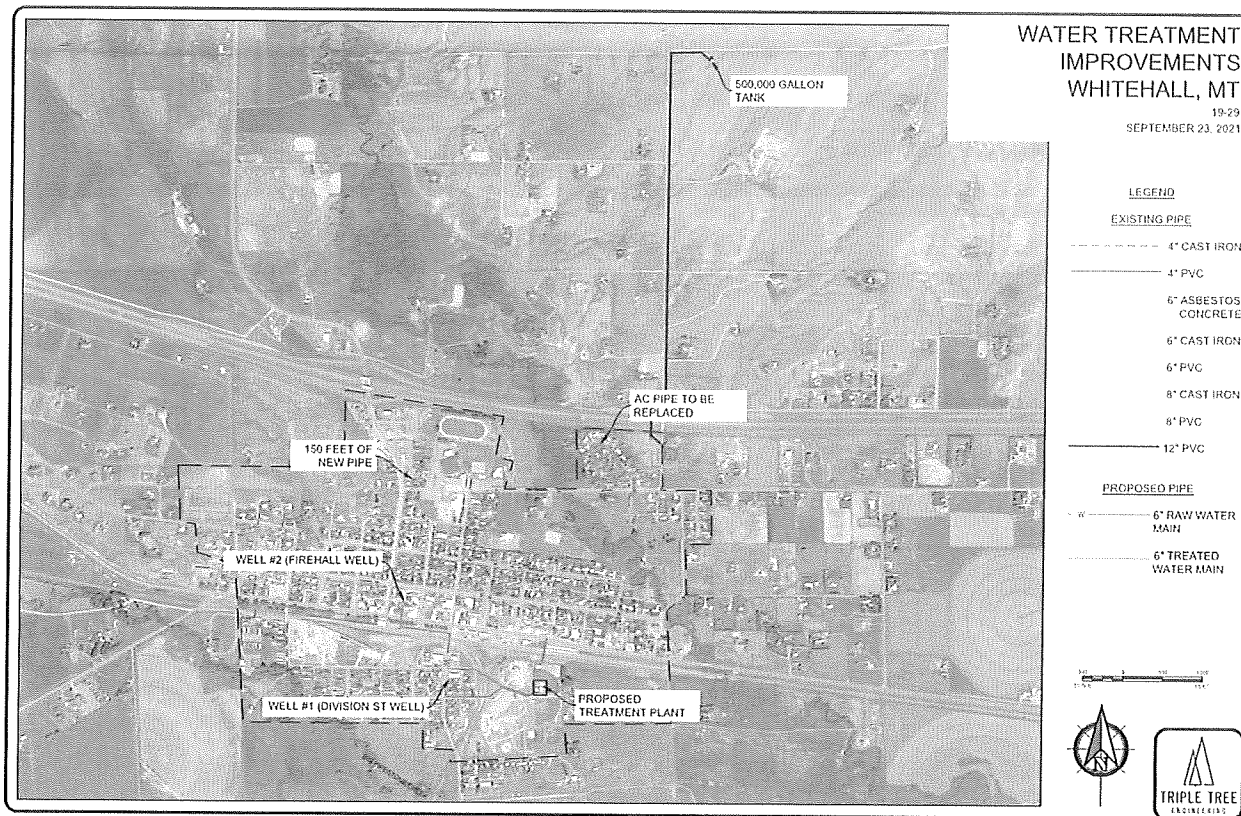
- Average Day Demand 150 gpm (215,801 gpd)
- Peak Day Demand 763 gpm (665,864 gpd)

Map

Following is a schematic of this additional alternative.



Figure 1 – Alternative 8 – IX Treatment Plant at Rec Complex Using Existing Wells



Environmental Impacts

General environmental considerations including a Uniform Environmental Checklist and Environmental Review Form were discussed in depth in the 2018 PER. Various state and federal environmental agencies were contacted and asked to comment on the project. All correspondence to and from those agencies was included in the 2018 PER. The environmental information presented in the 2018 PER has not been repeated in this update.

A new USDA RD Environmental Report (ER) was prepared to include the new tank and new treatment facility. The new USDA ER is included in Appendix D.

Adverse environmental impacts are not expected with the implementation of this additional alternative. All the work is expected to take place in areas that have been previously disturbed. There are no known previously undisturbed areas, wetlands, floodplains, endangered species, historical or archaeological properties, or other areas of environmental concern in the project area.

Land Requirements

The town owns the land where the treatment facility is proposed to be constructed. The land necessary to connect the treatment facility into the distribution system is largely owned by the Town as well. However, there will be minor land acquisition requirements to dedicate an easement or right-of-way to the Town allowing access to install and maintain the pipeline. A site title opinion from the Town's attorney will be required prior to moving the project forward.



Potential Construction Problems

There are no anticipated construction problems that cannot be addressed.

The primary concern will be the interruption of service when the new treatment system is connected to the water lines. The project will be phased such that the interruption is minimal, and the public is aware of the outage.

Sustainability Considerations

To the extent practical, the final design will include provisions to minimize water waste and energy consumption. Both are in the financial interests of the Town of Whitehall and good engineering practice entails their consideration.

Cost Estimates

The cost estimate including contingency, and engineering is included in the following table. Additional O&M will be required for this new facility including additional personnel time, residual disposal every four years, process chemicals, and energy. Unit costs were based on bid tabs for similar projects and/or from equipment suppliers.



Table 1 – Alternative 8 – IX Treatment Plant at Rec Complex Using Existing Wells

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
GENERAL REQUIREMENTS (8% MOBILIZATION, BOND, INSURANCE)	LS	1	\$85,000	\$85,000
TRAFFIC CONTROL	LS	1	\$15,000	\$15,000
REFURBISH WELLS	EA	2	\$30,000	\$60,000
NEW PUMPS	EA	2	\$15,000	\$30,000
12" PVC	LF	1400	\$60	\$84,000
12" VALVES	EA	4	\$2,500	\$10,000
12" JACK AND BORE	LF	150	\$120	\$18,000
6" PVC	LF	1600	\$55	\$88,000
6" VALVES	EA	4	\$1,500	\$6,000
6" JACK AND BORE	LF	200	\$80	\$16,000
ASPHALT PATCH	SF	4720	\$10	\$47,200
IX SYSTEM AND PUMPS	LS	1	\$347,000	\$347,000
BUILDING REMODEL	LS	1	\$50,000	\$50,000
PIPING	LS	1	\$17,000	\$17,000
PLANT SERVICES AND UTILITIES	LS	1	\$35,000	\$35,000
ELECTRICAL	LS	1	\$69,000	\$69,000
INSTRUMENTATION	LS	1	\$35,000	\$35,000
STRUCTURAL SUPPORT	LS	1	\$42,000	\$42,000
STARTUP AND COMMISIONING	LS	1	\$38,000	\$38,000
SPARES	LS	1	\$23,000	\$23,000
NEW BUILDING	LS	1	\$3,125,710	\$3,125,710
ALTERNATE 8 CONSTRUCTION COST				\$4,240,910
CONTINGENCY				\$969,353
TOTAL CONSTRUCTION COST				\$5,210,263
ENGINEERING AND ADMINISTRATION				\$848,182
TOTAL COST				\$6,058,445



3 SELECTION OF AN ALTERNATIVE

The proposed alternatives were selected based on previous analysis combined with changes based on real-world findings from the early design stages of the previously selected alternatives. Following is a summary of several criterion which help determine a preferred alternative. This PER also reflects findings from the preliminary design of the earlier selected alternatives.

3.1 Life Cycle Cost Analysis

The cost-effectiveness of an alternative, which is determined from the monetary present-worth analysis, is considered the single most important comparison parameter. Typically, an economic comparison of alternatives would include estimated capital cost expenditures and annual O&M costs. However, treating Uranium is high no matter the treatment option. Life cycle cost analysis in previous PERs showed that IX Treatment is the best option. The primary consideration is the placement of the treatment facility. The other available locations have been declared insufficient or not feasible. Additionally, the evaluated O&M costs are similar for each location. For those reasons, the additional O&M costs are excluded from the analysis shown here.

The cost estimates presented, and any resulting conclusions on project financial or economic feasibility or funding requirements, have been prepared for guidance in project evaluation and implementation from the information available at the time of the estimate. The final costs of the project and resulting feasibility will depend on actual site conditions, final project scope, and other variable factors. As a result, the final project costs will vary from the estimates presented herein. Because of these factors, project feasibility, benefit/cost ratios, risk, and funding needs must be carefully reviewed prior to making specific financial decisions or reestablishing project budgets to help ensure proper project evaluation and adequate funding.

The following table provides a summary of the costs of the additional alternatives developed in this 2022 PER Update.

Table 2 – Additional Alternatives Cost Analysis

	Cost
Alternative 7 – Replace Tank	\$2,025,250
Alternative 8 – IX Treatment Plant at Rec Complex Using Existing Wells	\$6,058,445

3.2 Non-Monetary Factors

The additional alternatives presented in this study must also be acceptable in a variety of non-monetary ways. To be an acceptable alternative, the proposed solutions must meet all of the following criteria:



- Public Health and Safety – Will the additional alternative protect and enhance the health and safety of the Town’s residents?
- Public Acceptance - Will the additional alternative meet the needs of the residents, and will the residents be receptive to the additional alternative?
- Local Economic Affect – What affect does the additional alternative have in terms of keeping money in the local economy through local capital purchase, construction spending, and/or employment of local citizens?
- Environmental Impacts – What affect does the additional alternative have in terms of adverse impact to the environment?
- Impacts to Existing Facilities – Will the additional alternative impact existing Town of Whitehall facilities or the property and facilities of the residents?
- Reliability – Will the additional alternative be reliable both now and in the long term with respect to future potential requirements?
- Operational Ease - Will the additional alternative be easy to operate and maintain in relation to the existing facility?

Each additional alternative is evaluated below within the framework of these criteria.

3.2.1 Public Health and Safety

Both the tank and the new treatment facility are essential for the health and safety of the public. The deteriorating condition of the existing tank poses a risk to both the supply quantity and quality. The construction of a new treatment facility will increase the quality of the Town’s water supply to make sure it follows all DEQ standards for drinking water. A new storage tank will provide the volume required to supply the Town as well as protect the Town from fire by providing adequate fire flow. Additionally, the new tank will protect the quality of the treated water.

3.2.2 Public Acceptance

The public has concerns about any of the additional alternatives but generally understand the needs, the timing of the additional improvements, and the savings associated with incorporating either of these additional alternatives into the overall project. Whitehall is an already highly impoverished community now facing large increases in their utilities to pay for the project to address the uranium problems including the future O&M requirements. It appears that there are no state and federal funds available to help with the large O&M costs. However, the Town recognizes the investment in their infrastructure is critical to their health and long-term economic outlook as well.

3.2.3 Local Economic Affect

The proposed additional alternatives will improve the supply and quantity of the water source as well as help provide the required fire flow volumes. The improvements to the system for this area could broaden the types of businesses that could locate to the area increasing tax revenues for the town. However, the expected increase in rates will likely have a negative impact on the



local economy. The Town has prioritized securing funding for this project to help offset the total cost of the project.

3.2.4 Environmental Impacts

Both additional alternatives will have minimal short-term impacts to the environment. The impacts will likely include dust and noise from construction, soil disturbance, and additional stormwater runoff. All these impacts can be managed to decrease their impact to the environment and the community. A new USDA RD Environmental Report (ER) was prepared to include the new tank and new treatment facility. The new USDA ER is included in Appendix D.

3.2.5 Impacts to Existing Facilities

Both additional alternatives will have positive impacts on the existing Town of Whitehall facilities including increased storage volume, better water quality, and enhanced fire protection ability.

3.2.6 Reliability

Both additional alternatives are considered reliable. Each alternative is designed to modern standards using the current best practices for design.

3.2.7 Operational Ease

The tank will not introduce any additional training or management challenges for the Town. The IX Treatment Facility will require some training for the Town's operators. However, the Town's operators have been working to get up to speed on the technology and treatment process. The learning curve should not pose a long-term additional challenge for the Town.

3.3 Comparative Summary

Each of the additional alternatives will have a net positive impact to the community and the environment. The benefits of the improvements firmly outweigh the challenges posed by the additional alternatives. As a result, both additional alternatives are recommended for implementation.



4 PROPOSED PROJECT

Alternative 7 – Replace Tank

A new 1 MG pre-stressed concrete tank would be installed adjacent to the existing water tank. The existing tank would be removed after the installation of the new tank is complete and the service has been connected into the new tank.

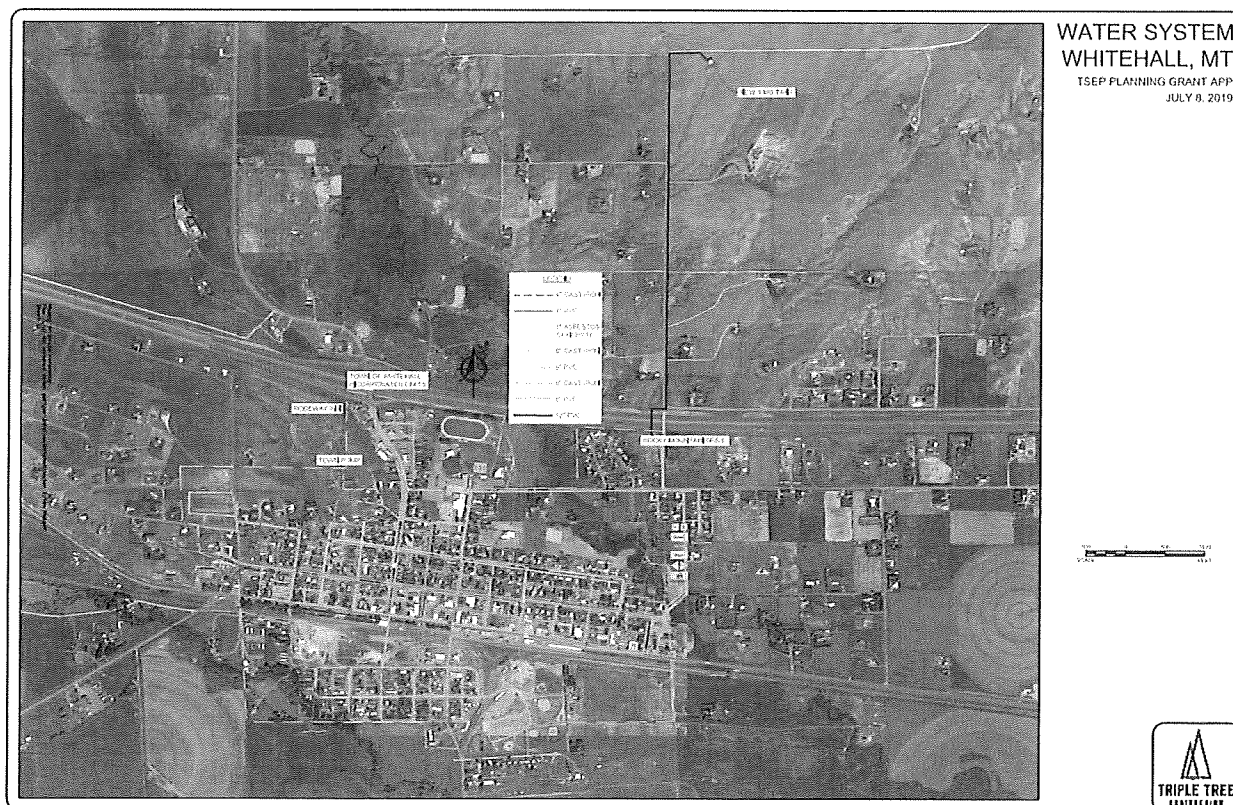
Alternative 8 – IX Treatment Plant at Rec Complex Using Existing Wells

In addition, a new IX Treatment Facility will be constructed on one of the Town's baseball fields. The IX Treatment Facility will be fed via approximately 4,080 LF of 6" buried PVC water main. The Treatment Facility will return treated water to the system through 1,690 LF of 6" buried PVC water main.

Any disturbed surfaces will be restored to pre-project conditions.

Following is a schematic of the proposed project.

Figure 2 – Proposed Project - Additional Alternative 7 & 8 – Replace Tank and IX Treatment Plant at Rec Complex Using Existing Wells



The following projected water demands will be used as the basis for design:

- Average Day Demand 150 gpm (215,801 gpd)
- Peak Day Demand 763 gpm (665,864 gpd)



The design would include a tank size and pressure analysis as well as structural design of the tank itself. The design would also include the IX Treatment process as well as the design of the facility. The new water mains would require an alignment, plan, and profile of the proposed water mains. The design and plans sheets would include the locations of any existing utilities in the corridor including the existing watermain, the existing fire hydrants, and auxiliary valves. The location of the known curb stops serviced by the existing watermain would also be included in the design. All other existing conditions affecting the project would be included i.e surfacing, landscaping, signs, striping, trees, structures, roads, driveways, etc. The watermain would be designed to avoid freezing, meet separation requirements from sanitary and storm water mains, and would include valves at regular intervals to allow for proper system isolation and necessary air relief.

4.1 Project Schedule

30% Design – Complete by 1/26/2022

60% Design – Complete by 10/6/2022

95% Design – Complete by 12/28/2022

Bid Period – 1/5/2023 through 5/10/2023

Construction Starts – 5/11/2023

Construction Ends – 9/11/2024

4.2 Permit Requirements

The project design will be submitted and approved by DEQ. The DEQ will require record drawings to be submitted once the project is completed.

The following design and permitting criteria would apply:

1. MT DEQ Circular 1 – Standards for Water Works

The following projected water demands will be used as the basis for design:

- Average Day Demand 150 gpm (215,801 gpd)
- Peak Day Demand 763 gpm (665,864 gpd)

Prior to construction and if necessary, the contractor will obtain a Storm Water Pollution Prevention Plan (SWPPP) permit to meet storm water requirements.

4.3 Sustainability Considerations

To the extent practical, the final design will include provisions to minimize water waste and energy consumption. Both are in the financial interests of the Town of Whitehall and good engineering practice entails their consideration.

4.4 Total Project Cost Estimate

Costs for each additional alternative were developed previously. The construction cost estimate including contingency and engineering is included in the following table. Additional O&M is

Water System 2022 PER - Update
Town of Whitehall



not expected. Unit costs were based on bid tabs for similar projects and/or from equipment suppliers. An average of the Turner Building Cost Index over the last 4 years was calculated at 4.7% and was used to project the construction costs in 2022.

Table 3 – Proposed Additional Alternatives Cost Estimate

ITEM	UNIT	QUANTITY	UNIT COST	TOTAL
ALTERNATIVE 7	LS	1	\$2,025,250	\$2,025,250
ALTERNATIVE 8	LS	1	\$6,058,445	\$6,058,445
DISTRIBUTION SYSTEM IMPROVEMENTS	LS	1	\$280,849	\$280,849
TOTAL PROJECT COST				\$8,364,544

4.5 Funding Strategy

The following table summarizes the funding strategy and total project costs from the 2018 PER, 2018 PER Update, 2019 PER Update, and this 2022 PER Update.



Table 8 - Total Project Funding Strategy
WHITEHALL WATER TREATMENT PLANT IMPROVEMENTS

Project Budget Last Update: 8/18/2022

COMMITTED FUNDS													
	SRF B LOAN Cid Svils	SRF A LOAN FORGIVENESS (Feed) Cid Svils	EPA WIIIN GRANT - Sonja Hoeglund	ARPA - COMPETITIVE GRANT Michelle McNamee	Montana Coal Endowment Program Matt Blank	COBG Matt Blank	Renewable Resource Grant - David Larson	USACE WRDAL - David Lagrone	USACE WRDA2 - David Lagrone	USDA RD Overrun - Laura Sattler	USDA RD - Laura Sattler	Local Contribution	Total
Personnel Costs					\$1,000								\$1,000
Office Costs					\$1,000			\$30,000					\$1,000
WRDA Grant Admin completed by WRDA													\$30,000
Grant and Loan Admin				\$25,000		\$15,000		\$10,000		\$15,000			\$65,000
Legal Costs										\$3,500			\$3,500
Interim Interest										\$25,000			\$40,000
Audit Fees	\$12,000											\$3,000	\$15,000
Travel & Training	\$20,000				\$500					\$5,000	\$20,000		\$45,000
Bond Costs	\$16,307									\$25,000			\$41,307
Loan Reserves										\$55,000			\$55,000
TOTAL ADMINISTRATION	\$48,307	\$0	\$0	\$25,000	\$2,500	\$15,000	\$0	\$30,000	\$10,000	\$55,000	\$33,500	\$3,000	\$242,307
Preliminary Engineering Engineering Design			\$200,544		\$87,873		\$125,000	\$110,308	\$764,700			\$5,000	\$5,000
Construction Engineering Services				\$207,955		\$100,000		\$44,295					\$352,250
Construction	\$210,770	\$259,077		\$1,767,015	\$534,627	\$335,000		\$78,352	\$1,165,300	\$526,608	\$320,451		\$5,397,228
Contingency	\$240,323	\$240,923						\$7,045		\$742,394	\$326,079		\$1,557,334
TOTAL ACTIVITY	\$451,693	\$500,000	\$200,544	\$1,975,000	\$622,500	\$435,000	\$125,000	\$240,000	\$1,430,000	\$1,269,000	\$846,500	\$27,000	\$8,121,237
TOTAL PROJECT BUDGET	\$500,000	\$500,000	\$200,544	\$2,000,000	\$625,000	\$450,000	\$125,000	\$270,000	\$1,440,000	\$1,324,000	\$900,000	\$30,000	\$8,364,544



5 CONCLUSIONS AND RECOMMENDATIONS

Early in 2017 Whitehall entered into an Administration Order On Consent (AOC) to address their water system uranium maximum contaminant level (MCL) violations. The Town has been in violation since 2015 when they were ordered to begin uranium monitoring. The AOC includes steps to address the violation including preparation of a preliminary engineering report (PER).

In November of 2017 the Town of Whitehall obtained the services of Triple Tree Engineering to complete a Water System PER that we will refer to as the 2018 PER. The 2018 PER was completed in April of 2018 and updated in December of 2018.

Unfortunately, the selected alternative (the Uranium Project) was not selected for funding in 2019. It was projected for funding in the 2020 cycle. As a result of the funding cycle, the project was delayed. However, the delay made it feasible for the Town to pursue additional system needs concurrently. Expanding the project would allow the Town to save on administrative and bidding costs associated with the proposed infrastructure investment. The expansion of the project required the PER be updated again in 2019.

Finally, design of the improvements commenced in 2020. During that process, the condition of the tank continued to deteriorate, and it was discovered that the proposed location of the IX Treatment Facility had an insufficient footprint for the proposed equipment. As a result of the changing situation, new alternatives became necessary.

Once more the PER required an update, resulting in this 2022 document. The 2022 PER introduced Alternatives 7 and 8 for consideration.

Alternative 7 calls for the replacement of the existing water tank with a new structure. The 1 MG Type III Water Storage Tank from DN Tanks was selected based on the up-front costs combined with the expected life-cycle costs for the tank maintenance. Other tanks and tank configurations were analyzed but found inferior for this application due to space, longevity/ease of maintenance, or complete life-cycle cost.

Alternative 8 calls for the construction of a new facility to house the IX Treatment Plant.

Alternatives 7 and 8 are supplements to the previously selected Alternative 5 and replace portions of that Alternative. The portions of Alternative 5 from the 2019 PER relating to the distribution system improvements are still viable and necessary for the Town. All three alternatives are recommended for implementation. Each alternative is necessary to sufficiently address the Town's supply shortcomings.

