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WATER PRELIMINARY ENGINEERING REPORT

SACO – APRIL 22, 2026



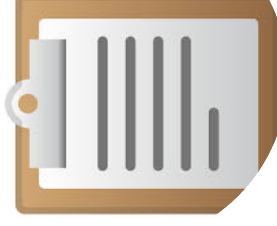
Matthew Mudd, PE
Lynn Stutzman, PE



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WHY ARE WE HERE & OUTLINE

- » Town Identified Water System Needs
- » Planning Grants Obtained
- » Explain the PER Process
- » List Water Problems
- » Go Over Alternatives To Fix
- » Summarize Environmental Assessment (EA) Potential Impacts
- » Go over Funding and Potential Rate Impacts
- » Take Public Comment



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EVALUATION OF EXISTING WATER SYSTEM POPULATION

Town of Saco			Phillips County		
Year	Population	Total Period Growth	Population	Total Period Growth	
(1) 1990	263	--	5,163	--	--
(1) 2000	224	-14.83%	4,601	-10.89%	-10.89%
(1) 2010	197	-12.06%	4,253	-7.56%	-7.56%
(1) 2020	159	-19.29%	4,217	-0.85%	-0.85%
(2) 2021	159	0.00%	4,228	0.26%	0.26%
(2) 2022	160	0.63%	4,240	0.28%	0.28%
(2) 2023	161	0.63%	4,224	-0.38%	-0.38%
(2) 2024	161	0.00%	4,214	-0.24%	-0.24%
Average		-6.42%		-2.77%	

Notes
(1) Sourced from U.S. Census Bureau QuickFacts
(2) Sourced from U.S. Census Bureau - Population Estimates Program

Population Projections			
Year	0.5% Annual Growth	1% Annual Growth	
2024	161	161	161
2026	163		164
2031	167		173
2036	171		181
2041	175		191
*2046	180		200

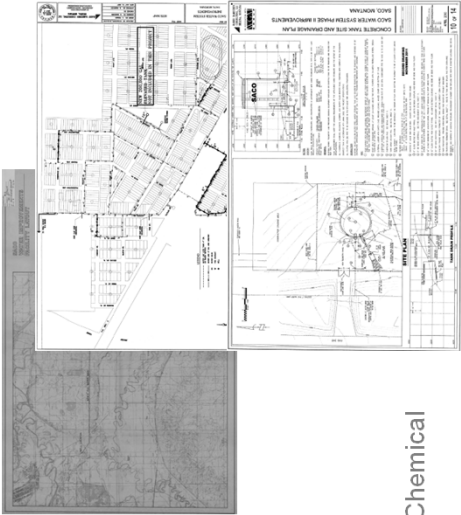
*Design year



EVALUATION OF EXISTING WATER SYSTEM

- » Evaluation Methods
 - » Site Visits/Investigations
 - » Hydrant Testing
 - » Historical Information, As Built
 - » Past PER and Design Information
 - » Operations and Town Feedback

- » History (General)
 - » Most of current system built in 1950s
 - » 1984 Groundwater Supply Well #1
 - » 2008 Groundwater Well #3 and Well House with Chemical Systems
 - » 2011 New Tank and Transmission Main



EVALUATION OF EXISTING WATER SYSTEM – SOURCE

- » Water Supply and Treatment
 - » Well supply
 - » Chlorine and Polyphosphate Injection
 - » No reported quantity issues
 - » 200 gpm - 20 HP well pumps



EXISTING WATER SUPPLY – DEMANDS/USAGE

Table 3.2. Total Source Water Average Monthly Flows¹

Month	Per Capita Water Use Based on Source Flows	
	Average Source Flow/month (gallons per day) ^{1/2}	Average Per Capita Use (gpcd) ²
January	20,776	127
February	18,851	116
March	20,422	125
April	25,538	157
May	38,783	238
June	51,076	313
July	67,721	415
August	65,756	403
September	49,656	305
October	26,877	165
November	20,341	125
December	21,128	130
Average	35,578	218
Notes: (1) Based on 2023 - 2025 monthly source flow data. (2) Based on the existing service population of 163.		

Table 3.3. Metered Water Usage

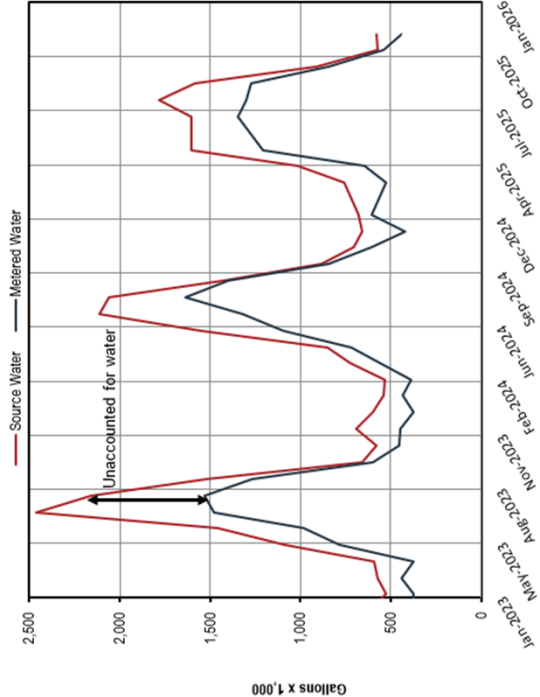
Month	Per Capita Water Use Based on Metered Flows	
	Average Metered Flow/month (gallons per day) ^{1/2}	Average Per Capita Use (gpcd) ²
January	14,842	91
February	16,497	101
March	14,603	91
April	17,273	106
May	29,651	182
June	45,364	278
July	46,401	279
August	48,967	300
September	43,101	264
October	25,031	154
November	17,442	107
December	14,349	88
Average	27,726	170
Notes: (1) Based on 2023-2025 monthly metered flow data. (2) Based on service population of 163.		



- Water Supply/Meter Records: 2023 – 2025
- Average Annual Daily Demand = 36,000 gpd
- Daily recorded
- 15-40% water loss

EXISTING WATER SUPPLY – DEMANDS/USAGE

Figure 3-3 – Source Water vs. Metered Water from 2023-2025



PROJECTED WATER SUPPLY – DEMANDS/USAGE

Table 3-4. Projected Water Demands

Year	Estimated Service Population	Average Day Use (gpd) ⁽¹⁾	Average Day Use (gpm)	Maximum Day Use (gpd) ⁽²⁾	Maximum Day Use (gpm)
2024	161	30,107	21	116,561	81
2026	163	30,481	21	118,009	82
2031	167	31,229	22	120,905	84
2036	171	31,977	22	123,801	86
2041	175	32,725	23	126,697	88
*2046	180	33,660	23	130,317	90

(1) Based on the metered water average day demand with a 10% conservative increase: 187 gpd
(2) Based on max. day to average day factor of 3.87
(3) 2046 Design population is based on 0.3% growth



EVALUATION OF EXISTING WATER SYSTEM – TRANSMISSION & DISTRIBUTION

- Over 14.4 miles of pipe total
- 10.8 miles is transmission
- Over 14,000 feet of existing AC mains
 - Subject to breaking down
- 3 Surge Vaults
- Does not meet recommended fire flow
 - Tested at 600 gpm
 - Need over 1,000 gpm

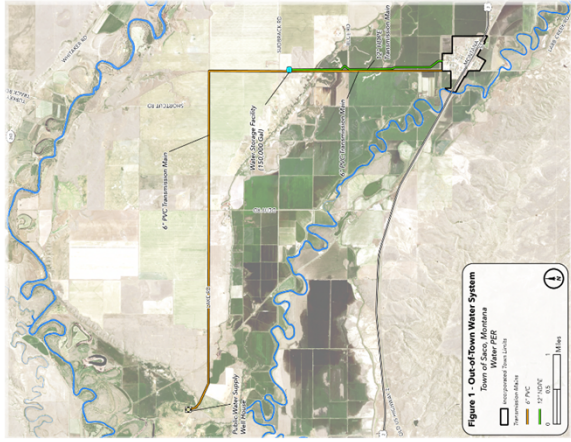


Table 3-7 - Existing Water System Piping Summary

HDPE DR17 Transmission Pipe	Length	% of Total System	% of Distribution System
12-inch Diameter	12,390	16%	N/A
ASTM D3316 PVC Transmission Pipe	Length	% of Total System	% of Distribution System
6-inch Diameter	44,880	59%	N/A
AWWA C900 PVC Distribution Pipe	Length	% of Total System	% of Distribution System
6-inch Diameter	4,479		
8-inch Diameter	324		
Subtotal	4,679	6%	25%
Asbestos Cement Distribution Pipe	Length	% of Total System	% of Distribution System
1-inch Diameter	341		
2-inch Diameter	502		
3-inch Diameter	293		
4-inch Diameter	3,101		
6-inch Diameter	9,598		
Subtotal	13,835	18%	75%
Total Distribution System	18,514	Total Existing System	75,784

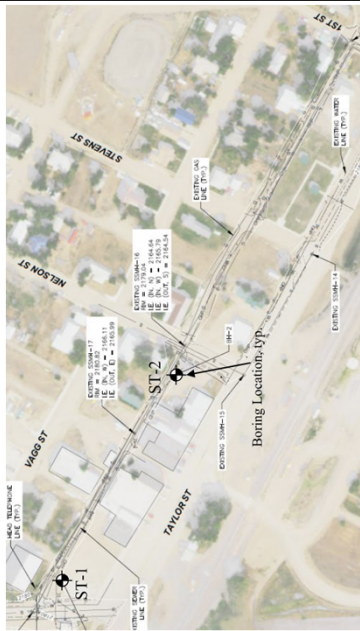
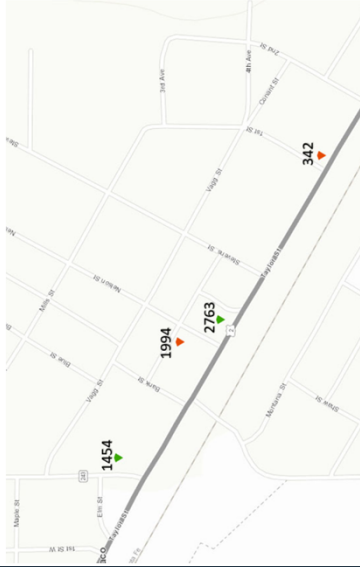


EVALUATION OF EXISTING WATER SYSTEM – TRANSMISSION & DISTRIBUTION



EVALUATION OF EXISTING WATER SYSTEM – TRANSMISSION & DISTRIBUTION

- Water Mains Near Documented Leaking Underground Storage Tank Sites
- Noted gasoline smells



EVALUATION OF EXISTING WATER SYSTEM – TRANSMISSION & DISTRIBUTION

- Bulk Fill is Aging – Honor Payment System
- No Automatic Billing



EVALUATION OF EXISTING WATER SYSTEM – STORAGE

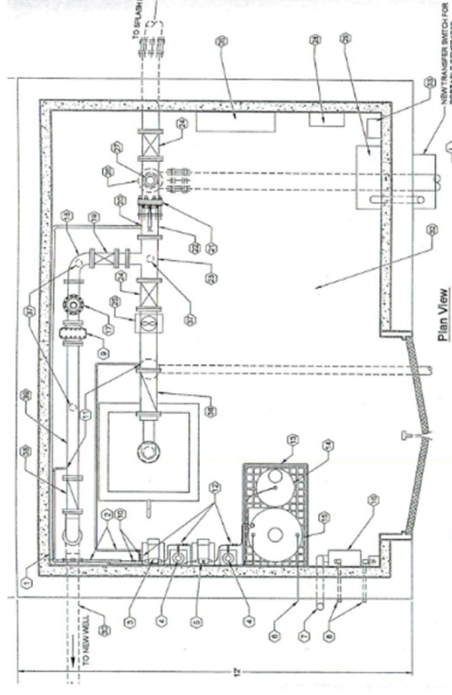
- 150,000-gallon concrete tank
- Meets Ave. Day Demands
- Meets Max. Day Demands
- Good Condition
- Telemetry System Functional



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EVALUATION OF EXISTING TREATMENT

- » **High Manganese**
 - » Up to 0.7 mg/l
 - » EPA secondary MCL 0.05 mg/l
 - » EPA health advisory limit 0.3 mg/l
- » **Chlorination**
 - » High water age and buildup in pipes consume chlorine
 - » Significant Deficiency for low Chlorine Residual in Town
- » **Polyphosphate**
 - » To sequester manganese



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PROBLEM SUMMARY

Distribution and Transmission

- » Aging AC mains leaking and degrading
 - » 20-40% Water Loss
- » Mains located near leaking underground tank sites
- » Low residual chlorine/significant deficiency
- » Water meters of different models and aging
- » Fire flows not met
- » Aging and inefficient bulk fill station

» Source/Treatment

- » High levels of Manganese
- » Low chlorine residuals (compounds with polyphosphate can elevate bio growth)



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ALTERNATIVES EVALUATION – DISTRIBUTION

Total Project Estimates (Construction, Contingency, Engineering, Admin)

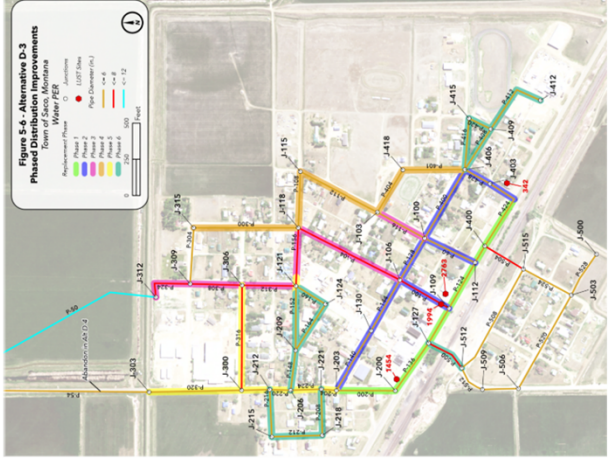
- » D-1: 'Do Nothing' - No Action
- » D-2: Ice Piggig Transmission Main (Potentially Distribution too) - \$220k
- » D-3A: Phase 1 Distribution +/- 2,000 feet - \$1.8 mil
- » D-3B – 3F: (Phase 2 – 6) Distribution +/- 2,000 feet - \$1.8 to \$2.2 mil each
- » D-4: Abandon Ex. 6-inch Transmission Main – reconnect services - \$166k
- » D-5: Water Meter Full Replacement - \$229k
- » D-6: New Packaged Bulk Fill Station - \$290k



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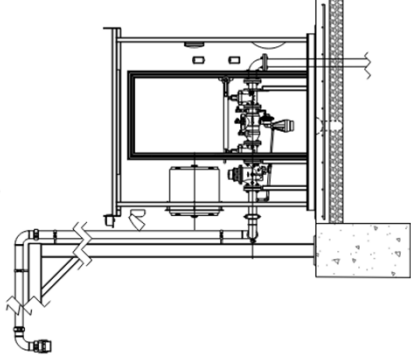
ALTERNATIVES EVALUATION – DISTRIBUTION

» Phased Distribution Improvements



ALTERNATIVES EVALUATION – DISTRIBUTION

» Bulk Fill Station – Packaged



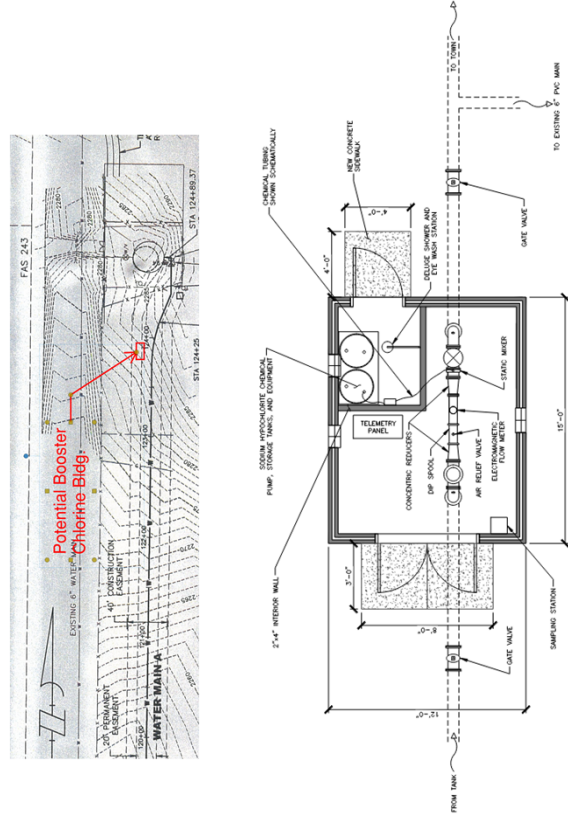
ALTERNATIVES EVALUATION – TREATMENT

- » T-1: Do Nothing - No Action
- » T-2: Booster Chlorination System- \$526K
- » T-3: Manganese Treatment Improvements- \$2.3 mil



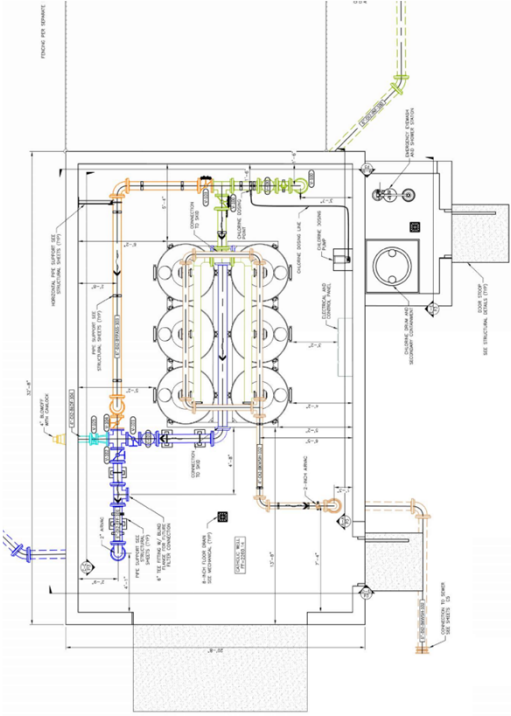
ALTERNATIVES EVALUATION – TREATMENT

- » T-2: Booster Chlorination System



ALTERNATIVES EVALUATION – TREATMENT

» T-3: Manganese Treatment Upgrades - Treatment building, Pressure Filters, Backwash Pond



ALTERNATIVES – PRIORITY RANKINGS

Table 1-1 - Recommended Improvements Project Priority List

Project Priority List (Estimated Costs shown in 2028 dollars)			
Priority	Alternative	Total Project Cost (Nearest Thousand)	Funding
1	T-2: Booster Chlorination System	\$420,000	EC Grant
2	T-3: Manganese Treatment System Upgrades	\$2,275,000	EC Grant
3	D-2: Ice Piggling Transmission Main	\$220,000	EC Grant
4	D-3A: Phase 1 Distribution Improvements	\$1,798,000	MCEP, DNRC, CDBG, SRF
5	D-5: Replace Water Meters	\$570,000	TBD
6	D-4: Abandon Existing T-main, reconnect services	\$166,000	TBD
7	D-3B: Phase 2 Distribution Improvements	\$1,816,000	TBD
8	D-3C: Phase 3 Distribution Improvements	\$1,742,000	TBD
9	D-3D: Phase 4 Distribution Improvements	\$1,670,000	TBD
9	D-3E: Phase 5 Distribution Improvements	\$1,736,000	TBD
10	D-3F: Phase 6 Distribution Improvements	\$2,221,000	TBD
11	D-6: Bulk Fill Station Improvements	\$286,000	TBD



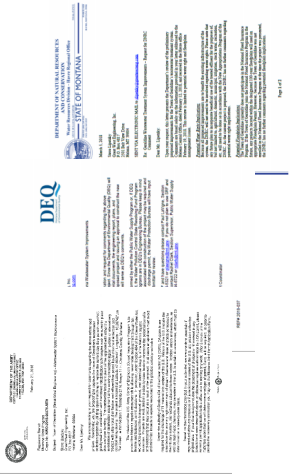
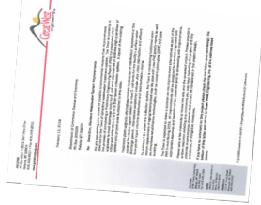
ENVIRONMENTAL ASSESSMENT

What is an Environmental Assessment (EA)?

- » Public document analyzing environmental issues

Draft EA has been completed

- » State and federal agencies have been contacted
- » Many responses have been received
- » Public comments solicited



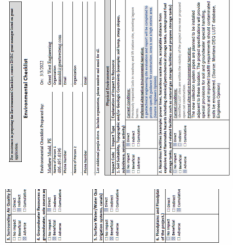
ENVIRONMENTAL ASSESSMENT

No Substantive Comments or Assessments

- » Some Mitigated Impacts
 - » Storm Water
 - » Temporary Traffic, Noise, Dust
 - » Farmlands, Wetlands, underground tank sites
 - » MDT Permitting Requirements
 - » DEQ & Lust Site
 - » Some Land/Easement may be need for treatment
 - » Distribution in Previously Impacted Areas

Decision:

- » Environmental Assessment is Acceptable
- » Environmental Impact Statement (EIS) is not necessary



PROJECT FUNDING STRATEGY

Funding Sources Being Considered

- » MCEP – Montana Coal Endowment Program
- » DNRC – Department of Natural Resources and Conservation
- » CDBG – Community Development Block Grant
- » SRF – State Revolving Fund
- » RD – U.S. Department of Agriculture Rural Development
- » ARPA – American Rescue Plan Act
- » EDA – Economic Development Administration



PROJECT FUNDING STRATEGY

Target Rate Analysis for Grant Eligibility

» Using 2015-2019 American Communities Survey (Department of Commerce)

Medium Household Income (MHI)	= \$51,250
Department of Commerce Target Rate Threshold:	
(Target Rate is 2.3% for water and wastewater)	
Combined Target Rate	= \$98.23/mo.
Current Average Monthly Water and Sewer Rate (\$27-sewer + \$54.80 avg-water)	= \$81.80
Low & Moderate Income (LMI)	= 62.5%

Town rate is 82% of Target Rate and not eligible for up to a \$500k MCEP grant (without raising rates)
Town is eligible for \$750k CDBG grant, DNRC grant and SRF or RD loans
Need to raise rates by at least \$16.50 (combined sewer/water) to achieve target rate



FUNDING STRATEGY – FINANCIAL POSITION

Table 3-9– Existing Water System Revenues

Saco Operating Revenues				
Description	FY 2023	FY 2024	FY 2025	Average
Charges for Services	\$114,226	\$116,199	\$119,558	\$116,661
Water Hauler Revenues	\$8,237	\$10,533	\$11,519	\$10,430
Total Operating Revenues	\$123,463	\$126,733	\$131,077	\$127,091

Table 3-10 – Existing Water System Expenses

Saco Operating Expenses				
Description	FY 2023	FY 2024	FY 2025	Average
O&M	\$35,162	\$25,471	\$36,169	\$32,274
Personnel	\$24,561	\$30,553	\$32,891	\$29,335
Financing Costs	\$44,773	\$45,443	\$46,072	\$45,429
Other Charges*	\$5,880	\$9,060	\$8,228	\$7,723
Total Operating Expenses	\$110,396	\$110,527	\$123,360	\$114,761

*Other Charges include Comprehensive Liability Insurance, Advertising, etc.

Table 3-8 - Summary of Current Water Loans

Loan	Date Issued	Interest Rate	Term of Years	Original Loan Amount	Annual Payment
RD-570430626	12/8/2010	3.00%	40	\$649,000	\$27,876
WRF-09134	1/1/2009	2.75%	25	\$335,000	\$17,698
Totals					\$45,574



PROJECT FUNDING STRATEGY

PROJECT FUNDING SCENARIOS (\$1.8 Mil Project)
High Service Pump Station Upgrades (D-3A)

» Scenario #1

- » \$500,00 MCEP Grant
- » \$125,000 DNRC Grant
- » \$750,000 CDBG Grant
- » \$423,00 SRF Loan (2.5% 20 - 30 years)
- » \$14 – 17 rate increase

» Scenario #1

- » \$500,00 MCEP Grant
- » \$125,000 DNRC Grant
- » \$750,000 CDBG Grant
- » \$423,00 RD Loan (2.8.75% 40 years)
- » \$14 – 17 rate increase

» Other scenarios

- » Lesser rate increases (40-50%) with SRF loan forgiveness or RD grants applied



Note:

- *Very Preliminary, subject to change.*
- *Town could be eligible for loan principal forgiveness (20-50%). SRF forgiveness is evaluated on a case by case and annual basis. (Target Rate need to be met for SRF)*
- *SRF Loans can go up to 30 years if needed*
- *Grant applications are required for each grant.*
- *A rate increase is needed to achieve Target Rate and MCEP grant – MCEP not eligible without Target Rate*

IMPLEMENTATION SCHEDULE

Project Implementation Schedule		
Action	Date	
Public Hearing on Draft PER & EA, Adopt PER Findings and EA	April 22, 2026	
Draft PER Complete	April 22, 2026	
Prepare Final PER	May 2026	
Apply for DNRC and MCEP Grants	May 2026	
Apply for CDBG	Fall 2026	
DNRC, MCEP, CDBG Awards	June 2027	
Apply for an SRF Loan	June 2027	
Finalize Grant Startup and Contracting	July 2027	
Begin Design	August 2027	
Submit Design Plans and Specifications to MDEQ	November 2027	
MDEQ Review & Approval	January 2028	
Advertise for Bids	March 2028	
Start Construction	July 2028	
Complete Construction	September 2028	
Project Closeout	December 2028	



WHERE TO GO FROM HERE

- » Public Opinion
 - » Is there support for the project?
 - » Make a comment
 - » Petition, letters.
- » MCEP and DNRC Applications – May 2026
- » CDBG Grant Applications – October 2026



QUESTIONS OR COMMENTS?

<https://sacoinfrastructure.com/>
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