Technical Memorandum

Campbell Water System Engineering Review

City of La Crosse, WI

DONOHUE

Date: November 21, 2025

To: City of La Crosse, WI

From: Donohue & Associates, Inc.

Project Background and Summary

On October 1, the Town of Campbell submitted to the Wisconsin Department of Administration its Petition for Incorporation as the Village of French Island. The proposed area of incorporation encompasses the entire existing Town of Campbell. As part of the proposed incorporation, significant changes to the existing Campbell Water Utility are planned.

At present, the Campbell Water Utility operates only a partial distribution system that the City of La crosse supplies with water. The proposed improvements would create an independent water system fully separated from the City of La Crosse, consisting of:

- Two to three production wells
- A pumphouse and water treatment plant for radium, manganese, and iron removal
- Approximately 123,000 feet of new water main and associated appurtenances
- A 700,000-gallon elevated storage tank

A map of the proposed water system is found in Appendix 1.

Wastewater from the Town's collection system would continue to be conveyed to the City of La Crosse Wastewater Treatment Facility (WWTF).

The City of La Crosse has filed a resolution expressing opposition to incorporation and signaling intent to annex the Town of Campbell.

Donohue was retained to provide an engineering review of the proposed improvements as presented in:

- Public Service Commission (PSC) Docket 935-CW-101 (Well No. 1)
- PSC Docket 935-CW-102 (Campbell Water System)
- Incorporation submittal posted at the Town of Campbell website
- Preliminary Engineering Report (PER) that is included in PSC Dockey 935-CW-102

Additional publicly available data—PSC annual reports, Wisconsin Department of Natural Resources (WDNR) public water system data and well construction reports—were also reviewed.

This memorandum examines several areas of the proposed Campbell Water System development:

1. Proposed water system demand.
2. Sizing of supply, treatment and storage components.
3. Water treatment requirements including equipment sizing, selected process and waste generation and disposal.
4. Capital and operation and maintenance cost estimates for independent Campbell system
5. Identification of facilities in the independent Campbell system that are unnecessary if City of La Crosse supplies water to system.
6. Discharge of radium from independent Campbell system to City of La Crosse Wastewater Treatment Facility.

Proposed Water System Demand

Review of Campbell-Submitted Demand Estimates

The Preliminary Engineering Report (PER) submitted for the proposed Campbell Water Utility establishes projected system demands using outdated Department of Administration (DOA) population projections (2019) and demand factors sourced from the City of Onalaska. The approach applied in the PER does not follow the methodologies typically used for municipal water system planning in the United States. Standard practice is to base demand forecasts on per-capita residential consumption and established water-use characteristics for land uses classes anticipated for the specific area. The PER does not incorporate current (2024) DOA population forecasts, nor does it use land-use-based water-use multipliers or locally verified user type data for the Town of Campbell. These inconsistencies affect the reliability of the average day, maximum day and peak-hour demand projections used throughout the submitted design documentation.

Updated Demand Estimate (Donohue Analysis)

To develop a more accurate and defensible estimate of future water system demands, Donohue prepared an updated set of demand projections. The updated analysis incorporates the 2024 Wisconsin Department of Administration (DOA) population projections for the Town of Campbell[1], existing unit counts and backup Equivalent Dwelling Unit (EDU) data from the Campbell PER and verified consumption data from the City of La Crosse Water Utility based on demand type.

A summary table has been developed to present the updated average day, maximum day, and peak hour demand estimates alongside the values reported in the PER. The table also shows the calculated demands under each of the two methodologies (consumption by user class and generic per-acre rates) and identifies the assumptions used in each calculation. These updated projections indicate that the PER's demand estimates vary significantly from values generated using current data and standard forecasting procedures. Maximum-day projections recalculated are more aligned with expected conditions.

[1] Available online at https://doa.wi.gov/Pages/LocalGovtsGrants/Population_Projections.aspx

Item	PER Report Values	Revised Values – Using Land Use Demands Per Unit			Revised Values – Using Land Use Demands Per Acre		
		Units[4]	GPD/unit[1,2]	Total	Acres[3]	GPD/acre[2]	Total
Population	4,405	**4,156**			4,156		
Residential		**1507**	**150**	**226,050**	603	500	301,500
Commercial		**45**	**960**	**43,200**	190	750	142,500
Industrial[5]		**1**	**500**	**500**	1	1,500	1,500
Public Authority[6]		**7**	**4080**	**28,560**			
Multifamily Residential		**132**	**900**	**118,800**			
Peak Day gpcpd	300	**251**			268		
Average Day gpcpd	120	**101**			108		
Peak Day, gallons	1,400,000	**1,043,000**			1,113,750		
Total Annual, gallons	194,000,000	**152,382,300**			162,718,875		
Average Day, gallons	530,000	**417,200**			445,500		

[1]Used La Crosse 2024 WEGS Data on Usage Per User Type.
[2]327 IAC Breakdown GPD Estimates Used in supplement.
[3]Taken from Town of Campbell 2021-2040 Comprehensive Plan.
[4]Parcel type derived from both PER and Town of Campbell Comprehensive Plan.
[5]PER cited 2 EDUs for this one industrial parcel. Using PER data, each EDU is about 231. Rounded up to 250 GPD/EDU for unit calculation.
[6]School with 350 students used IAC 327 at 25 GPD/pupil. Remaining units used PER EDU Information and La Crosse WEGS Data.

Using locally derived consumption rates for each land-use category based on metering data from comparable customer classes within La Crosse, the anticipated demand for the Town of Campbell is approximately 20% less than that described in the PER.

Comparison Summary

The updated demand projections prepared by Donohue differ notably from the values presented in the PER. When current (2024) DOA population projections and land-use-based consumption data derived from La Crosse Water Utility metering records are applied, the resulting system-wide average-day and peak-day demands are lower than the PER estimates.

Sizing of Supply, Treatment, and Storage Components

Source of Supply – Wells

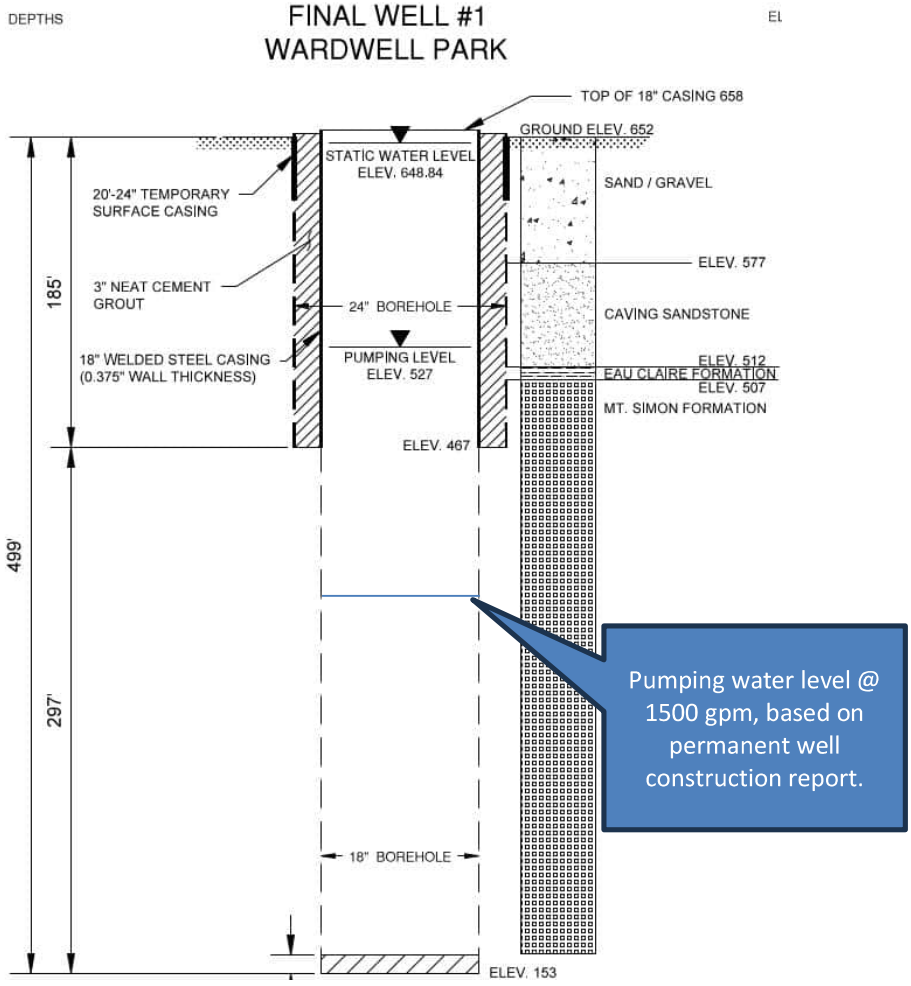
The PER proposes two production wells, each assumed to produce 1,500 gpm from the sandstone aquifer, The 1,500 gpm capacity is reported at the peak hour in the PER and is consistent with previous analysis of water service for the Town of Campbell.[2] Two 1,500 gpm wells is consistent with *Wisconsin Administrative Code* §NR 811.26 which requires that water systems have two or more pumping units, with each unit

[2] Technical Memorandum: Town of Campbell System Evaluation, AECOM, April 9, 2024.

capable of supplying the peak demand. Similarly, *Recommended Standards for Water Works*[3] (10 States Standards) states that the total groundwater source capacity, unless otherwise specified by the reviewing authority, shall equal or exceed the design maximum day demand with the largest producing well out of service.

Test well data included in the PER, however, indicates that the aquifer may not be capable of sustaining this level of production. The permanent well construction report indicates a pumping water level of 220 feet below grade at 1,500 gpm[4], which raises significant concerns regarding long-term well performance and aquifer stability. At this pumping water level, the well pump bowls and intake will need to extend below the well casing, which is less than ideal in a sandstone bedrock well due to the potential for sloughing of the formation or sand production.

Another concern with the well site is the lack of a continuous impermeable geologic formation to protect the sandstone aquifer from contamination by per- and polyfluoroalkyl compounds (PFAS). The PER indicates that the only barrier to downward migration of PFAS is the low-permeability Eau Claire



[3] Great Lakes – Upper Mississippi River Board of State ad Provincial Public Health and Environmental Managers, 2018.

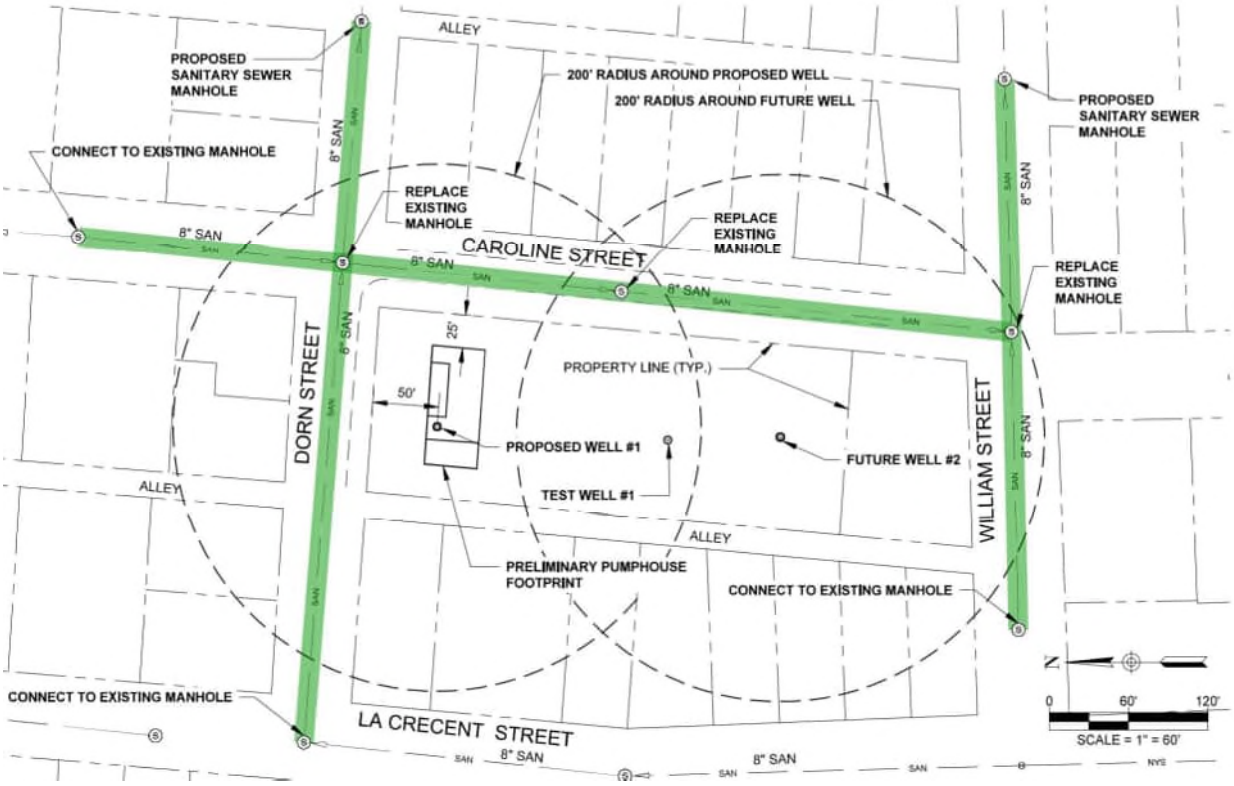
[4] Available online at https://apps.dnr.wi.gov/wellconstructionpub/ReportViewer.aspx?id=WellConstructionReport&download=false&WUWN=ACJ739

Formation which is a mere 5 feet thick at the well site, may not be laterally continuous and may allow a connection from the sandstone bedrock to the upper sand and gravel formation.

The proposed well site is located within 1,200 feet of the Torrance-Black River Disposal Site, a closed landfill.

Despite these limitations, the PER assumes that both production wells can be sited within the same municipal park parcel, approximately 260 feet apart. This assumption is highly unlikely to be feasible. The proximity of the proposed wells makes interference effects almost certain, which would further reduce individual well yields. The PER does acknowledge the probable need for a third production well if the 1,500 gpm target cannot be achieved, but it assumes that all three wells could also be constructed within the same park parcel. Given the anticipated drawdown and spacing requirements, the likelihood of successfully siting multiple high-capacity wells within a single small area is very low. The PER therefore greatly underestimates the potential cost and complexity associated with securing and developing additional well sites elsewhere in the Town.

Additional issues with source of supply planning include the presence of existing sanitary sewer infrastructure within 200 feet of the proposed well sites. NR 811 requires these utilities that are within 200 feet of a municipal well be relocated or replaced with pressure-grade pipe. Although the PER includes costs for achieving this, they are not detailed and do not account for any additional well sites being needed.



Furthermore, the PER appears to assume that abandonment of existing private wells will be a homeowner responsibility, but the introduction of multiple high-capacity production wells dramatically increases the risk of dewatering or impairing private wells. This circumstance typically requires a coordinated abandonment and replacement plan to minimize service disruptions and address potential drawdown impacts. The lack of recognition of these requirements may results in additional underestimation of the total project cost and implementation challenges.

Water Treatment Facilities

The PER proposes to use a hydrous manganese oxide (HMO) filtration process for radium, manganese, and iron removal. While HMO filtration is an appropriate technology for radium removal, the PER does not address radon off-gassing or mitigation measures, which are typically necessary for groundwater systems treating radionuclides. The omission of radon considerations represents a notable regulatory and operational deficiency. The PER also suggests two large horizontal pressure filters, which would produce large backwash volumes for cleaning the filters. It is estimated that these volumes will be over 30,000 gallons per filter. The PER does not account for the radionuclide concentrations expected in this waste stream or the impacts these flows will have on the downstream wastewater collection and treatment system. This backwash water will contain measurable quantities of radium-bearing solids, requiring proper handling and potentially permitting under Wisconsin Department of Health Services (WDHS) or WDNR regulations.

In addition to process omissions, the treatment facility sizing information provided in the PER is incomplete. The filter vessel dimensions, building footprint, and interior space allocations appear undersized for a facility of this scale, and no detailed layout or verification of compliance with NR 811 spacing and access requirements is provided. Similarly, it is unclear if redundant pumping equipment is

provided throughout the treatment process, including backwash supply, backwash reclaim, backwash waste and high service pumping.

Sludge management practices are also not described, as the PER lacks a plan for storage, handling, or disposal of radium-containing solids. The absence of these critical design elements makes it difficult to assess whether the proposed treatment facility is properly sized or feasible for long-term operation; however, a high-level analysis can be provided based on the information presented in the PER.

Radionuclide-laden waste must meet the not exceed a Unity Equation value of 1 as calculated based upon the requirements of the Department of Health Services under *Wisconsin Administrative Code* § DHS 157.30 and Appendix E of DHS 157. Calculations can be done to ensure the concentration of effluent does not exceed this number and thus dictate the maximum run time before system backwash is required.

The Unity Equation calculation is as follows:

$$(Avg.\,Radium\ 226\ in\ pCi/L \div 600) + (Avg.\,Radium\ 228\ in\ pCi/L \div 600) + (Avg.\,Total\ Uranium\ in\ pCi/L\ \div 3000)\ < 1$$

Average concentrations in the equation are equal to the volume of well water treated between backwashing in gallons multiplied by the concentration of that contaminant type and the process removal efficiency, then divided by the total volume of backwash. For this calculation, it was assumed there would be 99% removal efficiency, and that no Uranium is present. This calculation is for one (1) 1,500 gpm treatment vessel with four (4) cells, each requiring 5 minutes of backwash at an equal rate to the influent flow. The following calculations dictate total allowable time between backwashes, to keep the value of the Unity Equation less than 1.

Hours of Run Time
22

Raw Water Concentrations (pCi/L)		Liters in a Gal	Treatment Flow Rate (gpm)	Volume of Water Treated (gal)	Process Removal Efficiency Assumption (highest case)	Backwash Run Time (minutes)	Backwash Flow Rate (gpm)	Volume of Backwash (gal)
					99%			
Radium-226 and 228	9.02	3.7854	1500	1980000	99%	20	1500	30000
Total Uranium	0				99%			

Concentration Output		
Radium-226 and 228	589.4	pCi/L
Uranium	0	pCi/L

Unity Equation Output	
0.982278	
Check? (Pass/Fail)	**PASS**

The maximum allowable run time between backwashes, given the outlined assumptions, is 22 hours. If it is assumed that an average day 530,000 GPD as shown in Campbell's PER, this would equate to less than four (4) days of continuous service of a vessel before the need for backwash. If it is assumed that average day usage is the Donohue-calculated 420,000 GPD, this would equate to an additional day of service before necessitating backwash. In either circumstance, this backwash regularity is more frequent than typical for a pressure filtration system treating groundwater.

Elevated Storage Tank

The PER proposes a 700,000-gallon elevated storage tank. The volume is based on a two-hour fire flow requirement; however, Insurance Services Office and industry guidance typically recommends providing

storage for a three-hour fire flow event. It is likely that the required storage volume should be higher than the 700,000-gallon proposed.

Storage facilities must have sufficient capacity to meet domestic demands and fire flow and provide operating storage, the daily fluctuation of water to provide tank turnover and appropriate pump operation. Previous study by the City of La Crosse indicated that areas currently served by municipal water can receive 3,500 gpm, which is consistent with the requirement for industrial land use; similarly, the City applies a 3 hour fire duration.[5] Operating storage is typically about 15% of a tank's volume.

In the case that a filter is in backwash, storage will be needed to supplement the domestic (non-fire flow demands. The PER indicates that the filters each have an area of 300 square feet, which equates to a flow of 900 gpm at the standard loading rate of 3 gpm/sf. Each filter requires about 1 hour to backwash so 600 gpm for 1 hour will need to be provided in storage. Therefore, the tank volume should be

$$1.15 * [1\ hour\ x\ 600\ gpm\ x\ 60\frac{min}{hour} +\ 3\ hours\ x\ 3{,}500\ gpm\ x\ 60\frac{min}{hour}] = 765{,}900$$

An 750,000 or 1,000,000-gallon tank—industry standard sizes—should be considered.

Comparison Summary

Overall, the review of supply, treatment, and storage components indicates that several critical assumptions in the PER are either incomplete or inconsistent with industry standards and regulatory requirements. The well siting and production assumptions do not seem to reflect the constraints of the local aquifer or the interference expected between closely spaced high-capacity wells. Treatment facility sizing lacks key design elements, most notably the incomplete sludge and waste management strategies as well as lack of detailed information on facility sizing. Storage volume calculations rely on a shortened fire flow duration. Collectively, these issues suggest that the PER underestimates both the scale and cost of the facilities needed to develop an independent Campbell Water Utility and that further engineering analysis will be required to establish realistic system sizing.

Capital and O&M Cost Estimates for Independent Campbell System

Review of Campbell-Submitted Costs

Findings from a review of the capital and operation and maintenance costs presented in the PER indicate:

- Capital cost estimates appear low, particularly for building square footage (8,500 SF assumed), lack of redundancy in critical treatment components such as aerator, backwash supply, clearwell and pumping, and well capacity assumptions where costs for only 2 wells are presented.
- Capital costs for water main piping are generally low, especially given that construction will not take place for several years and that funding will require federal wage rates and preference for domestic products.
- Contingencies are included at only 10% of estimated construction costs. At this stage of project development, a higher contingency is more appropriate.
- Project costs include 50% of general street construction costs but WDNR guidance for Safe Drinking Water Loan Program allows only 20% of these costs to be eligible for funding.[6]
- O&M costs are significantly understated:
    - Chemical cost is underestimated

[5] Technical Memorandum: Town of Campbell System Evaluation, AECOM, April 9, 2024.
[6] https://dnr.wisconsin.gov/sites/default/files/topic/Aid/loans/pubs/PolicyPaper_StreetReconstructionCost.pdf

- Wages for staffing, particularly with construction and startup of a new facility is unrealistic.
- The total operating expenses of $396,000 are low compared to an average of $550,000 reported by similar size water utilities in Wisconsin, according to the PSC. [7]

Updated Cost Information (Donohue Analysis)

Donohue capital and operation and maintenance costs presented on a life cycle basis, found in Appendix 2. Modifications from the PER costs include:

- Increasing building to 10,000 SF to accommodate redundant critical treatment components such as aerator, backwash supply, clearwell and pumping, to provide a firm capacity of 1,500 gpm when one unit in a system is out of service.
- Backup pumps for all pumping situations.
- Increased tank volume for backwash waste and decanting water to sanitary sewer.
- Contingencies are included at 20% of estimated construction costs based on this preliminary stage of project development.
- Increased operation and maintenance costs including power consumption based on the requirement that system will need to use on-peak power, chemical costs, wages for staffing based on the significant time for construction and startup of a new facility and working with property owners to connect to the new system and abandon private wells.

Comparison Summary

The capital and operation and maintenance costs were further organized into the PSC Uniform System of Accounts. Tables for capital costs and operation and maintenance costs are found in Appendix 3. For basis of comparison, street restoration costs have been included at 20% for both cases and the sewer piping upgrades for sewer system within 200 feet of wells, which will need to be paid to sewer utility, are shown as a line item in the TM Analysis and are included in total for the PER.

Source	PER	TM Analysis
Capital Costs	$64,775,500	$67,138,004
Adjust for Street Restoration: Deduct 30% of Street Restoration from PER and add 20% of Street Restoration Costs to TM Analysis	-4,177,500	2,785,000
Sewer Piping Upgrade – Payable to Sewer Utility	374,000	374,000
Total	$60,972,000	$70,297,004

Operation and Maintenance Costs were also compared, with the PER underestimating the annual operation and maintenance costs of the system.

Source	PER	TM Analysis
Operation and Maintenance Costs	$396,000	$598,973

[7] Application of the Town of Campbell, as a Water Public Utility, for Authority to Construct a New Water System, in the Town of Campbell, La Crosse County, Wisconsin, PSC, October 29, 2025

Facilities Unnecessary if City of La Crosse Supplies Water

If the City of La Crosse supplies potable water to the Town of Campbell, several major facilities identified in the PER for an independent Campbell Water Utility would not be required. The PER proposes a fully independent system built around new groundwater supply wells, dedicated treatment facilities, and an elevated storage tank. Under a City-supplied water scenario, these components become unnecessary, significantly reducing both capital and long-term operational costs.

The proposed production wells along with their associated appurtenances would not be needed because source water would be provided through the existing La Crosse Water Utility system. The proposed pumphouse and hydrous manganese oxide (HMO) treatment facility would also be eliminated, avoiding the need to construct and operate a radium removal system and manage its corresponding waste stream. Similarly, the 700,000-gallon elevated storage tank included in the PER would not be required, as storage, fire flow capacity, and system pressure would be maintained by the City of La Crosse's established infrastructure. Finally, new water main on Nokomis Avenue (the Hiawatha Distribution System) that would run parallel to existing City water main can be eliminated.

Using the capital cost values developed in this report, eliminating the wells, treatment plant, elevated storage tank and unneeded water main represents an estimated capital cost reduction of **about $30 million**. The table below provides a summary of the cost difference.

	Initial Cost	Costs if Water Supplied by City
ITEM	**($)**	$
Well 1	877,879	0
Pumphouse & Radium Removal Treatment	20,127,000	0
Elevated Storage Tank	5,208,000	0
Well 2, Pitless Unit and Water Main to Pumphouse	853,875	0
Main Water Distribution System	35,746,650	35,746,650
Hiawatha Distribution System	3,063,850	0
Meters & Metering/Billing	1,260,750	1,260,750
Totals	67,138,004	37,007,400
Sewer Upgrade to Pressure Pipe - payment to Sewer Utility	374,000	
Street Restoration - 20%	2,785,000	2,785,000
Total	70,297,004	39,792,400

Radium Discharge to City of La Crosse WWTF

The PER does not adequately address the handling and disposal of radium-bearing waste generated by the proposed hydrous manganese oxide (HMO) treatment process. Radium-containing water and solids must be managed in accordance with *Wisconsin Administrative Code* § NR 811.856 and § DHS 157.30(3), which establish requirements for wastewater discharge and radioactive materials handling.

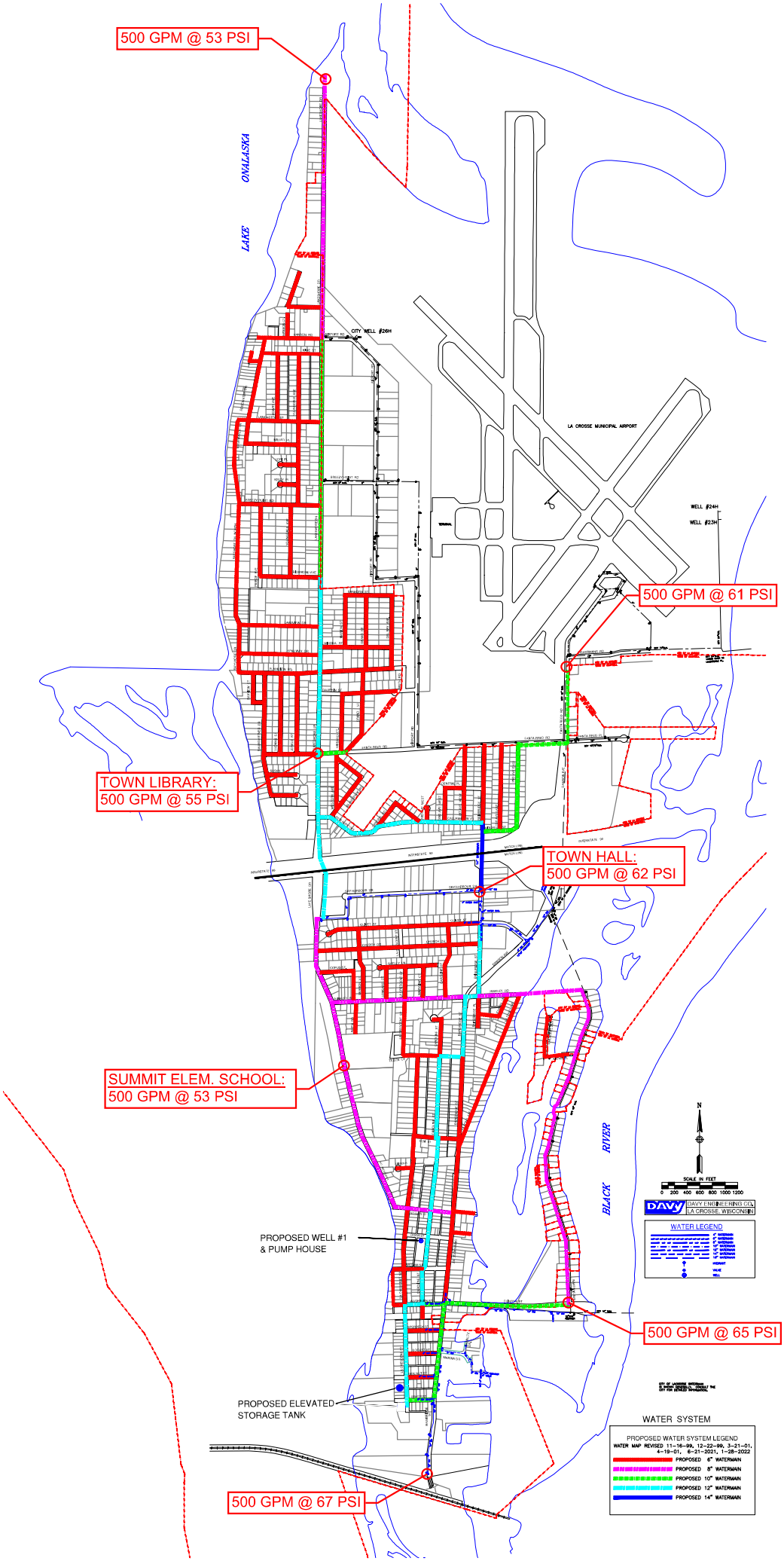
Radium will continue to accumulate in the pressure filters, and when backwashed, will be dislodged in both backwash solids as well as suspended in backwash water. Because radium removal processes typically produce radium-laden sludge, it is expected that the majority of the radionuclide mass would

accumulate in solids rather than remain in solution. Proper management of this sludge may necessitate a DHS radioactive materials permit, depending on radionuclide concentrations and disposal methods. To mitigate handling of radium-laden sludge, backwash durations will need to follow the unity rule, as described in the ***Water Treatment Facilities*** section of this report. With the example unity rule calculation, total radium concentration in combined backwash (solids and water) would be nearly 600 pCi/L, which is the limit for discharge to sanitary sewer systems. Even with careful management of backwash intervals, the tank may need to be periodically cleaned and the sludge removed for landfilling.

The PER does not include any sludge characterization, handling, or disposal plan, representing a significant deficiency. Without this information, the feasibility, regulatory compliance, and long-term operational impacts of discharging radium-bearing waste to the City of La Crosse WWTF cannot be fully evaluated.

Appendix 1

Proposed Water System Map


500 GPM @ 53 PSI
ONALASKA
LAKE
CITY WELL #26H
LA CROSSE MUNICIPAL AIRPORT
WELL #24H
WELL #23H
500 GPM @ 61 PSI
TOWN LIBRARY:
500 GPM @ 55 PSI
TOWN HALL:
500 GPM @ 62 PSI
SUMMIT ELEM. SCHOOL:
500 GPM @ 53 PSI
BLACK RIVER
PROPOSED WELL #1
& PUMP HOUSE
500 GPM @ 65 PSI
PROPOSED ELEVATED
STORAGE TANK
500 GPM @ 67 PSI
N
SCALE IN FEET
0 200 400 600 800 1000 1200
DAVY ENGINEERING CO.
LA CROSSE, WISCONSIN
WATER LEGEND
WATER SYSTEM
PROPOSED WATER SYSTEM LEGEND
WATER MAP REVISED 11-16-99, 12-22-99, 3-21-01,
4-19-01, 6-21-2021, 1-28-2022
PROPOSED 6" WATERMAIN
PROPOSED 8" WATERMAIN
PROPOSED 10" WATERMAIN
PROPOSED 12" WATERMAIN
PROPOSED 14" WATERMAIN

Appendix 2

Life Cycle Cost Analysis

Town of Campbell /Village of French Island
Independent Water System
Engineering Evaluation

SUMMARY

INDEPENDENT WATER SYSTEM DEVELOPMENT
PLANNING LEVEL COST OPINIONS

General Description

	ITEM	Initial Cost ($)	10-Year Present Worth of Annual O&M ($)	20-Year Present Worth of Annual O&M ($)	10-Year Total Present Worth ($)	20-Year Total Present Worth ($)
1	**Well 1**	877,879	1,075	1,376	934,862	1,011,638
2	**Pumphouse & Radium Removal Treatment**	20,127,000	313,381	339,886	23,438,798	27,001,790
3	**Elevated Storage Tank**	5,208,000	1,597	1,846	5,245,596	5,427,651
4	**Well 2, Pitless Unit and Water Main to Pumphouse**	853,875	26,524	25,775	1,158,405	1,418,884
5	**Main Water Distribution System**	35,746,650	70,174	67,343	36,463,004	37,154,979
6	**Hiawatha Distribution System**	3,063,850	2,873	2,759	3,096,859	3,127,942
7	**Meters & Metering/Billing**	1,260,750	143,988	137,149	2,729,487	4,139,781
	Totals	67,138,004	559,613	576,134	73,067,010	79,282,665
	Sewer Upgrade to Pressure Pipe - payment to Sewer Utility	374,000				
	Street Restoration - 20%	2,785,000				
	Total	70,297,004				

Town of Campbell /Village of French Island
Independent Water System
Engineering Evaluation

WELL 1
INDEPENDENT WATER SYSTEM DEVELOPMENT
OPINION OF PROBABLE PROJECT COST

ITEM	Units	Quantity	Unit Cost ($)	Initial Cost ($)

DAVY ENGINEERING

BID TABULATION

BID DATE: 12/10/2024

OWNER: Town of Campbell, La Crosse County, WI
PROJECT: Final Well #1 Construction

Contractors:				Traut Companies St. Joseph, MN		Municipal Well & Pump Waupon, WI		Nelson's Plumbing & Electric Tomah, WI	
No.	Qty	Unit	Item	Unit	Total	Unit	Total	Unit	Total
UNIT PRICES									
1	1	LS	Mobilization/Demobilization	$ 66,760.00	$ 66,760.00	$ 118,260.00	$ 118,260.00	$ 102,505.00	$ 102,505.00
2	1	LS	Temp Access Road, Site Prep, Erosion Control	$ 17,830.00	$ 17,830.00	$ 21,900.00	$ 21,900.00	$ 6,456.00	$ 6,456.00
3	20	vert. ft.	Drill/Drive/Remove 24-in OD Temp Starter Casing	$ 500.00	$ 10,000.00	$ 285.00	$ 5,700.00	$ 256.00	$ 5,120.00
4	185	vert. ft.	Drill Nominal 24-inch Open Hole	$ 240.00	$ 44,400.00	$ 197.00	$ 36,445.00	$ 120.00	$ 22,200.00
5	7	each	Alignment/Plumbness Tests	$ 5,000.00	$ 35,000.00	$ 1,989.00	$ 13,923.00	$ 650.00	$ 4,550.00
6	191	vert. ft.	Furnish & Install 18-inch OD Casing	$ 270.00	$ 51,570.00	$ 199.00	$ 38,009.00	$ 136.00	$ 25,976.00
7	320	cu. ft.	Bradenhead Grout 18-inch Casing	$ 34.00	$ 10,880.00	$ 45.00	$ 14,400.00	$ 60.00	$ 19,200.00
8	314	vert. ft.	Drill Nominal 18-inch Open Hole	$ 140.00	$ 43,960.00	$ 122.00	$ 38,308.00	$ 95.00	$ 29,830.00
9	3	each	Video Log	$ 2,500.00	$ 7,500.00	$ 4,093.00	$ 12,279.00	$ 1,500.00	$ 4,500.00
10	2	each	Geophysical Logs	$ 3,000.00	$ 6,000.00	$ 5,420.00	$ 10,840.00	$ 1,500.00	$ 3,000.00
11	20	hours	Removing Sand	$ 650.00	$ 13,000.00	$ 525.00	$ 10,500.00	$ 250.00	$ 5,000.00
12	18	hours	Air Development	$ 650.00	$ 11,700.00	$ 2,774.00	$ 49,932.00	$ 500.00	$ 9,000.00
13	25	lbs.	Dynamite Development	$ 80.00	$ 2,000.00	$ 824.00	$ 20,600.00	$ 510.00	$ 12,750.00
14	1	LS	Acid/Surfactant Chemical Treatment	$ 9,000.00	$ 9,000.00	$ 46,250.00	$ 46,250.00	$ 6,500.00	$ 6,500.00
15	1	LS	Shock Chlorination Chemical Treatment	$ 9,000.00	$ 9,000.00	$ 17,440.00	$ 17,440.00	$ 6,500.00	$ 6,500.00
16	1	LS	Plug Well Bottom	$ 6,000.00	$ 6,000.00	$ 6,140.00	$ 6,140.00	$ 1,500.00	$ 1,500.00
17	3	each	Caliper Open Hole	$ 3,000.00	$ 9,000.00	$ 1,980.00	$ 5,940.00	$ 1,500.00	$ 4,500.00
18	750	lin. ft.	Discharge Piping	$ 10.00	$ 7,500.00	$ 10.00	$ 7,500.00	$ 5.00	$ 3,750.00
19	2	each	Furnish, Install and Remove Test Pump	$ 16,000.00	$ 32,000.00	$ 12,835.00	$ 25,670.00	$ 7,500.00	$ 15,000.00
20	8	hours	Rawhiding Development	$ 350.00	$ 2,800.00	$ 475.00	$ 3,800.00	$ 150.00	$ 1,200.00
21	8	hours	Step Drawdown Test Pumping	$ 350.00	$ 2,800.00	$ 354.00	$ 2,832.00	$ 125.00	$ 1,000.00
22	24	hours	Initial 24-Hour Constant Rate Test Pumping	$ 275.00	$ 6,600.00	$ 354.00	$ 8,496.00	$ 150.00	$ 3,600.00
23	48	hours	Constant Rate Test Pumping > 24 Hours	$ 275.00	$ 13,200.00	$ 354.00	$ 16,992.00	$ 120.00	$ 5,760.00
24	1	LS	Well Disinfection	$ 1,500.00	$ 1,500.00	$ 1,920.00	$ 1,920.00	$ 1,000.00	$ 1,000.00
25	1	LS	All Above Grade Work	$ 19,410.00	$ 19,410.00	$ 17,250.00	$ 17,250.00	$ 3,520.00	$ 3,520.00
			TOTAL (Items 1-25)		$ 439,410.00		$ 551,326.00		$ 303,917.00
TOTAL BASE BID					$ 439,410.00		$ 551,326.00		$ 303,917.00
ALTERNATE BID #1 - ALTERNATE SCHEDULE									
Substantial Completion Date:					NB		NB	10/15/2025	
No change, Add to, or Deduct					$ -		$ -	No change	$ -
TOTAL Alternate Bid #1					$ -		$ -		$ 303,917.00
TOTAL BID - BASE BID+ALT BID #1					$ 439,410.00		$ 551,326.00		$ 303,917.00
									RECOMMENDED AWARD

Subtotal		303,917
Contingency - contract price shown	5%	20,000
Subtotal		323,917
Total Construction Cost		**323,917**
Engineering - from PER Appendix 5-1		553,962
Total Initial Cost		**877,879**

Town of Campbell /Village of French Island
Independent Water System
Engineering Evaluation

Well 1

Present Worth Analysis Factors

Discount Rate	3.000%
Short Term Inflation Rate	3.5%
Long-term Inflation Rate	2.5%
Escalation Rate (Above Inflation)	
Electricity (0-5 years)	4.0%
Electricity (6-20 years)	2.0%
Equipment	2.0%
Chemicals	3.0%

Comments

Current Discount Rate for Federal Fiscal Year as established in NR 110 Wis. Administrative Code
Short Term Inflation based on 5-year CPI average (assumed during first 5 years)
Long Term Inflation Rate based on 10-year CPI average
National Institute of Standards, Annual Supplement to NIST Handbook 135
Electricity Escalation Rate = 2%
Natural Gas Escalation Rate = 2%

Chemical Escalation Rate = 3%

Life Cycle Cost Analysis

Initial Cost 877,879

			PSC Account							
			600	620	602	630				
Year	Periodic Costs		Annual Operational Costs					PW	PW	PW
(n)	Replace	Salvage	O&M	Electricity	Sampling	Chemicals	Total Annual	Periodic	Annual	Cumulative
0			800	0	1,037	0	1,837			877,879
1			828	0	1,094	0	1,922	0	1,866	879,745
2			857	0	1,154	0	2,011	0	1,896	881,641
3			887	0	1,218	0	2,105	0	1,926	883,567
4			918	0	1,285	0	2,203	0	1,957	885,524
5			950	0	1,355	0	2,305	0	1,989	887,513
6			974	0	1,416	0	2,390	0	2,002	889,514
7			998	0	1,480	0	2,478	0	2,015	891,529
8			1,023	0	1,547	0	2,570	0	2,029	893,558
9			1,049	0	1,616	0	2,665	0	2,043	895,601
10	50,000		1,075	0	1,689	0	2,764	37,205	2,057	934,862

10-Year Present Worth	**934,862**

Well 1	
Initial Cost	877,879
10-Year Present Worth	934,862
Average Annual Cost	4,841

Notes

Power cost for well pumping is included in 2 - Water Treatment/Pumphouse; no chemicals required at well; well rehab every 10 years

Town of Campbell /Village of French Island
Independent Water System
Engineering Evaluation

Well 1

Present Worth Analysis Factors

Discount Rate	3.000%
Short Term Inflation Rate	3.5%
Long-term Inflation Rate	2.5%
Escalation Rate (Above Inflation)	
Electricity (0-5 years)	4.0%
Electricity (6-20 years)	2.0%
Equipment	2.0%
Chemicals	3.0%

Comments

Current Discount Rate for Federal Fiscal Year as established in NR 110 Wis. Administrative Code
Short Term Inflation based on 5-year CPI average (assumed during first 5 years)
Long Term Inflation Rate based on 10-year CPI average
National Institute of Standards, Annual Supplement to NIST Handbook 135
Electricity Escalation Rate = 2%
Natural Gas Escalation Rate = 2%

Chemical Escalation Rate = 3%

Life Cycle Cost Analysis

Initial Cost 877,879

			PSC Account							
			600	620	640	630				
Year	Periodic Costs		Annual Operational Costs					PW	PW	PW
(n)	Replace	Salvage	O&M	Electricity	Sampling	Chemicals	Total Annual	Periodic	Annual	Cumulative
0			800	0	1,037	0	1,837			877,879
1			828	0	1,094	0	1,922	0	1,866	879,745
2			857	0	1,154	0	2,011	0	1,896	881,641
3			887	0	1,218	0	2,105	0	1,926	883,567
4			918	0	1,285	0	2,203	0	1,957	885,524
5			950	0	1,355	0	2,305	0	1,989	887,513
6			974	0	1,416	0	2,390	0	2,002	889,514
7			998	0	1,480	0	2,478	0	2,015	891,529
8			1,023	0	1,547	0	2,570	0	2,029	893,558
9			1,049	0	1,616	0	2,665	0	2,043	895,601
10	50,000		1,075	0	1,689	0	2,764	37,205	2,057	934,862
11			1,102	0	1,765	0	2,867	0	2,071	936,933
12			1,129	0	1,844	0	2,974	0	2,086	939,019
13			1,158	0	1,927	0	3,085	0	2,101	941,120
14			1,187	0	2,014	0	3,201	0	2,116	943,236
15			1,216	0	2,105	0	3,321	0	2,132	945,367
16			1,247	0	2,199	0	3,446	0	2,148	947,515
17			1,278	0	2,298	0	3,576	0	2,164	949,679
18			1,310	0	2,402	0	3,712	0	2,180	951,859
19			1,343	0	2,510	0	3,853	0	2,197	954,056
20	100,000		1,376	0	2,623	0	3,999	55,368	2,214	1,011,638

20-Year Present Worth	**1,011,638**

Well 1	
Initial Cost	877,879
20-Year Present Worth	1,011,638
Average Annual Cost	10,372

Notes

Power cost for well pumping is included in 2 - Water Treatment/Pumphouse; no chemicals required at well; well rehab every 10 years; replace well pump in year 20

Town of Campbell /Village of French Island
Independent Water System
Engineering Evaluation

PUMPHOUSE & RADIUM REMOVAL TREATMENT
INDEPENDENT WATER SYSTEM DEVELOPMENT
OPINION OF PROBABLE PROJECT COST

ITEM	Units	Quantity	Unit Cost ($)	Initial Cost ($)
Radium Removal Treatment				
4-Cell Horizontal Pressure Filter w/ Media	EA	2	1,350,000	2,700,000
Forced Draft Aerator	EA	2	163,000	326,000
Well Pump	EA	1	60,000	60,000
High Service Pumps - 2 for redundancy	EA	2	50,000	100,000
Backwash Pumps - 2 for redundancy	EA	2	20,000	40,000
Backwash Waste Pump - 2 for redundancy	EA	2	15,000	30,000
Backwash Supply Booster Pump	EA	2	20,000	40,000
Chemical Feed Equipment	EA	2	120,000	240,000
Clearwell, 2 @ 45,000 gallons	CY	220	1,000	220,000
Backwash Storage Tank, 2 @ 72,300 gallons	CY	290	1,000	290,000
Backwash Reclaim Tank, 1 @ 109,000 gallons	CY	201	1,000	201,000
Treatment Building Slab	CY	475	1,000	475,000
Excavation	CY	3,500	40	140,000
Treatment Building	SF	10,000	500	5,000,000
Equipment Installation	LS	1	1,400,000	1,400,000
Miscellaneous				
Allumnimum Access Hatches	EA	5	15,000	75,000
Furniture & Accessories	LS	1	100,000	100,000
Other				
Sitework	Lump Sum	1	700,000	700,000
Interior Process Piping	Lump Sum	1	700,000	700,000
HVAC	Lump Sum	1	100,000	100,000
Plumbing	Lump Sum	1	100,000	100,000
Electrical	Lump Sum	1	1,500,000	1,500,000
I&C	Lump Sum	1	700,000	700,000
Subtotal				15,237,000
Contingency			20%	3,050,000
Subtotal				18,287,000
Total Construction Cost				**18,287,000**
Engineering - PER Cost Estimate for Pumphouse/Treatment, Appendix 5-3				1,840,000
Total Initial Cost				**20,127,000**

Town of Campbell /Village of French Island
Independent Water System
Engineering Evaluation

Pumphouse & Radium Removal Treatment

Present Worth Analysis Factors

Discount Rate	3.000%
Short Term Inflation Rate	3.5%
Long-term Inflation Rate	2.5%
Escalation Rate (Above Inflation)	
Electricity (0-5 years)	4.0%
Electricity (6-20 years)	2.0%
Equipment	2.0%
Chemicals	3.0%

Comments

Current Discount Rate for Federal Fiscal Year as established in NR 110 Wis. Administrative Code
Short Term Inflation based on 5-year CPI average (assumed during first 5 years)
Long Term Inflation Rate based on 10-year CPI average
National Institute of Standards, Annual Supplement to NIST Handbook 135
Electricity Escalation Rate = 2%
Natural Gas Escalation Rate = 2%

Chemical Escalation Rate = 3%

Life Cycle Cost Analysis

Initial Cost 20,127,000

			PSC Account							
			630	620	640	630				
Year	Periodic Costs		Annual Operational Costs					PW	PW	PW
(n)	Replace	Salvage	O&M	Electricity	Sampling	Chemicals	Total Annual	Periodic	Annual	Cumulative
0			143,660	80,000	2,708	45,000	271,368			20,127,000
1			148,688	86,000	2,857	47,925	285,470	0	277,155	20,404,155
2			153,892	92,450	3,014	51,040	300,396	0	283,152	20,687,308
3			159,278	99,384	3,180	54,358	316,200	0	289,368	20,976,675
4			164,853	106,838	3,355	57,891	332,936	0	295,810	21,272,485
5	10,000		170,623	114,850	3,539	61,654	350,667	8,626	302,488	21,583,599
6			174,889	120,019	3,699	65,045	363,651	0	304,552	21,888,151
7			179,261	125,419	3,865	68,622	377,168	0	306,672	22,194,822
8			183,742	131,063	4,039	72,397	391,241	0	308,849	22,503,672
9			188,336	136,961	4,221	76,378	405,896	0	311,086	22,814,757
10	417,500		193,044	143,124	4,411	80,579	421,158	310,659	313,381	23,438,798

10-Year Present Worth **23,438,798**

Pumphouse & Radium Removal Treatment	
Initial Cost	20,127,000
10-Year Present Worth	23,438,798
Average Annual Cost	375,853

Notes

Media replacement every 10 years; Pump rehabs every 10 years; Well pump inspection every 10 years; periodic costs other than pumps are from Table 7.8 Short-Lived Assets; electricity costs include Well 1 and all pumps within WTP and are based on use during peak demand; backwash tank cleaning every 3 years with disposal of sludge is included in annual O & M cost

Town of Campbell /Village of French Island
Independent Water System
Engineering Evaluation

Pumphouse & Radium Removal Treatment

Present Worth Analysis Factors

Discount Rate	3.000%
Short Term Inflation Rate	3.5%
Long-term Inflation Rate	2.5%
Escalation Rate (Above Inflation)	
Electricity (0-5 years)	4.0%
Electricity (6-20 years)	2.0%
Equipment	2.0%
Chemicals	3.0%

Comments

Current Discount Rate for Federal Fiscal Year as established in NR 110 Wis. Administrative Code
Short Term Inflation based on 5-year CPI average (assumed during first 5 years)
Long Term Inflation Rate based on 10-year CPI average
National Institute of Standards, Annual Supplement to NIST Handbook 135
Electricity Escalation Rate = 2%
Natural Gas Escalation Rate = 2%

Chemical Escalation Rate = 3%

Life Cycle Cost Analysis

Initial Cost 20,127,000

			PSC Account							
			600	620	640	630				
Year	Periodic Costs		Annual Operational Costs					PW	PW	PW
(n)	Replace	Salvage	O&M	Electricity	Sampling	Chemicals	Total Annual	Periodic	Annual	Cumulative
0			143,660	80,000	2,708	45,000	271,368			20,127,000
1			148,688	86,000	2,857	47,925	285,470	0	277,155	20,404,155
2			153,892	92,450	3,014	51,040	300,396	0	283,152	20,687,308
3			159,278	99,384	3,180	54,358	316,200	0	289,368	20,976,675
4			164,853	106,838	3,355	57,891	332,936	0	295,810	21,272,485
5	10,000		170,623	114,850	3,539	61,654	350,667	8,626	302,488	21,583,599
6			174,889	120,019	3,699	65,045	363,651	0	304,552	21,888,151
7			179,261	125,419	3,865	68,622	377,168	0	306,672	22,194,822
8			183,742	131,063	4,039	72,397	391,241	0	308,849	22,503,672
9			188,336	136,961	4,221	76,378	405,896	0	311,086	22,814,757
10	417,500		193,044	143,124	4,411	80,579	421,158	310,659	313,381	23,438,798
11			197,870	149,565	4,609	85,011	437,055	0	315,738	23,754,536
12			202,817	156,295	4,816	89,687	453,616	0	318,157	24,072,693
13			207,888	163,329	5,033	94,619	470,869	0	320,639	24,393,332
14			213,085	170,679	5,260	99,823	488,846	0	323,185	24,716,517
15	90,000		218,412	178,359	5,496	105,314	507,581	57,768	325,797	25,100,081
16			223,872	186,385	5,744	111,106	527,107	0	328,476	25,428,557
17			229,469	194,773	6,002	117,217	547,461	0	331,223	25,759,780
18			235,206	203,537	6,272	123,664	568,679	0	334,039	26,093,819
19			241,086	212,697	6,554	130,465	590,802	0	336,926	26,430,745
20	417,500		247,113	222,268	6,849	137,641	613,871	231,160	339,886	27,001,790

20-Year Present Worth	**27,001,790**

Pumphouse & Radium Removal Treatment	
Initial Cost	20,127,000
20-Year Present Worth	27,001,790
Average Annual Cost	484,284

Notes

Media replacement every 10 years; Pump rehabs every 10 years; Well pump inspection every 10 years; electricity and chemicals values are from PER page 32/42 and periodic costs other than pumps are from Table 7.8 Short-Lived Assets

Town of Campbell /Village of French Island
Independent Water System
Engineering Evaluation

Elevated Storage Tank
INDEPENDENT WATER SYSTEM DEVELOPMENT
OPINION OF PROBABLE PROJECT COST

ITEM	Units	Quantity	Unit Cost ($)	Initial Cost ($)
Tower				
12" Water Main	EA	100	150	15,000
Site Work	LS	1	13,000	22,000
Excavation	CY	200	50	10,000
Borrow	CY	500	25	12,500
Foundation	LS	1	170,000	170,000
700,000-gal spherical tank	LS	1	2,640,000	2,640,000
Painting	LS	1	300,000	300,000
Piping & manhole	EA	2	120,000	240,000
Disinifection & sampling	EA	1	5,000	5,000
Electrical & controls	LS	1	80,000	80,000
Recirculation system	LS	1	30,000	30,000
Cathodic protection	LS	1	35,000	35,000
Erosion control & site restoration	LS	1	10,000	10,000
Subtotal				3,569,500
Contingency			20%	710,000
Subtotal				4,279,500
Contractor Overhead & Profit			0%	0
Total Construction Cost				**4,279,500**
Engineering - PER Cost Estimate for Pumphouse/Treatment, Appendix 5-5				928,500
Total Initial Cost				**5,208,000**

Town of Campbell /Village of French Island
Independent Water System
Engineering Evaluation

Elevated Storage Tank

Present Worth Analysis Factors

Discount Rate	3.000%
Short Term Inflation Rate	3.5%
Long-term Inflation Rate	2.5%
Escalation Rate (Above Inflation)	
Electricity (0-5 years)	4.0%
Electricity (6-20 years)	2.0%
Equipment	2.0%
Chemicals	3.0%

Comments

Current Discount Rate for Federal Fiscal Year as established in NR 110 Wis. Administrative Code
Short Term Inflation based on 5-year CPI average (assumed during first 5 years)
Long Term Inflation Rate based on 10-year CPI average
National Institute of Standards, Annual Supplement to NIST Handbook 135
Electricity Escalation Rate = 2%
Natural Gas Escalation Rate = 2%

Chemical Escalation Rate = 3%

Life Cycle Cost Analysis

Initial Cost 5,208,000

Year (n)	Periodic Costs Replace	Periodic Costs Salvage	Annual Operational Costs O&M	Electricity	Sampling	Chemicals	Total Annual	PW Periodic	PW Annual	PW Cumulative
0			0	1,200	0	0	1,200			5,208,000
1			0	1,290	0	0	1,290	0	1,252	5,209,252
2			0	1,387	0	0	1,387	0	1,307	5,210,560
3			0	1,491	0	0	1,491	0	1,364	5,211,924
4			0	1,603	0	0	1,603	0	1,424	5,213,348
5	12,000		0	1,723	0	0	1,723	10,351	1,486	5,225,185
6			0	1,800	0	0	1,800	0	1,508	5,226,693
7			0	1,881	0	0	1,881	0	1,530	5,228,222
8			0	1,966	0	0	1,966	0	1,552	5,229,774
9			0	2,054	0	0	2,054	0	1,575	5,231,349
10	17,000		0	2,147	0	0	2,147	12,650	1,597	5,245,596

10-Year Present Worth **5,245,596**

Elevated Storage Tank	
Initial Cost	5,208,000
10-Year Present Worth	5,245,596
Average Annual Cost	3,184

Notes

Reservior light replacement every 5 years; ROV inspection at year 5 and drain down inspection at year 10

Town of Campbell /Village of French Island
Independent Water System
Engineering Evaluation

Elevated Storage Tank

Present Worth Analysis Factors

Discount Rate	3.000%
Short Term Inflation Rate	3.5%
Long-term Inflation Rate	2.5%
Escalation Rate (Above Inflation)	
Electricity (0-5 years)	4.0%
Electricity (6-20 years)	2.0%
Equipment	2.0%
Chemicals	3.0%

Comments

Current Discount Rate for Federal Fiscal Year as established in NR 110 Wis. Administrative Code
Short Term Inflation based on 5-year CPI average (assumed during first 5 years)
Long Term Inflation Rate based on 10-year CPI average
National Institute of Standards, Annual Supplement to NIST Handbook 135
Electricity Escalation Rate = 2%
Natural Gas Escalation Rate = 2%

Chemical Escalation Rate = 3%

Life Cycle Cost Analysis

Initial Cost 5,208,000

Year (n)	Periodic Costs Replace	Periodic Costs Salvage	Annual Operational Costs O&M	Electricity	Sampling	Chemicals	Total Annual	PW Periodic	PW Annual	PW Cumulative
0			0	1,200	0	0	1,200			5,208,000
1			0	1,290	0	0	1,290	0	1,252	5,209,252
2			0	1,387	0	0	1,387	0	1,307	5,210,560
3			0	1,491	0	0	1,491	0	1,364	5,211,924
4			0	1,603	0	0	1,603	0	1,424	5,213,348
5	12,000		0	1,723	0	0	1,723	10,351	1,486	5,225,185
6			0	1,800	0	0	1,800	0	1,508	5,226,693
7			0	1,881	0	0	1,881	0	1,530	5,228,222
8			0	1,966	0	0	1,966	0	1,552	5,229,774
9			0	2,054	0	0	2,054	0	1,575	5,231,349
10	17,000		0	2,147	0	0	2,147	12,650	1,597	5,245,596
11			0	2,243	0	0	2,243	0	1,621	5,247,217
12			0	2,344	0	0	2,344	0	1,644	5,248,861
13			0	2,450	0	0	2,450	0	1,668	5,250,529
14			0	2,560	0	0	2,560	0	1,693	5,252,222
15	242,000		0	2,675	0	0	2,675	155,331	1,717	5,409,270
16			0	2,796	0	0	2,796	0	1,742	5,411,012
17			0	2,922	0	0	2,922	0	1,768	5,412,780
18			0	3,053	0	0	3,053	0	1,793	5,414,573
19			0	3,190	0	0	3,190	0	1,819	5,416,392
20	17,000		0	3,334	0	0	3,334	9,412	1,846	5,427,651

20-Year Present Worth	**5,427,651**

Elevated Storage Tank	
Initial Cost	5,208,000
20-Year Present Worth	5,427,651
Average Annual Cost	16,645

Notes

Reservior light replacement every 5 years; ROV inspection at year 5 and drain down inspection at year 10; cathodic protection maintenance at year 15; paint overcoat at year 15

Town of Campbell /Village of French Island
Independent Water System
Engineering Evaluation

Well 2, Pitless Unit and Water Main to Pumphouse
INDEPENDENT WATER SYSTEM DEVELOPMENT
OPINION OF PROBABLE PROJECT COST

ITEM	Units	Quantity	Unit Cost ($)	Initial Cost ($)
Well Construction	LS	1	458,000	458,000
Water Main to Pump House	LF	250	100	25,000
Connection at Well	LS	1	3,500	3,500
Submersible Pump	LS	1	32,000	32,000
Pitless Unit	LS	1	20,000	20,000
Motor Controls & SCADA	LS	1	70,000	70,000
Electrical	EA	1	24,000	24,000
Site Work	LS	1	40,000	40,000
Subtotal				672,500
Contingency			10%	70,000
Subtotal				742,500
Total Construction Cost				**742,500**
Engineering			15%	111,375
Total Initial Cost				**853,875**

Town of Campbell /Village of French Island
Independent Water System
Engineering Evaluation

Well 2, Pitless Unit and Water Main to Pumphouse

Present Worth Analysis Factors

Discount Rate	3.000%
Short Term Inflation Rate	3.5%
Long-term Inflation Rate	2.5%
Escalation Rate (Above Inflation)	
Electricity (0-5 years)	4.0%
Electricity (6-20 years)	2.0%
Equipment	2.0%
Chemicals	3.0%

Comments

Current Discount Rate for Federal Fiscal Year as established in NR 110 Wis. Administrative Code
Short Term Inflation based on 5-year CPI average (assumed during first 5 years)
Long Term Inflation Rate based on 10-year CPI average
National Institute of Standards, Annual Supplement to NIST Handbook 135
Electricity Escalation Rate = 2%
Natural Gas Escalation Rate = 2%

Chemical Escalation Rate = 3%

Life Cycle Cost Analysis

Initial Cost 877,879

			PSC Account							
			600	620	640	630				
Year	Periodic Costs		Annual Operational Costs					PW	PW	PW
(n)	Replace	Salvage	O&M	Electricity	Sampling	Chemicals	Total Annual	Periodic	Annual	Cumulative
0			800	18,380	1,037	0	20,217			877,879
1			828	19,758	1,094	0	21,680	0	21,049	898,928
2			857	21,240	1,154	0	23,251	0	21,916	920,844
3			887	22,833	1,218	0	24,938	0	22,821	943,665
4			918	24,545	1,285	0	26,748	0	23,765	967,431
5			950	26,386	1,355	0	28,692	0	24,750	992,180
6			974	27,574	1,416	0	29,964	0	25,094	1,017,275
7			998	28,814	1,480	0	31,293	0	25,444	1,042,719
8			1,023	30,111	1,547	0	32,681	0	25,799	1,068,517
9			1,049	31,466	1,616	0	34,131	0	26,159	1,094,676
10	50,000		1,075	32,882	1,689	0	35,646	37,205	26,524	1,158,405

10-Year Present Worth	**1,158,405**

Well 2, Pitless Unit and Water Main to Pumphouse	
Initial Cost	877,879
10-Year Present Worth	1,158,405
Average Annual Cost	31,402

Notes

No chemicals required at well; well rehab every 10 years

Town of Campbell /Village of French Island
Independent Water System
Engineering Evaluation

Well 2, Pitless Unit and Water Main to Pumphouse

Present Worth Analysis Factors

Discount Rate	3.000%
Short Term Inflation Rate	3.5%
Long-term Inflation Rate	2.5%
Escalation Rate (Above Inflation)	
Electricity (0-5 years)	4.0%
Electricity (6-20 years)	2.0%
Equipment	2.0%
Chemicals	3.0%

Comments

Current Discount Rate for Federal Fiscal Year as established in NR 110 Wis. Administrative Code
Short Term Inflation based on 5-year CPI average (assumed during first 5 years)
Long Term Inflation Rate based on 10-year CPI average
National Institute of Standards, Annual Supplement to NIST Handbook 135
Electricity Escalation Rate = 2%
Natural Gas Escalation Rate = 2%

Chemical Escalation Rate = 3%

Life Cycle Cost Analysis

Initial Cost 877,879

			PSC Account							
			600	620	640	630				
Year	Periodic Costs		Annual Operational Costs					PW	PW	PW
(n)	Replace	Salvage	O&M	Electricity	Sampling	Chemicals	Total Annual	Periodic	Annual	Cumulative
0			800	15,316	1,037	0	17,153			877,879
1			828	16,465	1,094	0	18,387	0	17,852	895,731
2			857	17,700	1,154	0	19,711	0	18,580	914,310
3			887	19,027	1,218	0	21,132	0	19,339	933,649
4			918	20,454	1,285	0	22,657	0	20,131	953,780
5			950	21,989	1,355	0	24,294	0	20,956	974,736
6			974	22,978	1,416	0	25,368	0	21,246	995,981
7			998	24,012	1,480	0	26,490	0	21,539	1,017,520
8			1,023	25,093	1,547	0	27,662	0	21,837	1,039,357
9			1,049	26,222	1,616	0	28,887	0	22,139	1,061,497
10	50,000		1,075	27,402	1,689	0	30,166	37,205	22,446	1,121,147
11			1,102	28,635	1,765	0	31,502	0	22,757	1,143,905
12			1,129	29,923	1,844	0	32,897	0	23,073	1,166,978
13			1,158	31,270	1,927	0	34,355	0	23,394	1,190,372
14			1,187	32,677	2,014	0	35,878	0	23,719	1,214,092
15			1,216	34,148	2,105	0	37,469	0	24,050	1,238,142
16			1,247	35,684	2,199	0	39,130	0	24,385	1,262,526
17			1,278	37,290	2,298	0	40,866	0	24,725	1,287,251
18			1,310	38,968	2,402	0	42,680	0	25,070	1,312,321
19			1,343	40,722	2,510	0	44,574	0	25,420	1,337,741
20	100,000		1,376	42,554	2,623	0	46,553	55,368	25,775	1,418,884

20-Year Present Worth	**1,418,884**

Well 2, Pitless Unit and Water Main to Pumphouse	
Initial Cost	877,879
20-Year Present Worth	1,418,884
Average Annual Cost	39,033

Notes

Power cost for well pumping is included in 2 - Water Treatment/Pumphouse; no chemicals required at well; well rehab every 10 years; replace well pump in year 20

Town of Campbell /Village of French Island
Independent Water System
Engineering Evaluation

Main Water Distribution System
INDEPENDENT WATER SYSTEM DEVELOPMENT
OPINION OF PROBABLE PROJECT COST

ITEM	Units	Quantity	Unit Cost ($)	Initial Cost ($)
Distribution				
Traffic Control	LS	1	120,000	120,000
Pulverize/salvage pavement	SY	352,000	4	1,408,000
Place/comopact pulverized material	SY	352,000	3	1,056,000
Watermain, 14", through existing casing pipe	LF	350	250	87,500
Watermain, 14", through existing casing pipe	LF	750	135	101,250
Bore casing pipe	LF	600	300	180,000
Watermain, 12" HDPE (in casing)	LF	750	80	60,000
Watermain, 12" trenched	LF	12,900	170	2,193,000
Watermain, 10" trenched	LF	12,200	160	1,952,000
Watermain, 8" trenched	LF	17,400	150	2,610,000
Watermain, 6" trenched	LF	77,250	140	10,815,000
Watermain, 8" directionally drilled river crossin	LF	1,100	320	352,000
Valve & box, 14"	EA	4	14,000	56,000
Valve & box, 12"	EA	29	5,500	159,500
Valve & box, 10"	EA	37	4,400	162,800
Valve & box, 8"	EA	45	3,000	135,000
Valve & box, 6"	EA	305	2,200	671,000
Hydrant	EA	210	6,500	1,365,000
Hydrant lead, 6"	EA	6,300	140	882,000
Fittings (included in piping)	LB	0	15	0
Services				
Corporation stop, 1"	EA	1,526	350	534,100
Curb stop and box, 1"	EA	1,526	350	534,100
HDPE Service Pipe, 1"	LF	50,400	40	2,016,000
Corporation stop, 1.5"	EA	24	650	15,600
Curb stop and box, 1.5"	EA	24	650	15,600
HDPE Service Pipe, 1.5"	LF	800	55	44,000
2" Tee/valve	EA	24	2,400	57,600
2" HDPE service	LF	790	80	63,200
4" Tee/valve	EA	4	2,500	10,000
4" HDPE service	LF	120	70	8,400
Subtotal				27,664,650
Contingency			20%	5,530,000
Subtotal				33,194,650
Total Construction Cost				**33,194,650**
Engineering			0%	2,552,000
Total Initial Cost				**35,746,650**

Town of Campbell /Village of French Island
Independent Water System
Engineering Evaluation

Main Water Distribution System

Present Worth Analysis Factors

Discount Rate	3.000%
Short Term Inflation Rate	3.5%
Long-term Inflation Rate	2.5%
Escalation Rate (Above Inflation)	
Electricity (0-5 years)	4.0%
Electricity (6-20 years)	2.0%
Equipment	2.0%
Chemicals	3.0%

Comments

Current Discount Rate for Federal Fiscal Year as established in NR 110 Wis. Administrative Code
Short Term Inflation based on 5-year CPI average (assumed during first 5 years)
Long Term Inflation Rate based on 10-year CPI average
National Institute of Standards, Annual Supplement to NIST Handbook 135
Electricity Escalation Rate = 2%
Natural Gas Escalation Rate = 2%

Chemical Escalation Rate = 3%

Life Cycle Cost Analysis

Initial Cost 35,746,650

Year (n)	Periodic Costs Replace	Periodic Costs Salvage	Annual Operational Costs O&M	Electricity	Sampling	Chemicals	Total Annual	PW Periodic	PW Annual	PW Cumulative
0			67,710	0	2,040	0	69,750			35,746,650
1			70,080	0	2,152	0	72,232	0	70,128	35,816,778
2			72,533	0	2,271	0	74,803	0	70,509	35,887,287
3			75,071	0	2,395	0	77,467	0	70,893	35,958,180
4			77,699	0	2,527	0	80,226	0	71,280	36,029,460
5	5,000		80,418	0	2,666	0	83,084	4,313	71,669	36,105,443
6			82,429	0	2,786	0	85,215	0	71,366	36,176,809
7			84,489	0	2,912	0	87,401	0	71,065	36,247,874
8			86,602	0	3,043	0	89,644	0	70,766	36,318,640
9			88,767	0	3,179	0	91,946	0	70,469	36,389,109
10	5,000		90,986	0	3,323	0	94,308	3,720	70,174	36,463,004

10-Year Present Worth **36,463,004**

37,179,357

Main Water Distribution System	
Initial Cost	35,746,650
10-Year Present Worth	36,463,004
Average Annual Cost	84,133

Notes

Town of Campbell /Village of French Island
Independent Water System
Engineering Evaluation

Main Water Distribution System

Present Worth Analysis Factors

Discount Rate	3.000%
Short Term Inflation Rate	3.5%
Long-term Inflation Rate	2.5%
Escalation Rate (Above Inflation)	
Electricity (0-5 years)	4.0%
Electricity (6-20 years)	2.0%
Equipment	2.0%
Chemicals	3.0%

Comments

Current Discount Rate for Federal Fiscal Year as established in NR 110 Wis. Administrative Code
Short Term Inflation based on 5-year CPI average (assumed during first 5 years)
Long Term Inflation Rate based on 10-year CPI average
National Institute of Standards, Annual Supplement to NIST Handbook 135
Electricity Escalation Rate = 2%
Natural Gas Escalation Rate = 2%

Chemical Escalation Rate = 3%

Life Cycle Cost Analysis

Initial Cost 35,746,650

Year (n)	Periodic Costs Replace	Periodic Costs Salvage	Annual Operational Costs O&M	Electricity	Sampling	Chemicals	Total Annual	PW Periodic	PW Annual	PW Cumulative
0			67,710	0	2,040	0	69,750			35,746,650
1			70,080	0	2,152	0	72,232	0	70,128	35,816,778
2			72,533	0	2,271	0	74,803	0	70,509	35,887,287
3			75,071	0	2,395	0	77,467	0	70,893	35,958,180
4			77,699	0	2,527	0	80,226	0	71,280	36,029,460
5	5,000		80,418	0	2,666	0	83,084	4,313	71,669	36,105,443
6			82,429	0	2,786	0	85,215	0	71,366	36,176,809
7			84,489	0	2,912	0	87,401	0	71,065	36,247,874
8			86,602	0	3,043	0	89,644	0	70,766	36,318,640
9			88,767	0	3,179	0	91,946	0	70,469	36,389,109
10	5,000		90,986	0	3,323	0	94,308	3,720	70,174	36,463,004
11			93,261	0	3,472	0	96,733	0	69,882	36,532,885
12			95,592	0	3,628	0	99,220	0	69,591	36,602,476
13			97,982	0	3,792	0	101,773	0	69,303	36,671,779
14			100,431	0	3,962	0	104,394	0	69,016	36,740,796
15	5,000		102,942	0	4,141	0	107,083	3,209	68,732	36,812,737
16			105,516	0	4,327	0	109,843	0	68,450	36,881,187
17			108,154	0	4,522	0	112,675	0	68,170	36,949,358
18			110,857	0	4,725	0	115,582	0	67,893	37,017,250
19			113,629	0	4,938	0	118,567	0	67,617	37,084,867
20	5,000		116,470	0	5,160	0	121,629	2,768	67,343	37,154,979

20-Year Present Worth **37,154,979**

Main Water Distribution System	
Initial Cost	35,746,650
20-Year Present Worth	37,154,979
Average Annual Cost	97,191

Notes

Valve/hydrant repairs every 5 years

Town of Campbell /Village of French Island
Independent Water System
Engineering Evaluation

Hiawatha Distribution System
INDEPENDENT WATER SYSTEM DEVELOPMENT
OPINION OF PROBABLE PROJECT COST

ITEM	Units	Quantity	Unit Cost ($)	Initial Cost ($)
Distribution				
Traffic Control	LS	1	30,000	30,000
HMA Pavement	Ton	2,500	130	325,000
CABC, 9"	Ton	4,800	25	120,000
Subgrade preparation	SY	12,700	2.5	31,750
Saw cutting	LF	1,500	3.0	4,500
Watermain, 10" trenched	LF	1,400	170	238,000
Watermain, 8" trenched	LF	4,700	150	705,000
Watermain, 6" trenched	LF	1,100	140	154,000
Watermain, 8" directionally drilled river crossin	LF	1,100	320	352,000
Valve & box, 10"	EA	3	4,400	13,200
Valve & box, 8"	EA	13	3,000	39,000
Valve & box, 6"	EA	20	2,200	44,000
Hydrant	EA	16	6,500	104,000
Hydrant lead, 6"	EA	240	140	33,600
Fittings (included in piping)	LB	0	15	0
Services				
Corporation stop, 1"	EA	74	350	25,900
Curb stop and box, 1"	EA	74	350	25,900
HDPE Service Pipe, 1"	LF	2,400	40	96,000
Subtotal				2,341,850
Contingency			20%	470,000
Subtotal				2,811,850
Total Construction Cost				**2,811,850**
Engineering			0%	252,000
Total Initial Cost				**3,063,850**

Town of Campbell /Village of French Island
Independent Water System
Engineering Evaluation

Hiawatha Distribution System

Present Worth Analysis Factors

Discount Rate	3.000%
Short Term Inflation Rate	3.5%
Long-term Inflation Rate	2.5%
Escalation Rate (Above Inflation)	
Electricity (0-5 years)	4.0%
Electricity (6-20 years)	2.0%
Equipment	2.0%
Chemicals	3.0%

Comments

Current Discount Rate for Federal Fiscal Year as established in NR 110 Wis. Administrative Code
Short Term Inflation based on 5-year CPI average (assumed during first 5 years)
Long Term Inflation Rate based on 10-year CPI average
National Institute of Standards, Annual Supplement to NIST Handbook 135
Electricity Escalation Rate = 2%
Natural Gas Escalation Rate = 2%

Chemical Escalation Rate = 3%

Life Cycle Cost Analysis

Initial Cost 3,063,850

Year (n)	Periodic Costs Replace	Periodic Costs Salvage	Annual Operational Costs O&M	Electricity	Sampling	Chemicals	Total Annual	PW Periodic	PW Annual	PW Cumulative
0			2,764	0	90	0	2,854			3,063,850
1			2,861	0	95	0	2,956	0	2,870	3,066,720
2			2,961	0	100	0	3,061	0	2,886	3,069,605
3			3,065	0	106	0	3,170	0	2,901	3,072,507
4			3,172	0	111	0	3,284	0	2,917	3,075,424
5	2,500		3,283	0	118	0	3,401	2,157	2,933	3,080,514
6			3,365	0	123	0	3,488	0	2,921	3,083,435
7			3,449	0	128	0	3,578	0	2,909	3,086,344
8			3,535	0	134	0	3,670	0	2,897	3,089,241
9			3,624	0	140	0	3,764	0	2,885	3,092,126
10	2,500		3,714	0	147	0	3,861	1,860	2,873	3,096,859

10-Year Present Worth **3,096,859** 3,129,869

Hiawatha Distribution System	
Initial Cost	3,063,850
10-Year Present Worth	3,096,859
Average Annual Cost	3,673

Notes

Town of Campbell /Village of French Island
Independent Water System
Engineering Evaluation

Hiawatha Distribution System

Present Worth Analysis Factors

Discount Rate	3.000%
Short Term Inflation Rate	3.5%
Long-term Inflation Rate	2.5%
Escalation Rate (Above Inflation)	
Electricity (0-5 years)	4.0%
Electricity (6-20 years)	2.0%
Equipment	2.0%
Chemicals	3.0%

Comments

Current Discount Rate for Federal Fiscal Year as established in NR 110 Wis. Administrative Code
Short Term Inflation based on 5-year CPI average (assumed during first 5 years)
Long Term Inflation Rate based on 10-year CPI average
National Institute of Standards, Annual Supplement to NIST Handbook 135
Electricity Escalation Rate = 2%
Natural Gas Escalation Rate = 2%

Chemical Escalation Rate = 3%

Life Cycle Cost Analysis

Initial Cost 3,063,850

Year (n)	Periodic Costs Replace	Periodic Costs Salvage	Annual Operational Costs O&M	Electricity	Sampling	Chemicals	Total Annual	PW Periodic	PW Annual	PW Cumulative
0			2,764	0	90	0	2,854			3,063,850
1			2,861	0	95	0	2,956	0	2,870	3,066,720
2			2,961	0	100	0	3,061	0	2,886	3,069,605
3			3,065	0	106	0	3,170	0	2,901	3,072,507
4			3,172	0	111	0	3,284	0	2,917	3,075,424
5	2,500		3,283	0	118	0	3,401	2,157	2,933	3,080,514
6			3,365	0	123	0	3,488	0	2,921	3,083,435
7			3,449	0	128	0	3,578	0	2,909	3,086,344
8			3,535	0	134	0	3,670	0	2,897	3,089,241
9			3,624	0	140	0	3,764	0	2,885	3,092,126
10	2,500		3,714	0	147	0	3,861	1,860	2,873	3,096,859
11			3,807	0	153	0	3,961	0	2,861	3,099,721
12			3,903	0	160	0	4,063	0	2,849	3,102,570
13			4,000	0	167	0	4,167	0	2,838	3,105,408
14			4,100	0	175	0	4,275	0	2,826	3,108,234
15	2,500		4,203	0	183	0	4,385	1,605	2,815	3,112,653
16			4,308	0	191	0	4,499	0	2,803	3,115,457
17			4,415	0	199	0	4,615	0	2,792	3,118,249
18			4,526	0	208	0	4,734	0	2,781	3,121,030
19			4,639	0	218	0	4,857	0	2,770	3,123,799
20	2,500		4,755	0	228	0	4,982	1,384	2,759	3,127,942

20-Year Present Worth	**3,127,942**

Hiawatha Distribution System	
Initial Cost	3,063,850
20-Year Present Worth	3,127,942
Average Annual Cost	4,439

Notes

Compressor Replacment at Year 15

Town of Campbell /Village of French Island
Independent Water System
Engineering Evaluation

Meters & Metering/Billing
INDEPENDENT WATER SYSTEM DEVELOPMENT
OPINION OF PROBABLE PROJECT COST

ITEM	Units	Quantity	Unit Cost ($)	Initial Cost ($)
Meters				
5/8" Meters	EA	1,610	500	805,000
1" Meters	EA	40	800	32,000
1-1/2" Meters	EA	27	2,250	60,750
3" meters	EA	4	3,000.0	12,000
Reader/software	EA	1	60,000	60,000
Subtotal				969,750
Contingency			20%	190,000
Subtotal				1,159,750
Total Construction Cost				**1,159,750**
Engineering			0%	101,000
Total Initial Cost				**1,260,750**

Town of Campbell /Village of French Island
Independent Water System
Engineering Evaluation

Meters & Metering/Billing

Present Worth Analysis Factors

Discount Rate	3.000%
Short Term Inflation Rate	3.5%
Long-term Inflation Rate	2.5%
Escalation Rate (Above Inflation)	
Electricity (0-5 years)	4.0%
Electricity (6-20 years)	2.0%
Equipment	2.0%
Chemicals	3.0%

Comments

Current Discount Rate for Federal Fiscal Year as established in NR 110 Wis. Administrative Code
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Long Term Inflation Rate based on 10-year CPI average
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Electricity Escalation Rate = 2%
Natural Gas Escalation Rate = 2%

Chemical Escalation Rate = 3%

Life Cycle Cost Analysis

Initial Cost 1,260,750

Year (n)	Periodic Costs Replace	Periodic Costs Salvage	Annual Operational Costs O&M	Electricity	Sampling	Chemicals	Total Annual	PW Periodic	PW Annual	PW Cumulative
0			144,005	0	0	0	144,005			1,260,750
1			149,045	0	0	0	149,045	0	144,704	1,405,454
2			154,262	0	0	0	154,262	0	145,406	1,550,860
3			159,661	0	0	0	159,661	0	146,112	1,696,972
4			165,249	0	0	0	165,249	0	146,821	1,843,794
5			171,033	0	0	0	171,033	0	147,534	1,991,328
6			175,308	0	0	0	175,308	0	146,818	2,138,146
7			179,691	0	0	0	179,691	0	146,105	2,284,251
8			184,183	0	0	0	184,183	0	145,396	2,429,647
9			188,788	0	0	0	188,788	0	144,690	2,574,337
10	15,000		193,508	0	0	0	193,508	11,161	143,988	2,729,487

10-Year Present Worth **2,729,487**

Meters & Metering/Billing	
Initial Cost	1,260,750
10-Year Present Worth	2,729,487
Average Annual Cost	172,823

Notes

O & M costs include all administrative labor, all employee benefits, office supplies and expenses; replacement cost is for meter software and reader updates

Town of Campbell /Village of French Island
Independent Water System
Engineering Evaluation

Meters & Metering/Billing

Present Worth Analysis Factors

Discount Rate	3.000%
Short Term Inflation Rate	3.5%
Long-term Inflation Rate	2.5%
Escalation Rate (Above Inflation)	
Electricity (0-5 years)	4.0%
Electricity (6-20 years)	2.0%
Equipment	2.0%
Chemicals	3.0%

Comments

Current Discount Rate for Federal Fiscal Year as established in NR 110 Wis. Administrative Code
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Long Term Inflation Rate based on 10-year CPI average
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Electricity Escalation Rate = 2%
Natural Gas Escalation Rate = 2%

Chemical Escalation Rate = 3%

Life Cycle Cost Analysis

Initial Cost 1,260,750

Year (n)	Periodic Costs Replace	Periodic Costs Salvage	Annual Operational Costs O&M	Electricity	Sampling	Chemicals	Total Annual	PW Periodic	PW Annual	PW Cumulative
0			144,005	0		0	144,005			1,260,750
1			149,045	0	0	0	149,045	0	144,704	1,405,454
2			154,262	0	0	0	154,262	0	145,406	1,550,860
3			159,661	0	0	0	159,661	0	146,112	1,696,972
4			165,249	0	0	0	165,249	0	146,821	1,843,794
5			171,033	0	0	0	171,033	0	147,534	1,991,328
6			175,308	0	0	0	175,308	0	146,818	2,138,146
7			179,691	0	0	0	179,691	0	146,105	2,284,251
8			184,183	0	0	0	184,183	0	145,396	2,429,647
9			188,788	0	0	0	188,788	0	144,690	2,574,337
10	15,000		193,508	0	0	0	193,508	11,161	143,988	2,729,487
11			198,345	0	0	0	198,345	0	143,289	2,872,775
12			203,304	0	0	0	203,304	0	142,593	3,015,369
13			208,387	0	0	0	208,387	0	141,901	3,157,270
14			213,596	0	0	0	213,596	0	141,212	3,298,482
15			218,936	0	0	0	218,936	0	140,527	3,439,009
16			224,409	0	0	0	224,409	0	139,845	3,578,853
17			230,020	0	0	0	230,020	0	139,166	3,718,019
18			235,770	0	0	0	235,770	0	138,490	3,856,509
19			241,664	0	0	0	241,664	0	137,818	3,994,327
20	15,000		247,706	0	0	0	247,706	8,305	137,149	4,139,781

20-Year Present Worth **4,139,781**

Meters & Metering/Billing	
Initial Cost	1,260,750
20-Year Present Worth	4,139,781
Average Annual Cost	198,643

Notes

Compressor Replacment at Year 15

Costs by PSC Account

Expense Group--	*USOA No.*	*Account*	*Revised Cost*	*PER Cost*
Intangible Plant	301	Organization		$ -
	302	Franchises and Consents		$ -
	303	Miscellaneous Intangible Plant		$ -
Source of Supply Plant	310	Land and Land Rights		$ -
	311	Structures and Improvements	$ 199,980	$ 382,263
	312	Collecting and Impounding Reservoirs		$ -
	313	Lake, Rivers, and Other Intakes		$ -
	314	Wells and Springs	$ 1,459,402	$ 2,428,411
	316	Supply Mains	$ 31,743	$ -
	317	Other Water Source Plant		$ -
Pumping Plant	320	Land and Land Rights		$ -
	321	Structures and Improvements (includes electrical upgrades)		$ -
	323	Other Power Production Equipment (includes backup power / generator)	$ 400,000	$ 115,172
	325	Electric Pumping Equipment	$ 397,281	$ 147,164
	326	Diesel Pumping Equipment		$ -
	328	Other Pumping Equipment		$ -
Water Treatment Plant	330	Land and Land Rights		$ -
	331	Structures and Improvements	$ 13,999,451	$ 10,666,188
	332	Sand or Other Media Filtration Equipment	$ 3,566,509	$ 3,391,170
	333	Membrane Filtration Equipment		$ -
	334	Other Water Treatment Equipment (includes chemical feed equipment)	$ 747,646	$ 362,152
Transmission and Distribution Plant	340	Land and Land Rights		$ 233,022
	341	Structures and Improvements		$ 14,849,272
	342	Distribution Reservoirs and Standpipes	$ 5,208,000	$ 3,823,399
	343	Transmission and Distribution Mains	$ 31,271,409	$ 21,265,041
	345	Services	$ 4,455,626	$ 3,522,311
	346	Meters	$ 1,260,750	$ 1,288,775
	348	Hydrants	$ 3,083,465	$ 1,501,356
	349	Other Transmission and Distribution Plant		$ -
General Plant	389	Land and Land Rights		$ -
	390	Structures and Improvements (includes utility garage and office)		$ -
	391	Office Furniture and Equipment	$ 66,046	$ 31,992
	391.1	Computer Equipment	$ 33,023	$ -
	392	Transportation Equipment		$ -
	393	Stores Equipment		$ -
	394	Tools, Shop and Garage Equipment		$ -
	395	Laboratory Equipment	$ 33,023	$ -
	396	Power Operated Equipment		$ -
	397	Communication Equipment		$ -
	397.1	SCADA Equipment	$ 924,651	$ 767,812
	398	Miscellaneous Equipment		$ -
Total			$ 67,138,004	$ 64,775,500

Expense Group	*USOA No.*	*Account*	*Revised Cost*	*PER Cost*
Source of Supply Expenses – Operation	600	Operation Labor	$ 1,600	$0
	601	Purchased Water		$0
	602	Operation Supplies and Expenses	$ 2,074	$17,000
Source of Supply Expenses – Maintenance	605	Maintenance of Water Source Plant	$ 10,000	$0
Pumping Expenses - Operation	620	Operation Labor	$ 46,750	$0
	621	Fuel for Power Production		$0
	622	Fuel or Power Purchased for Pumping	$ 98,380	$57,000
	623	Operation Supplies and Expenses		$0
Pumping Expenses – Maintenance	625	Maintenance of Pumping Plant	$ 2,000	$0
Water Treatment Expenses – Operation	630	Operation Labor	$ 63,910	$0
	631	Chemicals	$ 45,000	$29,000
	632	Operation Supplies and Expenses	$ 17,000	$0
Water Treatment Expenses – Maintenance	635	Maintenance of Water Treatment Plant	$ 57,750	$11,000
Transmission and Distribution Expenses – Operation	640	Operation Labor	$ 2,600	$0
	641	Operation Supplies and Expenses	$ 3,330	$0
Transmission and Distribution Expenses – Maintenance	650	Maintenance of Distribution Reservoirs and Standpipes	$ 4,100	$0
	651	Maintenance of Mains	$ 58,427	$0
	652	Maintenance of Services	$ 7,047	$0
	653	Maintenance of Meters		$0
	654	Maintenance of Hydrants	$ 5,000	$0
	655	Maintenance of Other Plant		$0
Customer Accounts Expenses – Operation	901	Meter Reading Labor	$ 30,000	$0
	902	Accounting and Collecting Labor		$0
	903	Supplies and Expenses		$0
	904	Uncollectible Amounts		$0
	906	Customer Service and Informational Expenses		$0
Sales Expenses - Operation	910	Sales Expenses		$0
Administrative and General Expenses - Operation	920	Administrative and General Salaries	$ 23,005	$138,000
	921	Office Supplies and Expenses	$ 6,000	$6,000
	922	Administrative Expenses Transferred – Credit		$0
	923	Outside Services Employed	$ 14,000	$14,000
	924	Property Insurance	$ 6,000	$17,000
	925	Injuries and Damages		$0
	926	Employee Pensions and Benefits	$ 95,000	$92,000
	928	Regulatory Commission Expenses		$6,000
	930	Miscellaneous General Expenses		$3,000
	933	Transportation Expenses		$6,000
Administrative and General Expenses - Maintenance	935	Maintenance of General Plant		$0
Total Annual Operating Expenses for the Proposed Project:			$598,973	$396,000