

Special Meeting Agenda
PUD Board of Commissioners
Tues, Nov 22, 2022 10:00 AM
310 Four Corners Rd.
Port Townsend, WA 98368
and online via ZOOM



To join online go to: <https://zoom.us/my/jeffcopud>. Follow the instructions to login. Meetings will open 10 minutes before they begin. TOLL FREE CALL IN #: 833-548-0282, Meeting ID# 4359992575#. Use *6 to mute or unmute. *9 to raise a hand to request to begin speaking.

1. Call to Order

With the adoption by the Washington State Legislature of ESHB 1329, providing for both virtual and in-person meetings to be held, JPUD will be offering both virtual on-line meetings as well as in-person meetings, unless advance notice is provided. In person attendance will be limited to provide sufficient space and masking is encouraged. Online participant audio will be muted upon entry. Please unmute at the appropriate time to speak. If you are calling in, use *6 to mute and unmute and *9 to raise a hand to request to speak.

2. Agenda Review

3. Presentation from Kellen Lynch re: Beneficial Electrification Toolkit 3 - 26

[Toolkit Presentation for JPUD 11.22.pptx](#) 

[Toolkit website](#)

4. Loan Application for Coyle Waterline Replacement - Phase 2 27 - 30

[AGENDA REPORT_DWSRF Phase 2 Coyle Water Main Improvement Project_Final.pdf](#)



[Attachment A - Phase 2 Coyle Water Main Replacement Project - Conceptual Site Plan.pdf](#) 

[Attachment B - Conceptual Phase 2 Coyle Water Main Replacement Cost Estimate.pdf](#) 

5. Sparling Treatment Plant Expansion and Improvements 31 - 34

[AGENDA REPORT_DWSRF Sparling Water Treatment Plant Upgrade.pdf](#) 

[Attachment A - Sparling Treatment Plant Upgrade Conceptual Site Plan.pdf](#) 

6. Adjourn

Understanding the Beneficial Electrification Toolkit

Presented by
Kellen Lynch, New Story Studio
Jon Jantz, Stikeen Strategies



**Beneficial
Electrification
Toolkit**


Why Are We Here?


It's time to prepare for the next generation of electrification. We aim to support rural utilities in their ambitions to implement beneficial programs through the Beneficial Electrification Toolkit.


JPUD: What interests you about beneficial electrification or the Toolkit?




What is Beneficial Electrification?

- **1 Saves money**

More energy-efficient appliances waste less electricity, saving money on utility bills.
- **2 Benefits the environment**

Wasting less electricity, driving an electric vehicle, and using clean energy reduces carbon emissions.
- **3 Improves quality of life**

New, smarter technology can provide better living experiences at home and on the road.
- **4 Fosters grid resilience**

Smart appliances and homes can work together to balance load on a clean energy grid.





Beneficial Electrification Toolkit

Developed by EESI and Beneficial Electrification League

Today's Walkthrough

Section 2: End Use Applications

Section 3: Opportunity Mapping

Section 4: Goal Setting, Identifying Barriers

Section 5: Contractor Recruitment



Our world is electrifying. How will you meet the demand?

Transportation Electrification



TE Overview

[Learn More](#)

EV Consumer Options

[Learn More](#)

EV Fleets

[Learn More](#)

EV Charging Solutions

[Learn More](#)

Electric Vehicle Options

All images courtesy of each vehicle's manufacturer



Ford F-150 Lightning 2022

America's best selling model goes electric

Range: ~ 300+ miles

Cost: fleet trim +\$10k for extended range
0k Platinum

Release Date: Spring 2022 (back-ordered)



Rivian R1T

First Electric Pickup to market in Sept 2021

Range: 314 - 400+ miles

Cost: \$67k long range - \$77k extended range

Release Date: 2021 (back-ordered)



Ford Mustang Mach-E

Ford's 1st electric SUV is making a splash

Range: 211-305 miles

Cost: \$44k (230mi rwd) \$55k (300mi awd)

Release date: 2021



Tesla Model Y

America's best Selling EV

Range: 318 miles

Cost: \$59k long range awd

Release Date: 2021



Volkswagen ID.4

VW's newest EV

Range: 240-300 miles

Cost: \$41k rwd

Release Date: 2021



EVs Offer Significant Load Growth Benefits

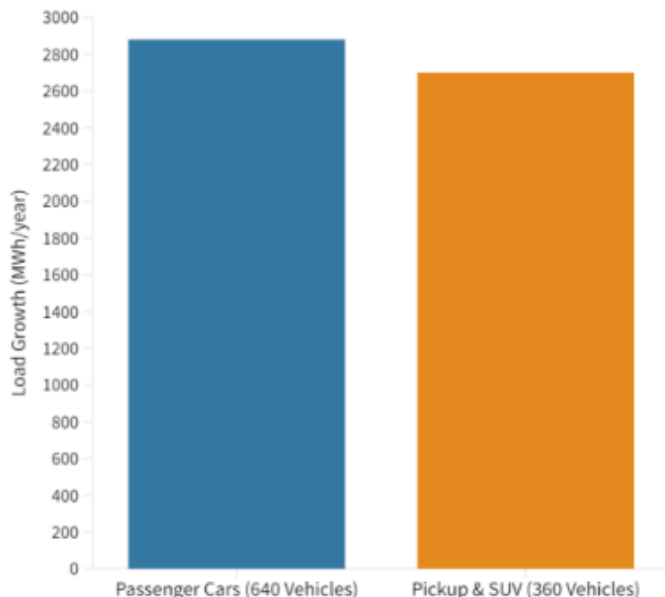
Electric vehicles offer utilities opportunities for increased revenue just like other forms of electrification. Controllable load is an exceptional type of load growth to harness as it can help to mitigate peak capacity issues.

- One household purchasing an electric pickup or SUV can increase its energy use by **68%**

* Based on national average home energy use of 30 kWh/day and adding one electric truck/SUV driven 15,000 mi/yr per vehicle, which would require an additional 20.5 kWh/day

- Scaling this calculation to 1,000 homes in a service territory is an increase of **625 MWh/month**

Load Growth Potential per 1,000 Vehicles Electrified



Transportation Electrification

Part 3: EV Fleet Options

[Back to EV Overview](#)[Back to EV
Consumer Options](#)[Go to EV Charging Solutions](#)

Pickups

Motorists' workhorses are going electric with exciting offerings from Ford, Chevrolet, Rivian, and Tesla.

Photo Credit: Ford Motors

[Learn More](#)

Utility Bucket Truck

Can both help electrify a utility fleet and supply power during outages.

Photo Credit: Portland General Electric

[Learn More](#)

School Bus

Electric school buses are operating across the country in all weather and geographical conditions.

Photo Credit: Lion Electric

[Learn More](#)

Police

High performance, safety, and low fuel costs give electric vehicles a clear edge.

Photo Credit: Ford Motors

[Learn More](#)



Electric Fleet Vehicles Offer Significant Load Growth Benefits

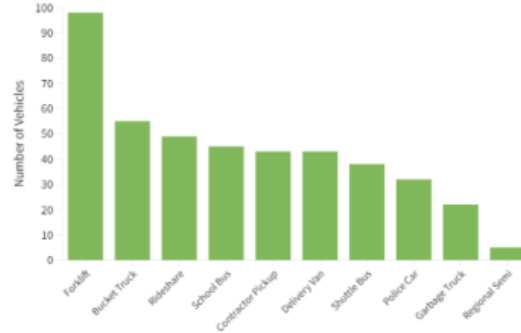
Electric vehicles offer utilities opportunities for increased revenue just like other forms of electrification. Controllable load is an exceptional type of load growth to harness as it can help to mitigate peak capacity issues.

- One fleet purchasing 10 electric pickups would increase its electric use by over **6.2 MWh/month**

*Based on each electric pickup driving 15,000 mi/yr, which would require 20.5 kWh per day per vehicle

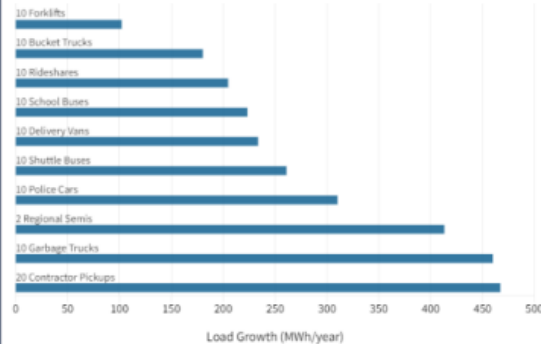
- Scaling this to 500 fleet pickups in a service territory is an increase of **311 MWh/month**
- Managed charging is vital to harness this load by shifting it to times of day with excess capacity and avoiding charging at peak times
- Vehicles like garbage trucks, school buses, and police cars offer even greater load growth benefits

Number of vehicles per type needed to use 1 GWh of energy per year



Number of vehicles based on estimated miles traveled. 1 GWh chosen as a base metric for vehicle comparison

Load growth potential for electric fleet vehicles in Anytown, USA



Details on Electric Vehicle Types

Pickups



Back

	EV	ICE
Energy Use	500 Watt-hrs/mile	16 MPG
Miles/yr	15,000	15,000
Energy Price	\$0.12/kWh	\$3.00/gal
Energy Cost/yr	\$900	\$2,812
EV Savings/yr	\$1,913	
Load Growth/yr	7.5 MWh	

New models with 250-500+ miles of range are set to debut from Ford, GM, Rivian, Tesla, and others.

MSRPs are expected to range between \$40-75k, close to cost parity with internal combustion engine pickups.

Bucket Truck



Back

	EV	ICE
Energy Use	1,900 Watt-hrs/mile	5 MPG
Miles/yr	9,300	9,300
Energy Price	\$0.12/kWh	\$3.00/gal
Energy Cost/yr	\$2,120	\$5,385
EV Savings/yr	\$3,460	
Load Growth/yr	17.7 MWh	

The utility fleet is one of the best places to start learning about EVs. Electric bucket trucks can offer the ability to provide power during emergencies.

Police Vehicle

[Back](#)

	EV	ICE
Energy Use	500 Watt-hrs/mile	7 MPG
Miles/yr	62,050	62,050
Energy Price	\$0.12/kWh	\$3.00/gal
Energy Cost/yr	\$3,723	\$26,592
EV Savings/yr	\$22,870	
Load Growth/yr	31 MWh	

Today's highest-performing vehicles are now electric. Police vehicles are prime candidates for electrification as many hours of idling each day often lowers gas fuel economy below 10mpg. These vehicles travel a lot of miles each year, which helps quickly compound the electric fuel savings. The added safety provided by EV structural designs helps protect officers' safety while offering a performance edge. Police around the country are beginning to use models such as Ford's Mustang Mach-E and Tesla's Y, 3 and S. See [EV Police vehicles in action](#).

Garbage Truck

[Back](#)

	EV	ICE
Energy Use	1,800 Watt-hrs/mile	2.5 MPG
Miles/yr	25,550	25,550
Energy Price	\$0.12/kWh	\$3.00/gal
Energy Cost/yr	\$5,519	\$30,660
EV Savings/yr	\$25,141	
Load Growth/yr	46 MWh	

Municipalities and private refuse collection companies are beginning to electrify their fleets to benefit from lower maintenance and fuel costs, as well as better driver safety.

Class 8 Semi Truck



Back

	EV	ICE
Energy Use	1,900 Watt-hrs/mile	5 MPG
Miles/yr	108,750	108,750
Energy Price	\$0.12/kWh	\$3.00/gal
Energy Cost/yr	\$24,795	\$62,250
EV Savings/yr	\$40,455	
Load Growth/yr	206.6 MWh	

Production is beginning from several manufacturers hoping to capitalize on this market as it goes electric. Offerings from Daimler Freightliner, Tesla, Volvo and others are on the way.

Motor Pool Vehicle



Back

	EV	ICE
Energy Use	300 Watt-hrs/mile	24 MPG
Miles/yr	15,000	15,000
Energy Price	\$0.12/kWh	\$3.00/gal
Energy Cost/yr	\$540	\$1,875
EV Savings/yr	\$1,335	
Load Growth/yr	4.5 MWh	

Starting in the mid-\$20k range, a growing number of affordable vehicles for light duty fleets promise to save taxpayers money on inexpensive electric fuel versus gas. Options include the Chevy Bolt EV/EUV, Volkswagen ID 4, Nissan Leaf, Mustang Mach E, Hyundai Ioniq 5, Kia EV 6, and the upcoming Chevy Equinox and Blazer and Ford Explorer.

Fuel Savings & Load from 1 Electric School Bus Using Jefferson County Fuel Costs

EV Calculator

Miles Driven Per Year: 15300

Meter Count in Utility Service Territory: 00040

Price Per Gallon: 4.8

kWh rate (\$/kWh): 0.11

Miles Per Gallon: 6

kWh Per Mile: 1.7

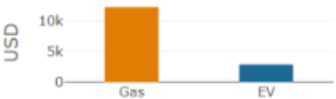
Annual Gas Cost: \$12240

Annual Electric Cost: \$2861

Approximate Annual Revenue from EVs: \$45,805

(if 90% of light-duty vehicle fleet in service territory goes electric)

Annual Fuel Cost Comparison



Annual Utility Revenue for 1 Vehicle: \$2861

Annual Load Growth for 1 Vehicle: 26010kWh

Yearly EV Fuel Savings: \$9379



<https://www.betoolkit.org/assessment/te>

Local Fleet Data

JPUD can assist everyday customers alongside governmental partners, like the City and County, to electrify fleets. But why support EV adoption?

- Saves ratepayers in energy costs
- Supports financial stability of JPUD
- JPUD can assist with contractor guidance
- Encouraging EVs will lead to more EVs

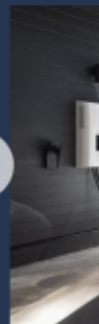


697 EVs already registered in Jefferson County!

City of PT

- 88 fleet vehicles
- 13 pickups, 6 passenger vehicles already 20 years old
- If electrified, would result in approx. 41 MWh annual increase
- \$20,000 in annual fuel savings

Electric Vehicle Customer Charging Solutions



EV Charging 101

Why is dwell time fundamental? What charging speeds do drivers expect in different settings? What are the different charging levels and what charging speeds can be expected from each?

Photo Credit: Pixabay

Managed Charging 101

What is Managed Charging? What is Passive vs Active Managed Charging? What are the benefits of Utility Charge Control (VIG) and Vehicle to Grid / V2X?

Photo Credit: Pixabay

Charging Solutions by Location

Charging solutions are very different for highway rest stops, single-family homes, workplaces, and many other settings. How can utilities prepare for these various needs in their territories?

Photo Credit: Chargepoint

EV Charging Make Ready Programs

Why are make Ready Programs important and what can they cover? Which customers can benefit? What are some common incentive structures?

Photo Credit: Tucson Electric Power

Collaborate

How can the customers to support resiliency fleet management structures or expansion? subscription?

Photo Credit:

[Learn More](#)

[Learn More](#)

[Learn More](#)

[Learn More](#)

Framework and Prep to Build a Transportation Electrification Program

Potential Utility EV Goals

1

Ensure that the utility is prepared to maximize the benefits of EV growth, including financial, grid, air quality and customer service benefits of EVs to the utility and customers.

2

Meet and exceed customer expectations, with utilities becoming the 'go-to' resource for customers on electric vehicles, especially electric vehicle charging.

Core Actions for Addressing Potential EV Goals and Challenges

The following activities are suggested to address previously mentioned goals:

Action 1

Form an Internal EV Team

Action 3

Cultivate Relationships with Community Stakeholders

Action 5

Engage and Learn from Utility Peers

Action 2

Design and implement a Custom TE Strategy Tailored to the Utility

Action 4

Engage and Support Customers on EV-Related Issues and Opportunities

Action 6

Track EV Registrations in the Service Territory

Action 7

Develop a Managed Charging Program to Maximize Benefits for All



Help is available to accomplish these actions!

Goal Setting

JPUD's Stated Goals from RESP Business Case

- Improve quality of life
- Reduce customer bills
- Reduce carbon emissions
- Reduce peak loads
- Improve air quality
- Increase energy resilience

JPUD: Does JPUD wish to engage more broadly with customers (reach more people) or engage more deeply with those already participating?

What goals have not yet been articulated today?



Setting Realistic Expectations

How many annual participants does JPUD need?

What is the minimum needed to cover program costs?

What is the maximum amount of participants that staff could actually engage?

JPUD Annual Target:

.6% of residential ratepayers or 120 of 20,200

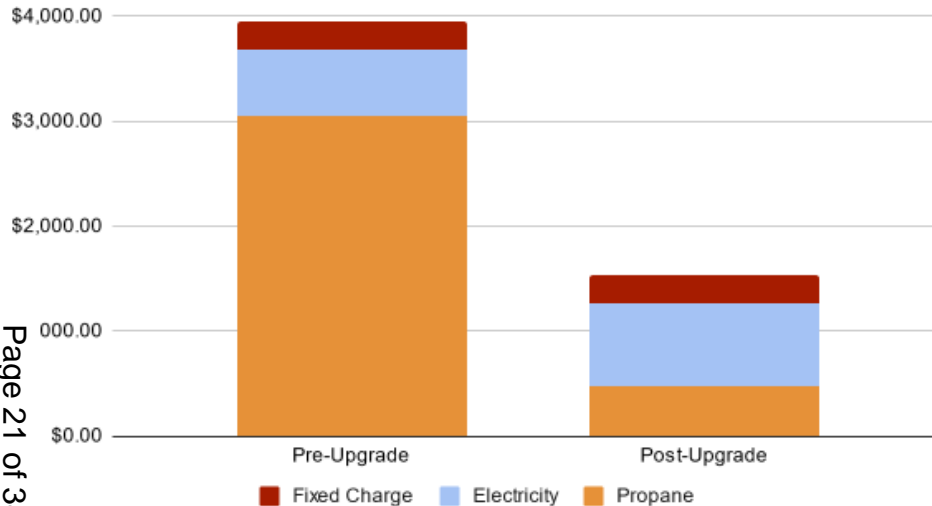
JPUD: Do you have a relatable story from a past project of setting realistic or unrealistic expectations? What did that do to the project?



40%

Or 8,000 of JPUD homes are
heated without electricity
(US Census, 2019)

Annual Energy Cost, Furnace to Air Source Heat Pump



JPUD estimates reaching 65 or more customers annually with failed furnaces.

If upgrading from a propane furnace to a ducted air source heat pump, one such upgrade could increase JPUD's sales 3.3 MWh annually and \$305 in revenue while saving the ratepayer \$2,118 in annual energy costs. This switch from propane could reduce onsite emissions by 9,000 lbs of CO2 annually.

65 of these upgrades could increase JPUD sales by 215 MWh, or roughly \$20,000, while saving customers \$138,000 annually. Local propane emissions could be reduced of 604,200 pounds of CO2.

(Data from NREL BEopt modeling, Lynch 2022)

Outreach

Beyond print, online, and select in-person events, how else might JPUD reach customers?

- KPTZ, advertisements and interviews
- Home Builders associations
- Farmers markets, food bank
- Faith based organizations, service organizations
- Local 20/20, PT Climate Action Committee
- Highlight key commercial and residential projects (in future)





Program Partners and Stakeholders

Contractors: Frederickson Electric, Peninsula Heat, Air Flo

Housing: OlyCAP, Habitat for Humanity, Peninsula Housing Authority, Jefferson County Home Builders

Economic: EDC Team Jefferson

Governmental: City of PT, Jefferson County

Advocacy: Local 20/20



Program Balance

How will the more common space conditioning projects be balanced with more expensive solar and battery projects? Will certain projects be prioritized? Consider optics and broadest possible impact.

Balancing the available pool of funds from the RESP loan is important, but keep in mind a utility can request additional capacity as needed.



Contractors

Does JPUD have the relationships in place for an ambitious OBF program?

The utility's strongest allies marketing a program are a strong contractor network

How to train your contractor network? Questions of quality control

How to stay lean, rely on contractors, and ensure quality

Level of audits?



Feedback

What would you like to see from such a resource?

How else can the Toolkit and our team support you?

What did we miss?





AGENDA REPORT

DATE: November 22, 2022
TO: Board of Commissioners
FROM: Samantha Harper, P.E.
RE: 2022 Department of Health Drinking Water State Revolving Fund (DWSRF)
Construction Funding for the Phase 2 Coyle Water Main Improvement Project

BACKGROUND: This project is to replace approximately 5,550-ft of 4-inch AC water main and with 6-inch PVC water main. The project location is located within our Coyle water system and within Bear Rd., Maple St., Deer Rd., Elk Rd. Oak St., Pine Rd., Hazel Point Rd. and Fox Rd. See the attachment A - Conceptual Site Plan. The project will also include installation of fire hydrant(s); re-connection of the existing water services; and replacement of roadway surfaces and right-of-way restoration, as needed. Note: PUD staff is working with Quilcene Fire Department on placement of hydrants.

This water system has an average 3-year (2020, 2019 and 2018) leakage percentage of 55-percent which is 45-percent higher than the state standard of 10-percent leakage. Since JPUD took over the Coyle Water System, it has been plagued with leaking pipes due to age, material type and the quality of the water system's installation.

Over the years, JPUD has upgraded the water system at the wellhouse site and installed an 8-inch PVC water main from the source to a termination point in Oak Street, where this proposed project would start. Currently, the PUD is working on the design for Phase 1 Coyle Water Main Replacement Project. With the design to be completed by the end of the year and construction in late winter/early spring 2023. JPUD tracks both the water main and service connection breaks, and this section of water main has large portion of water breaks.

Having this water system brought up to current JPUD standard would provide the residents with reliable water service; work towards the Coyle water system complying with the state's leakage standards; and provide reliability in the usage and testing of fire hydrants.

ANALYSIS/FINDINGS: The Phase 2 Coyle Water Main Replacement Project total project estimate is:

Project Phase	Amount	Funding Source
Design	\$ 114,000	Potential DWSRF loan
Construction	\$ 840,739	Potential DWSRF loan
Total Project	\$ 954,739	

The Design estimate includes design engineering services, environmental services and permitting. The Construction estimate includes construction, 25% contingency and engineering construction services, construction document preparations and material testing.

The upgrades to the water distribution lines in the Coyle are listed in the 10-year Water Capital Improvement Plan (CIP). The estimate for the total project is different within the 10-year Water CIP, due to project needs and the increased funding available through the Bipartisan Infrastructure Law funding this was a good opportunity to apply for a larger section replacement.

FISCAL IMPACT: The DWSRF Loan information is the loan would be 1.0 percent loan origination fee, 2.25 percent standard interest rate for twenty-year standard loan term. Disadvantaged systems projects qualify for 1.75 percent interest rate, up to 50 percent principal forgiveness (subsidy), and up to thirty-year loan term for those deemed “severely disadvantaged” and the economic life of the completed project must be at least as long as the loan term.

The maximum award per jurisdiction is \$15million, which may be increased if DOH does not receive enough eligible projects.

Applicants will be notified in February 2023 by DOH regarding their funding status. If the Application is awarded, the loan agreements will be generated in late spring or early summer of 2023.

RECOMMENDATION: Staff is recommending that the Board adopt a motion to approve staff’s submission of the 2022 Department of Health Drinking Water State Revolving Fund (DWSRF) Construction Funding for the Phase 2 Coyle Water Main Improvement Project in total project amount of \$954,739.

ATTACHMENTS:

Conceptual Site Plan
Project Cost Estimate

Attachment B
Conceptual Cost Estimate

Phase 2 Coyle Water Main Replacement Project

DESIGN

Project Report	\$ 10,000
Design	\$ 75,000
Cultural Resources	\$ 20,000
Permitting	\$ 7,000
DOH Project Report Approval Fee	\$ 2,000

Design Subtotal \$ 114,000

CONSTRUCTION

Construction	\$ 635,391
Construction Contingency 25%	\$ 158,848
Construction Engineering - estimate	\$ 25,000
Material Testing - estimate	\$ 20,000
Misc. (Printing, advertisements, etc.) - estimate	\$ 1,500

Construction Subtotal \$ 840,739

Total Project Cost \$ 954,739



AGENDA REPORT

DATE: November 22, 2022
TO: Board of Commissioners
FROM: Samantha Harper, P.E.
RE: 2022 Department of Health Drinking Water State Revolving Fund (DWSRF)
Construction Funding for the Sparling Treatment Plant Upgrades

BACKGROUND: Starting in 2006 with completion in 2012, the New Sparling Water Treatment Plant (WTP) was constructed. The New Sparling WTP was built with room to expand and incorporate additional treatment vessels to treat increased production from Well 3 and eventually treat water from Well 2.

Currently, Well 2 is treated by an aging and complex conventional treatment system which been in place for over 40 years. The system components are quite old and when they fail, replacement parts are difficult, and at times impossible, to obtain. In such situations, this primary source for the system is rendered unusable. In addition, the building housing the treatment system is old, in disrepair, and not constructed to current building and seismic codes.

The Sparling Wells represent approximately 75% of the total current source pumping capacity for the system.

The proposed project includes the installation of the treatment vessels which would be incorporated into the New Sparling WTP building; replacement of Well 3 pump; decommissioning of the aging Well 2 treatment system and building structure; Site piping to connect Well 2 to the new Sparling WTP; a new facility to provide office and training space for field staff, and storage; and Inclusion of a filling station to provide water for routine use (e.g., construction water) and for emergency situations.

Implementation of this project significantly improves the reliability of Quimper's largest sources, by expanding a newer treatment system and decommissioning an aging one. It also provides source redundancy, with the expanded treatment system capable of fully maximizing production potential of two sources. In addition, it bolsters overall system reliability and readiness in response to emergencies, by expanding field staff office and muster spaces, and providing an emergency water filling station.

ANALYSIS/FINDINGS: The Sparling Treatment Plant Upgrades project total project estimate is:

Project Phase	Amount	Funding Source
Design	\$622,800	Potential DWSRF loan
Construction	\$4,719,400	Potential DWSRF loan
Total Project	\$5,342,200	

The Design estimate includes design engineering services, environmental services and permitting. The Construction estimate includes construction, 25% contingency and engineering construction services, construction document preparations and material testing.

The upgrades to the Sparling Treatment Plant are listed in the 10-year Water Capital Improvement Plan (CIP). The estimate for the total project is not accurate within the 10-year Water CIP however, due to the need of replacement of the aging infrastructure and the increased funding available through the Bipartisan Infrastructure Law funding.

FISCAL IMPACT: The DWSRF Loan information is the loan would be 1.0 percent loan origination fee, 2.25 percent standard interest rate for twenty-year standard loan term. Disadvantaged systems projects qualify for 1.75 percent interest rate, up to 50 percent principal forgiveness (subsidy), and up to thirty-year loan term for those deemed “severely disadvantaged” and the economic life of the completed project must be at least as long as the loan term.

The maximum award per jurisdiction is \$15million, which may be increased if DOH does not receive enough eligible projects.

Applicants will be notified in February 2023 by DOH regarding their funding status. If the Applicant is award, the loan agreements will be generated in late spring or early summer of 2023.

RECOMMENDATION: Staff is recommending that the Board adopt a motion to approve staff’s submission of the 2022 Department of Health Drinking Water State Revolving Fund (DWSRF) Construction Funding for the Sparling Treatment Plant Upgrades in total project amount of \$5,342,200.

ATTACHMENTS:

Attachment A - Conceptual Site Plan
Attachment B - Project Cost Estimate



Attachment A - Sparling Treatment Plant Upgrade Project Conceptual Site Plan 2022 DOH DWSRF Construction Loan

Attachment B
Conceptual Cost Estimate

Task Name	Cost
Design	
Pre-design	\$218,500
Design	\$316,900
Permitting	\$87,400
Design Subtotal	\$622,800
Construction	
Construction	\$3,555,100
Contingency	\$814,700
Engineering Support During Construction	\$218,500
Other fees (material testing, construction paper)	\$131,100
Construction SubTotal	\$4,719,400
	\$5,342,200