Special Meeting Agenda
PUD Board of Commissioners
Tuesday, July 30, 2024 9:00 AM
310 Four Corners Rd.
Port Townsend, WA 98368
And on line 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.

Page

1. Call to Order

JPUD will be offering both virtual on-line meetings as well as in-person meetings, unless advance notice is provided. 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. Roll Call

Recommended Action: Approve a Motion to adopt agenda as presented

3. Agenda Review

4. Presentation: 10-Year long range planning, Budget, Staffing levels and Finance Workshop

4.1 10-Year Plan Presentation 2 - 55

5. Adjourn

Jefferson PUD 10-Year Plan

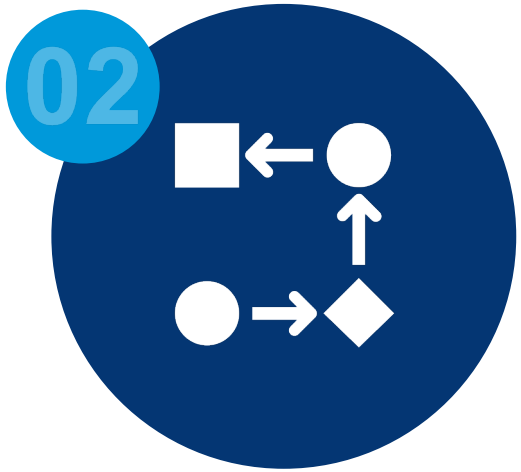
Jefferson County Public Utility District

An introductory look at structured growth planning for our utility.

310 Four Corners Rd, Port Townsend, WA | July 30, 2024

Today we will cover:

Purpose



Where we are & known utility needs

Solutions & Goals

How we get there

Symbols shown above will indicate presentation sections.

01

Why we are here

This planning session looks forward. We aim to align our Board, staff, and customer-owners on the future needs of our utility.

- Set Priorities
- Review Costs
- Begin Long-Range Planning

Connecting our Community

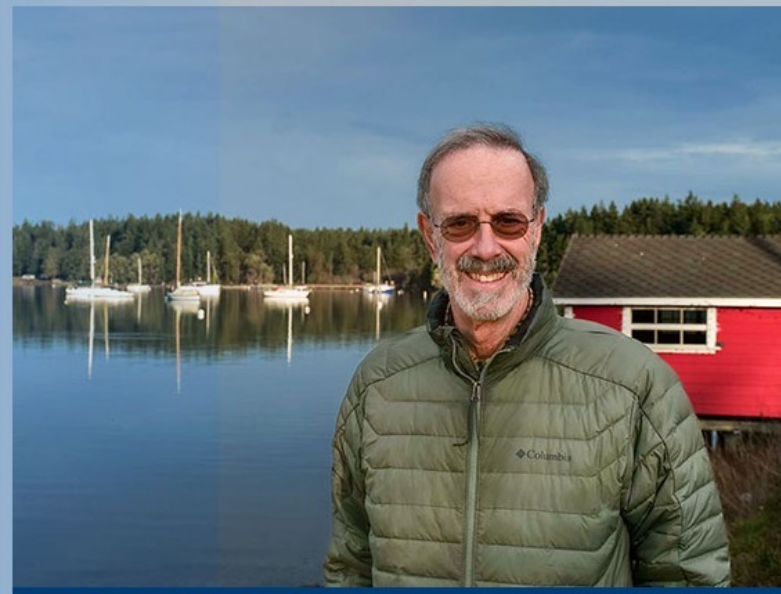
Our Commission

Jefferson PUD is guided by three publicly-elected officials who direct based upon the Strategic Plan. Commissioners are advised by staff, outside professionals, and our customer-owners to guide the utility forward.

Connecting our Community

JEFF RANDALL (Dist 1)

DAN TOEPPER (Dist 3)



KEN COLLINS (Dist 2)

01

GOALS

The PUD's Strategic Plan guides its day-to-day operations.

Our grid requires more. Aging equipment, increased demand from regional growth, construction cost, and timelines dictate the need for immediate action to ensure our power, water, and communication services remain reliable.

RELIABILTY

Where we are

02

Power :

Loading Issues & Voltage Issues

Utility-side loading associated with outages and demand-related issues affecting equipment.

Voltage fluctuations caused by high demand, aging infrastructure, underbuilt urban growth, equipment failure.

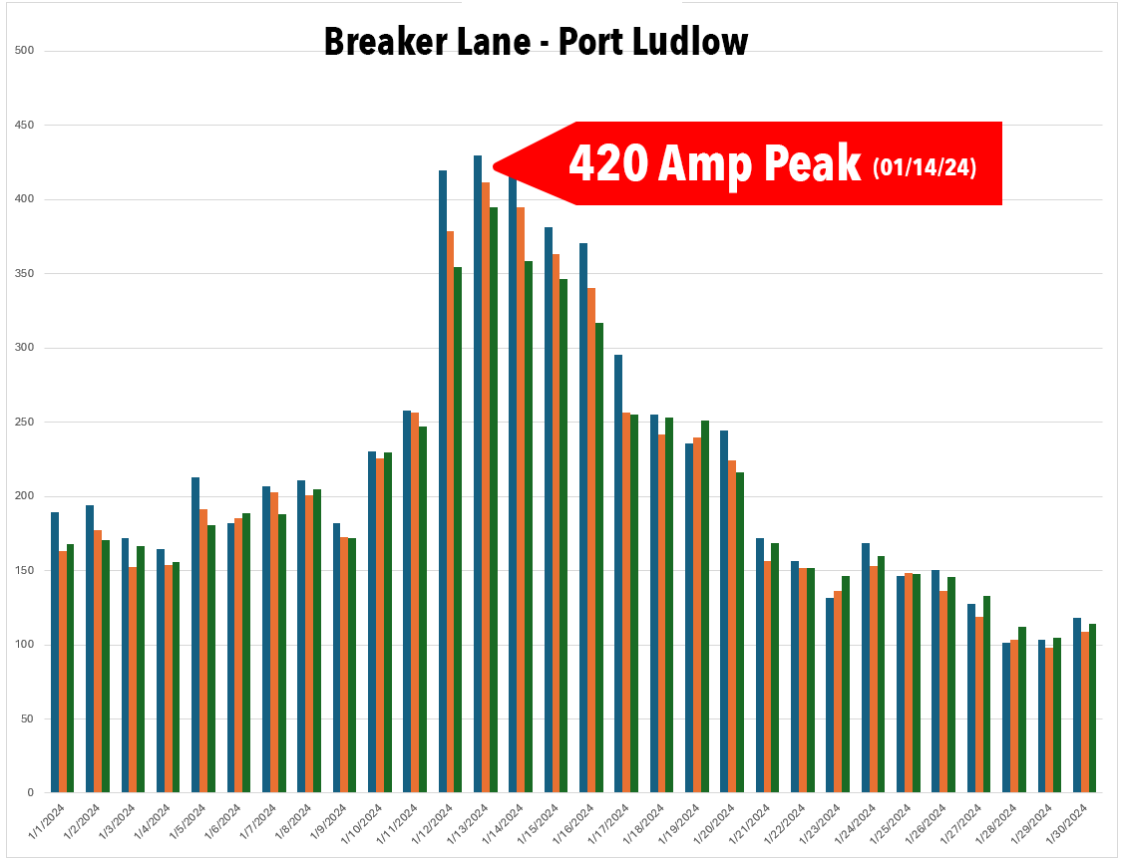
Loading Issues: Breaker Lane

- **Continuous high demand stresses equipment, leading to increased outage potential & longer outage duration due to switching operations.**
  - 2023 Port Ludlow Transformer Peak Load – 21.5MW
  - Total Outage Time increase markedly during winter events
  - Lost Revenue in 2023 (est.) — $_____

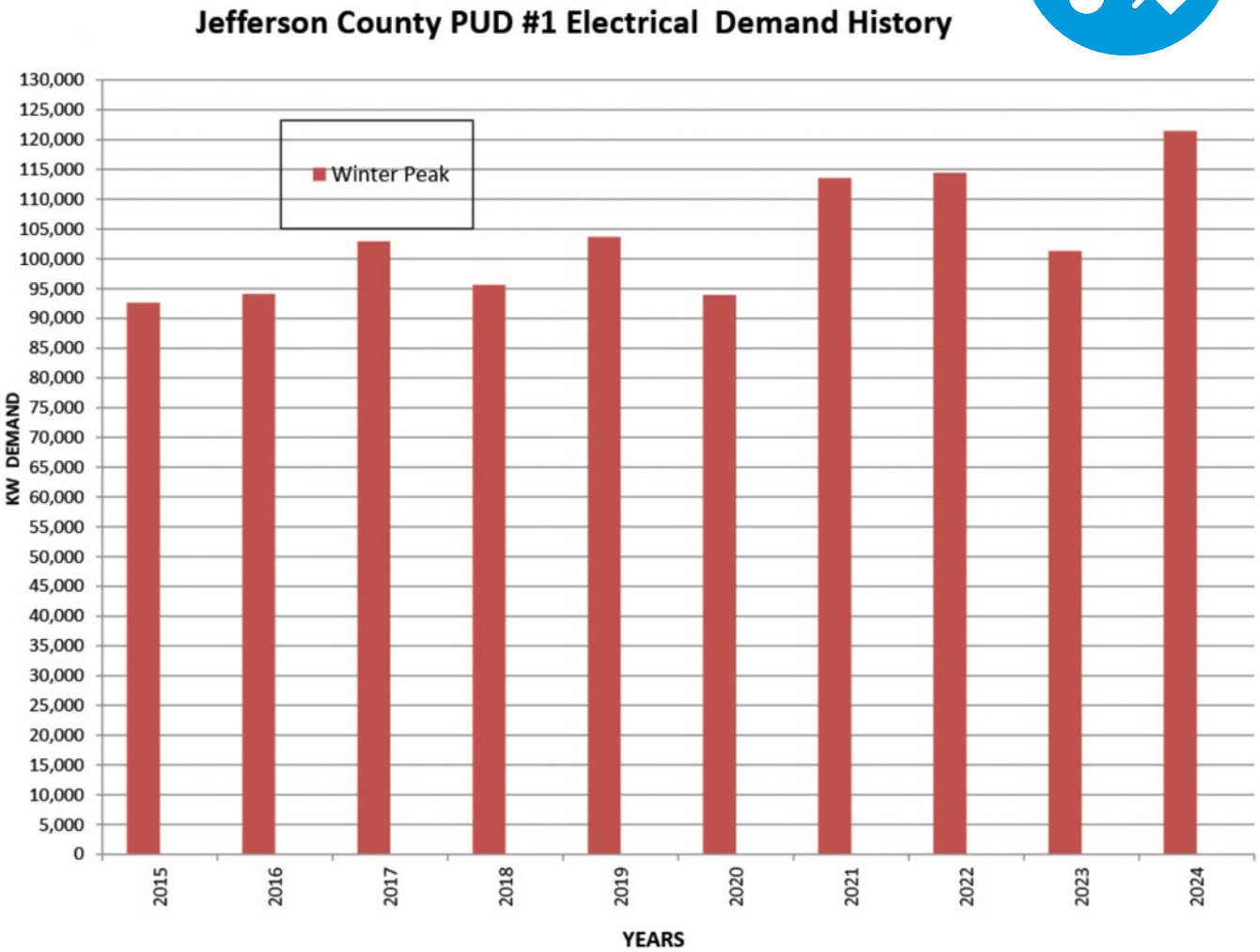
Voltage Issues: Marrowstone Island

- **Lower voltage leads to malfunctions with customer appliances and more outages.**
  - 2023 Outages on Marrowstone (single household)
  - Safe operating voltage range (customer side) — +/- 5% for 120V (114V – 126V)

Loading Example: Breaker Lane, Port Ludlow

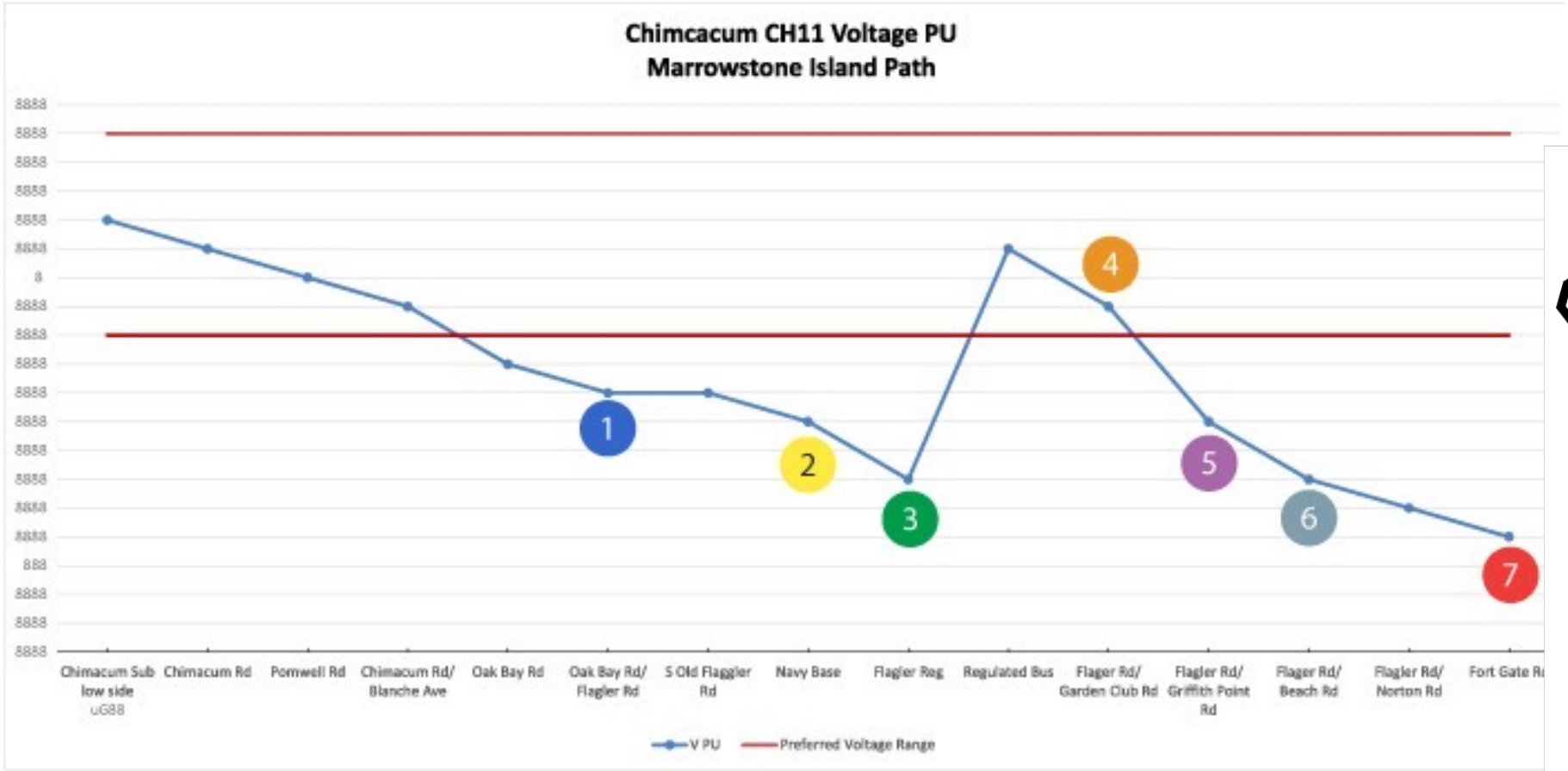


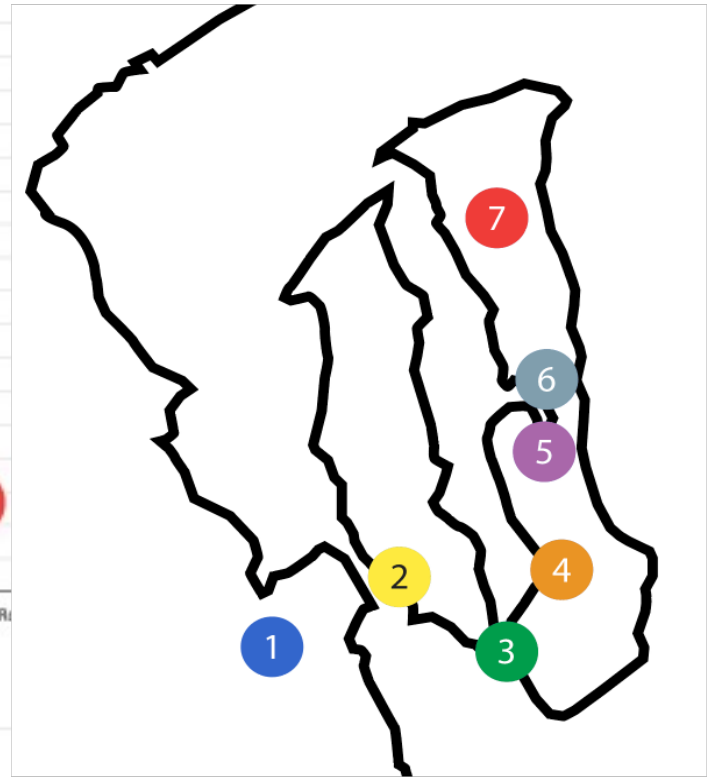
- Reclosers automatically open if Breaker Lane reaches 530 Amps.
- Continuous demand (and peak load) stresses equipment, leading to reliability concerns.



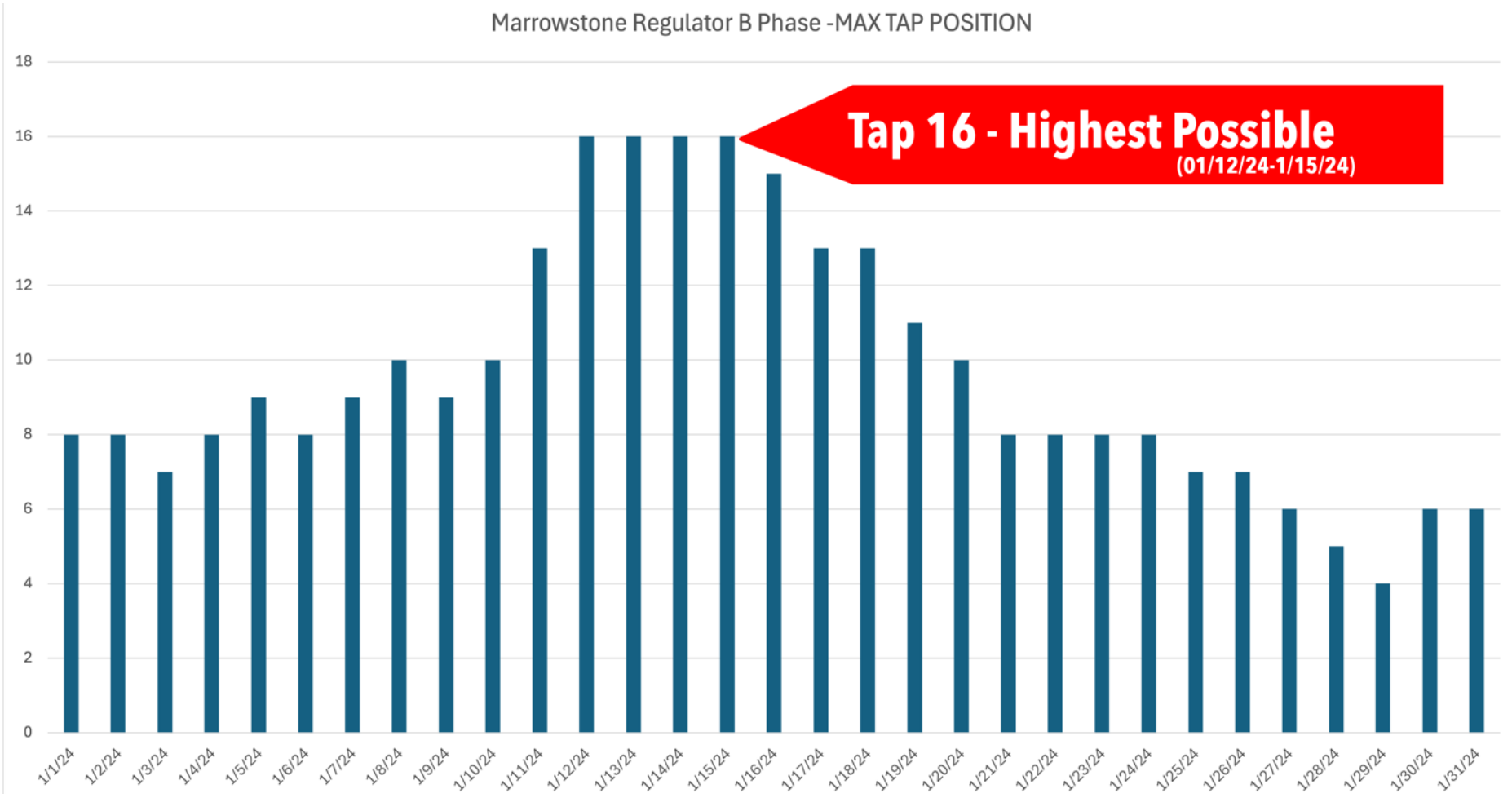
- Winter peak demand utility wide has increased 30.8% since 2015

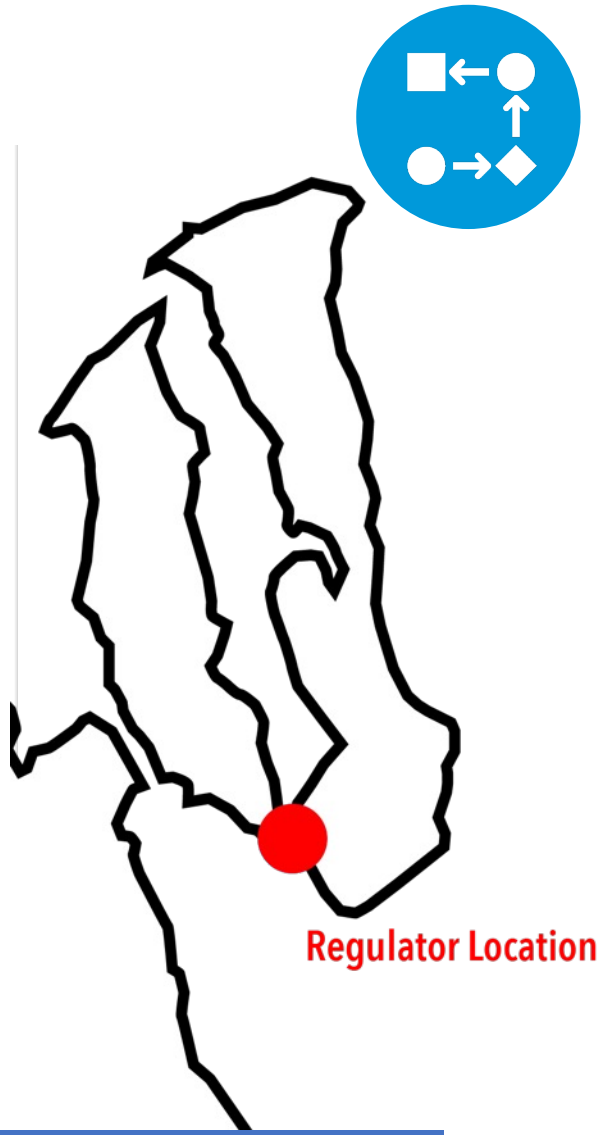
Voltage Example: Marrowstone Island





Voltage Example: Marrowstone Island





WHAT DOES THIS MEAN?

During peak load situations, as shown in January of 2024, power demand on Marrowstone Island meant voltage regulators are required to operate at their highest possible tap position to ensure stable voltage for operation.

Where we are

Water :

Capacity Issues & Water Volume Issues

Utility-side outdated and/or undersized pipes, treatment, reservoirs, workforce to maintain.

Water rights concerns, water system source limitations, undersized equipment for well size, system leak loss.

Capacity Issues: Quilcene Water System

- **Water rights are very specific. The recently completed Quilcene water system upgrades illustrate infrastructure cost-to-service-connection concerns.**
  - New 105,000-gallon ground level concrete tank to replace elevated 33,000-gallon tank
  - Total water services: 40
  - Total project cost — $3.1M
  - Potential services vs water rights

Volume Issues: Bywater Bay System

- **Ideally, the system should deliver a consistent and sufficient volume to meet customer demand while minimizing losses.**
  - Non-revenue water — Leak loss 6.5%. Distribution losses stresses equipment unnecessarily
  - Source Limitations — Regulatory & Availability
  - Reaching maximum connections (state assigned) based upon volume (production)

Quilcene Water System

Quilcene received a ground level 105,000-gallon water reservoir to replace the aging elevated 33,000-gallon gravity-fed system.

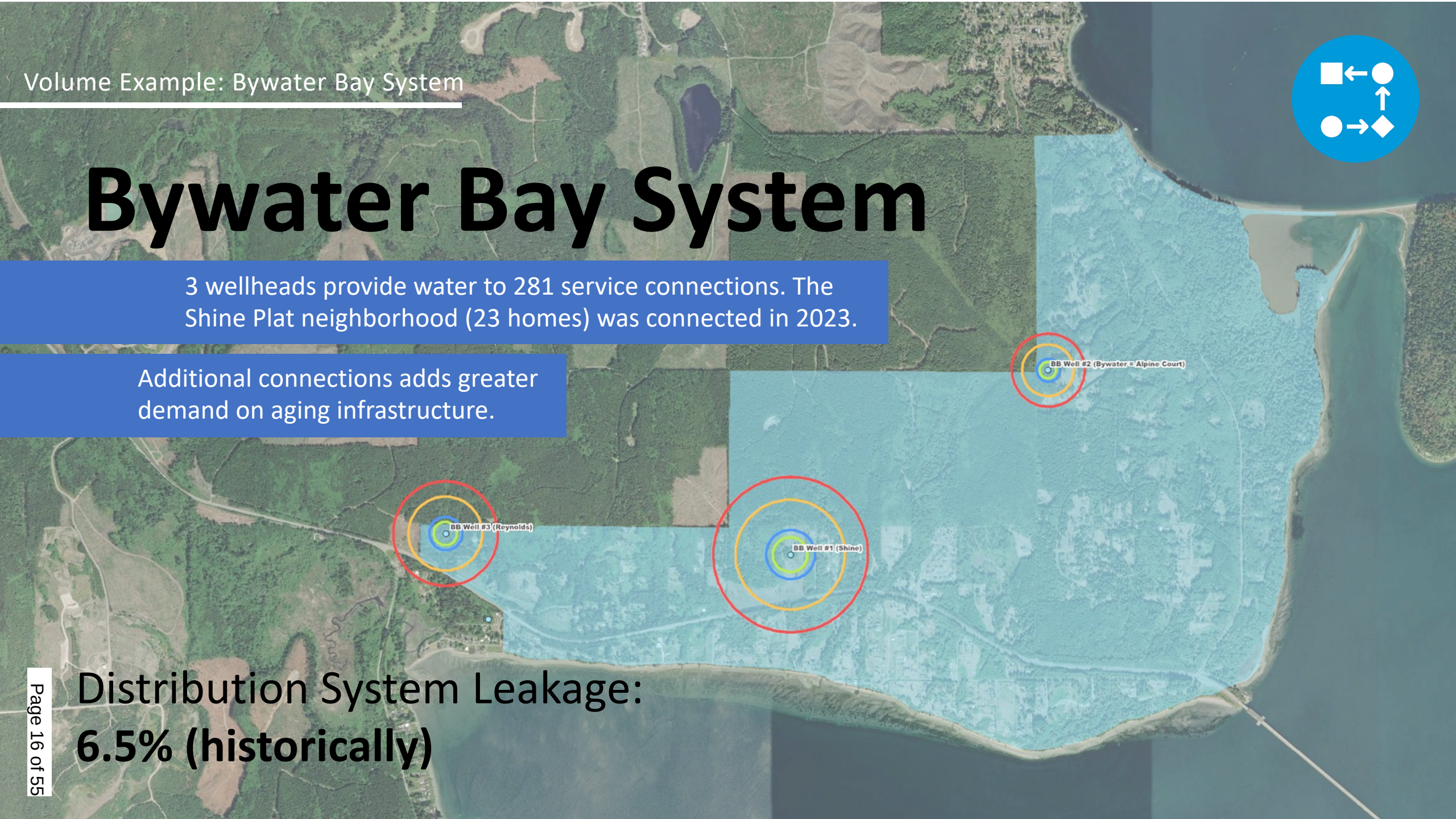
Total project cost: $3.1M
Out-of-Pocket Cost: ~$1M
Number of customers: 40

How do we meet customer needs and state and federal requirements while remaining cost conscious?

Bywater Bay System

3 wellheads provide water to 281 service connections. The Shine Plat neighborhood (23 homes) was connected in 2023.

Additional connections adds greater demand on aging infrastructure.



Distribution System Leakage:

6.5% (historically)

Where we are

Broadband :

Capacity & Bandwidth (volume)

The **total** amount of data that can be transmitted through the network at a given time.

The **speed** at which data can travel through the network.

Capacity: Futureproofing our Network

Capacity refers to the total amount of data that can be transmitted through the network at a given time.

- How much capacity do we have?
- What impacts fiber capacity? (adding end users, data farming, etc.)

Bandwidth: Ensuring Promised Speeds

Higher bandwidth rating indicates that data can travel through the network faster.

- What is our current (or planned) broadband bandwidth?
- What impacts fiber bandwidth?

Now is our opportunity to build for the future.

NETWORK GOALS:

- **Long-term:** Position our network to support the capacity to provide every PUD customer with a fiber connection.
- **Grant Buildout Goal:** Provide service to 10,000 customers countywide.

NETWORK BENEFITS:

- $70M in additional equity for the PUD system.
- SmartGrid for reliability.
- Broadband division estimated to be revenue-positive in 5 years.

We are building a system for the future.

Bandwidth GOALS:

- **Service Pathways:** Reliability is key. Providing diverse pathway, including satellite backup systems, beyond existing direct fiber pathways is essential.
- **Looping:** Additional network looping provides greater reliability and failover protection.

Network BENEFITS:

- **Diverse Network Funding:** $60M grants, $10M loans, $2M PUD funds.
- State-of-the-Art Network.
- **Staffing for the Future:** Proper staffing levels & support to maintain growth.

02

TAKEAWAY'S

We've looked at specific examples within each facet of the utility illustrating a need. These are just a few of the projects on our horizon.

Next, we will look at where–ideally–we need to be as a utility within the next decade and the solutions that get us there.

Solutions & Goals

03

Power

Loading & Voltage Issues

Commission

Operations
Finance
Human Resources

Public-facing Project Information

Customer Service & Communications

Solutions & Goals

03

Water

Water Capacity & Volume Issues

Commission

Operations

Finance

Human Resources

Public-facing Project Information

Customer Service & Communications

		Total Cost (2018 dollars)	Financing Source	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031 and Beyond
Bywater Bay														
Source / Pumping / Treatment														
B-P-1	Well #1 Portable Generator	$20,000	Rates		$20,000									
B-P-2	Well #1 Emergency Power Connections	$6,000	Rates		$6,000									
B-P-3	Replacement Fire Pump	$25,000	Rates							$25,000				
B-P-4	Shine Well Pump Replacement	$35,000	Rates	$35,000										
B-P-5	Booster pump on Shine Road and Harbor View Dr.	$31,000	Rates	$31,000										
Distribution														
B-D-1	Shine Plat LUD Distribution Piping Replacement	$400,000	LUD	$200,000	$200,000									
B-D-2	Water main looping from Paradise Bay Road to Shine Rd, under SR-104	$125,000	Rates					$125,000						
Gardiner														
Source / Pumping / Treatment														
G-P-1	Gardiner Well Portable Generator	$25,000	Rates			$25,000								
G-P-2	Gardiner Well Emergency Power Connections	$6,000	Rates			$6,000								
G-P-3	Replacement Well Pump and Upgrade Controls	$80,000	Rates		$80,000									
Distribution														
G-D-1	Pipe Looping - East End	$65,000	Developer											$65,000
G-D-2	Pipe Looping - West End	$100,000	Developer											$100,000
Coyle														
Source / Pumping / Treatment														
C-P-1	Fire Pump	$50,000	Rates			$50,000								
Distribution														
C-D-1	Transmission Line Replacement	$55,000	Rates	$55,000										
C-D-2	Distribution Piping Replacement	$1,000,000	Rates					$100,000	$100,000	$100,000	$100,000	$100,000	$100,000	$400,000
Quimper (R)														
Source / Pumping / Treatment														
R-P-1	Addition of fire pump to Ocean Grove BPS	$95,000	Rates				$95,000							
R-P-2	New domestic demand BPS	$40,000	Rates						$40,000					
R-P-3	New domestic demand BPS	$40,000	Rates							$40,000				
R-P-4	New 4-inch pipe (1,500 LF) and new domestic demand BPS	$175,000	Rates								$175,000			
R-P-5	New 6-inch pipe (760 LF) and new domestic demand BPS	$130,000	Rates									$130,000		
R-P-6	Sparling II Treatment Building Air Compressor	$5,000	Rates		$5,000									
R-P-7	Phase II Treatment Upgrades	$50,000	Rates			$50,000								
Storage														
R-S-1	New Glen Cove Storage Tank	$4,650,000	Rates/Loans								$2,325,000	$2,325,000		
Distribution														
R-D-1	New PRV station	$80,000	Rates						$80,000					
R-D-2	Reconfiguring pressure zones at Beckett Point using existing piping and valves	$2,000	Rates		$2,000									
R-D-4	Upsizing 8-inch to 12-inch (3,700 LF) to support higher flows from new Glen Cove Storage Tank	$289,000	Rates									$289,000		
R-D-5	Upsizing 6-inch to 10-inch (7,300 LF)	$569,000	Rates				$569,000							
R-D-6	Reconfiguring pressure zones along Cape George Rd and Huntington St using existing piping and valves	$2,000	Rates		$2,000									
R-D-7	Upsizing 4-inch to 8-inch (360 LF), Center Rd near Beaver Valley Rd	$28,000	Rates		$28,000									
R-D-8	Upsizing 2-inch to 6-inch (940 LF) and new 6-inch (2,520 LF) to make pipe loop	$270,000	Rates					$270,000						
R-D-9	Upsizing 4-inch to 6-inch (1,200 LF)	$94,000	Rates						$94,000					
R-D-10	Upsizing 6-inch to 8-inch (2,300 LF)	$179,000	Rates							$179,000				
R-D-11	New 6-inch pipe (350 LF) to make pipe loop	$27,000	Rates								$27,000			
R-D-12	New 6-inch pipe (30 LF) to make pipe loop	$5,000	Rates									$5,000		
R-D-13	Upsizing 8-inch to 12-inch (12,000 LF)	$936,000	Developer											$936,000
Lazy C														
Source / Pumping / Treatment														
L-P-1	Emergency Well Upgrades (Well 1 or 2 chlorination tank, shed)	$22,000	Rates	$22,000										
Triton Cove														
Source / Pumping / Treatment														
T-P-1	Well #2 Portable Generator	$20,000	Rates				$20,000							
T-P-2	Well #2 Emergency Power Connections	$6,000	Rates				$6,000							
T-P-3	Williams Addition Wellhouse	$10,000	Rates	$10,000										
Snow Creek														
Source / Pumping / Treatment														
S-P-1	Well Emergency Power Connections	$6,000	Rates					$6,000						
S-P-2	Wellhouse Replacement	$179,500	Rates	$179,500										
Mats View Terrace														
Source / Pumping / Treatment														
M-P-1	Well/BPS Emergency Power Connections	$6,000	Rates		$6,000									
Quilcene														
Source / Pumping / Treatment														
Q-P-1	Source 2 Development	$5,000	Rates	$5,000										TBD
Q-P-2	New larger pump at USFS well	$15,000	Rates	$15,000										
Q-P-3	Quilcene Well Emergency Power Connections	$6,000	Rates			$6,000								
Storage														
Q-S-1	New Quilcene Storage Tank	$2,460,000	Rates/Grants	$460,000	$2,000,000									
Other														
Q-O-1	SCADA Replacement - Triton Cove, Lazy C, Quilcene	$15,000	Rates	$15,000										
her PUD-Wide Projects														
O-1	Pipeline Replacement - Coyle and Others	$1,135,000	Rates	$55,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	$120,000	
O-2	WSDOT culvert coordination projects	$160,000	Rates	$160,000										
O-3	Well Rehabilitation (cleaning)	$50,000	Rates	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	
O-4	Replacement Well Drilling	$180,000	Rates				$60,000					$60,000	$60,000	
O-5	Booster Pump Replacement (with VFD)	$40,000	Rates			$20,000					$20,000			
O-6	Tank Cleaning/Painting	$50,000	Rates	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	
O-7	Tank Inspection	$50,000	Rates	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	
O-8	Seismic Retrofitting of Tanks	$100,000	Rates	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	
O-9	SCADA Upgrades	$50,000	Rates	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	
O-10	Retrofit Valves on ATEC Media Filter Systems	$50,000	Rates	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	
O-11	Replacement of ATEC Media Filters	$50,000	Rates	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	$5,000	
O-12	Decommissioning of Various Wells	$20,000	Rates	$20,000										
O-13	Fire Hydrant Replacement	$7,000	Rates	$7,000										
O-14	New Water Installs	$50,000	Rates	$50,000										
TOTAL		**$14,431,500**		**$1,359,500**	**$2,509,000**	**$317,000**	**$910,000**	**$661,000**	**$474,000**	**$504,000**	**$2,807,000**	**$3,069,000**	**$320,000**	**$1,501,000**

WATER

System Plan Evaluation

In 2022, the PUD approved a 10-year work plan for our water division. The work plan, and expansion of the plan, help the utility and funding agencies identify projects for capital improvement. Capital improvements listed act are a guide for financial conversations, engineering, and construction moving forward. Focusing the improvements list to specific projects aids in concise timelines and cost estimates.

SHOWN: 10-Year Water System Plan, Chapter 8.1

Solutions & Goals

03

Broadband Capacity & Bandwidth

Commission

Operations - Broadband
Finance
Human Resources

Public-facing Project Information

Customer Service & Communications

03

TAKEAWAY'S

By looking ahead to the end goal, we can generate solutions. Future infrastructure needs requires adaptability to achieve.

Next, we dig deeper into how as a utility we approach the work load of the next decade.

How we get there

04

Teamwork and the ability to move projects forward according to varying timelines are key.

Let’s look at specific projects on the horizon to further identify need and to understand the complexity of the task. The goal: Create realistic timelines for projects to meet our 10-year needs.

How we get there

04

Power :

Substation Project List

- Quilcene
- Port Ludlow
- Chimacum
- Port Townsend
- Dana Roberts

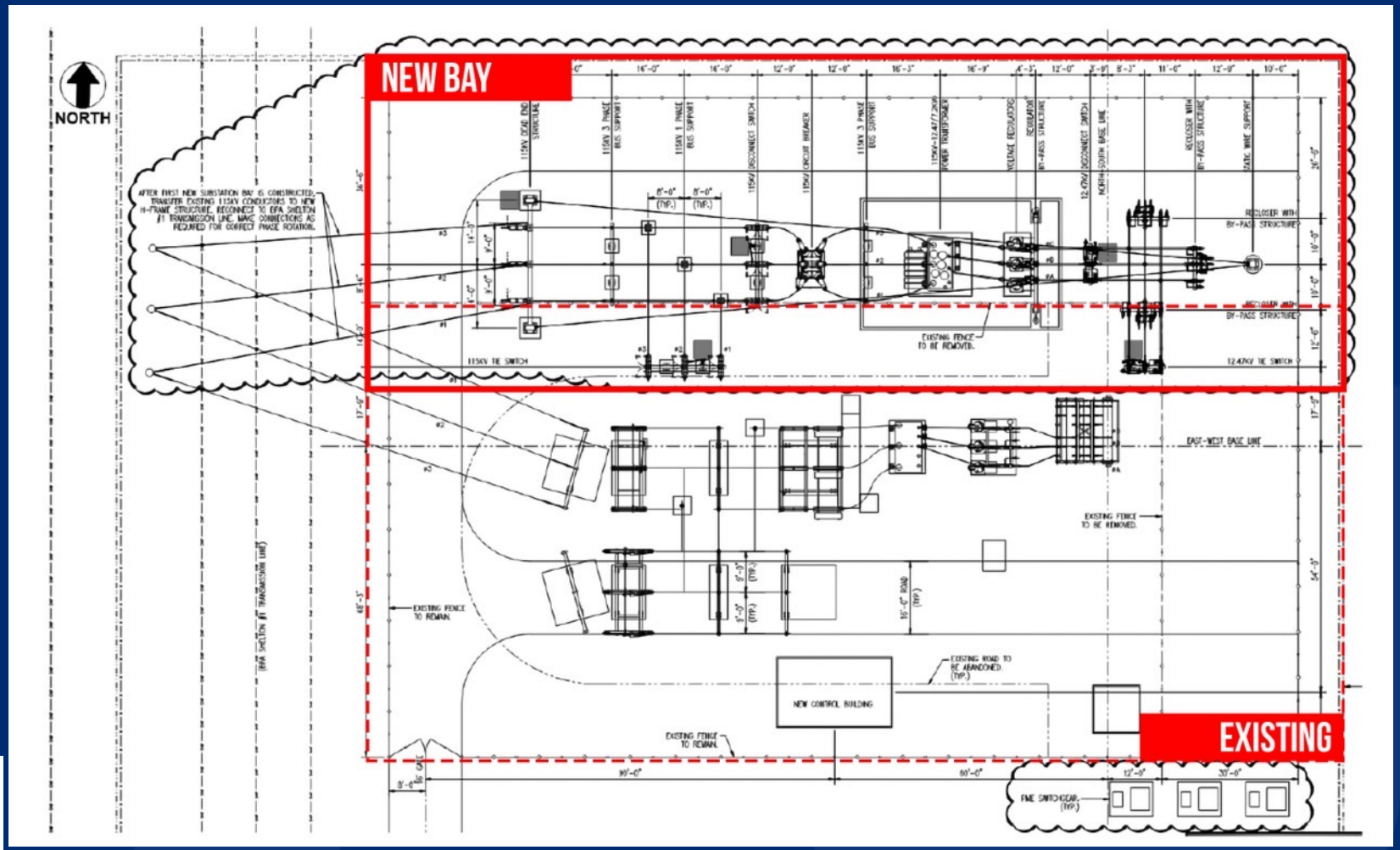
SHOWN: Quilcene Substation

Jefferson County
Public Utility District

Placeholder Slide for Substation Project Fly-over Video
Please see meeting video recording for video review.

4.1 Quilcene Substation bay

04



- 59’ x 178’ extension to the North
- Additional bay added
- Additional switch & reclosures

Project Goals:

- Improve capacity to 20MW
- Reposition Control Building
- Easier access for maintenance
- New outgoing feeders
- Improved SCADA control

Est cost: $9.8M

BUDGET DISCUSSION

SHOWN: Quilcene Substation

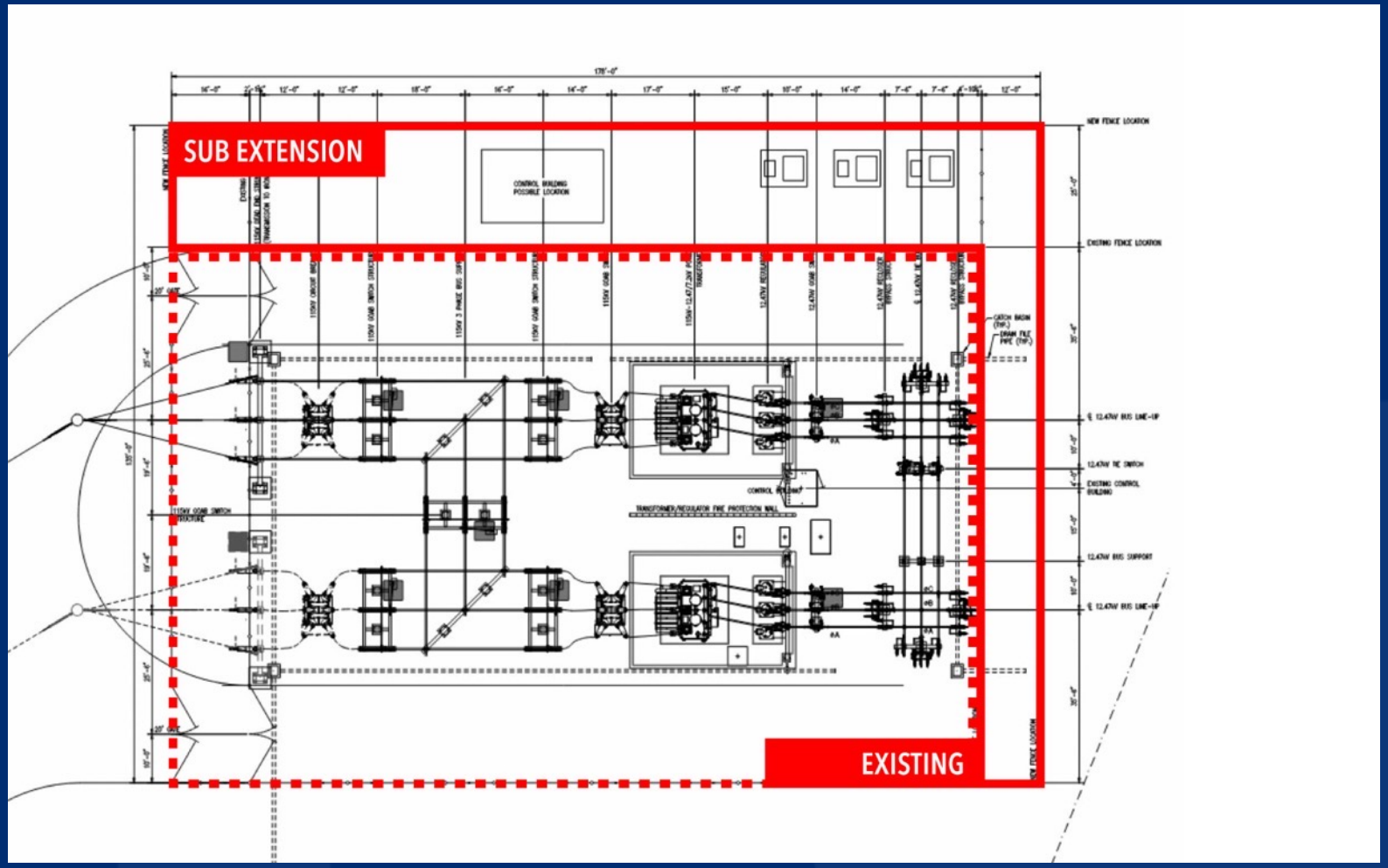
DRAFT concept design by ICPE

Jefferson County
Public Utility District

Placeholder Slide for Substation Project Fly-over Video
Please see meeting video recording for video review.

4.2 Port Ludlow Substation extension

04



- 25½' x 178' extension to NE
- Relocation of Control Building
- Inclusion of vaults inside fence
- Rebuilt transformer

Project Goals:

- Improve work area within sub
- Space for Breaker Lane feeder
- Dedicated Control Building
- New outgoing feeders
- Improved SCADA control

Est cost: $9.2M

BUDGET DISCUSSION

SHOWN: Port Ludlow Substation

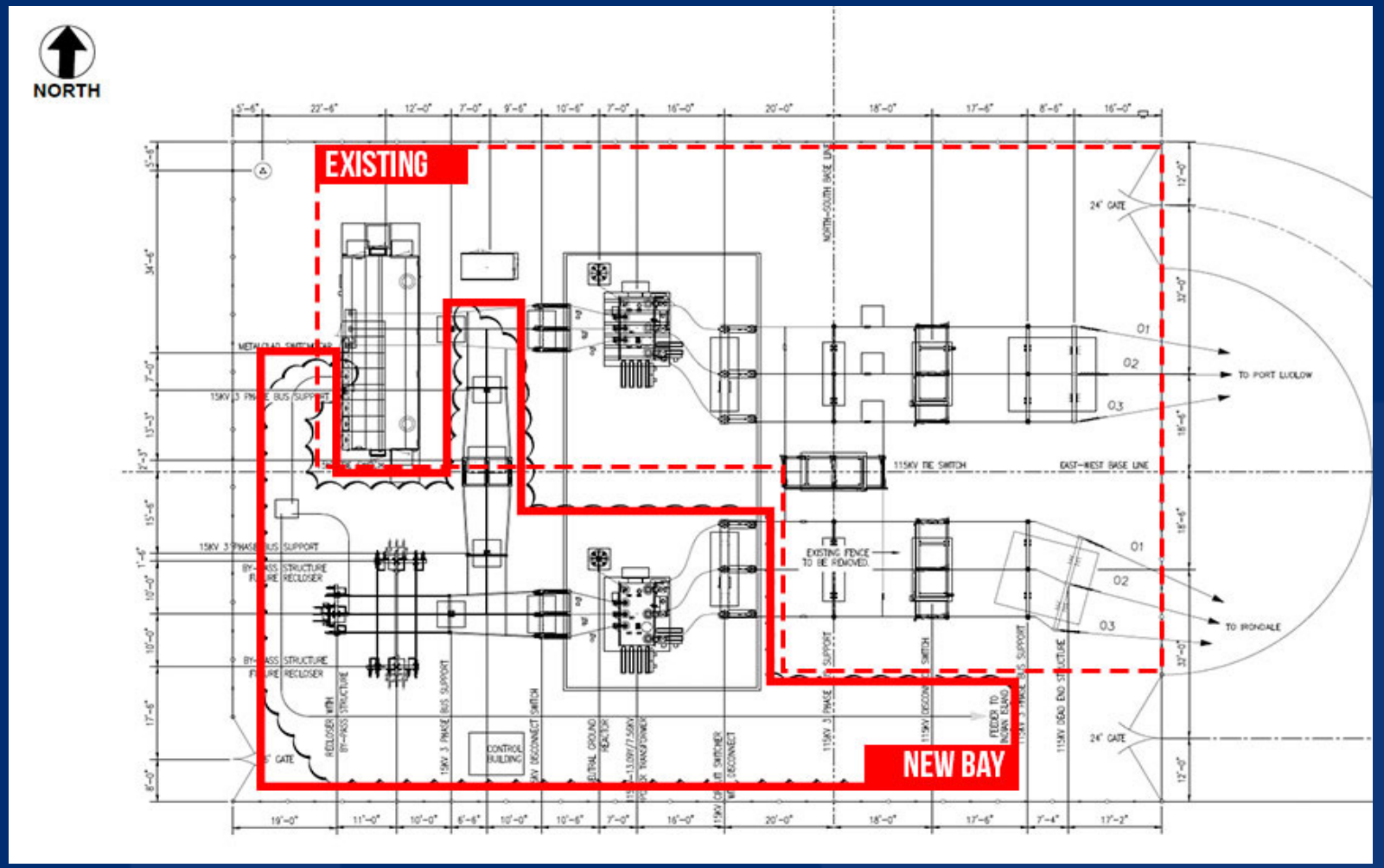
DRAFT concept design by ICPE

Jefferson County
Public Utility District

Placeholder Slide for Substation Project Fly-over Video
Please see meeting video recording for video review.

4.3 Chimacum Substation bay

04



- Substation footprint unchanged
- 25MW transformer
- 15kV Circuit Switcher
- Recloser & Bypass Structure
- New Control Building for switch gear

Project Goals:

- Dedicated Indian Island feed
- Space for Breaker Lane feeder
- Dedicated Control Building
- New outgoing feeders
- Improved SCADA control

Est cost: $5.8M

BUDGET DISCUSSION

SHOWN: Chimacum Substation

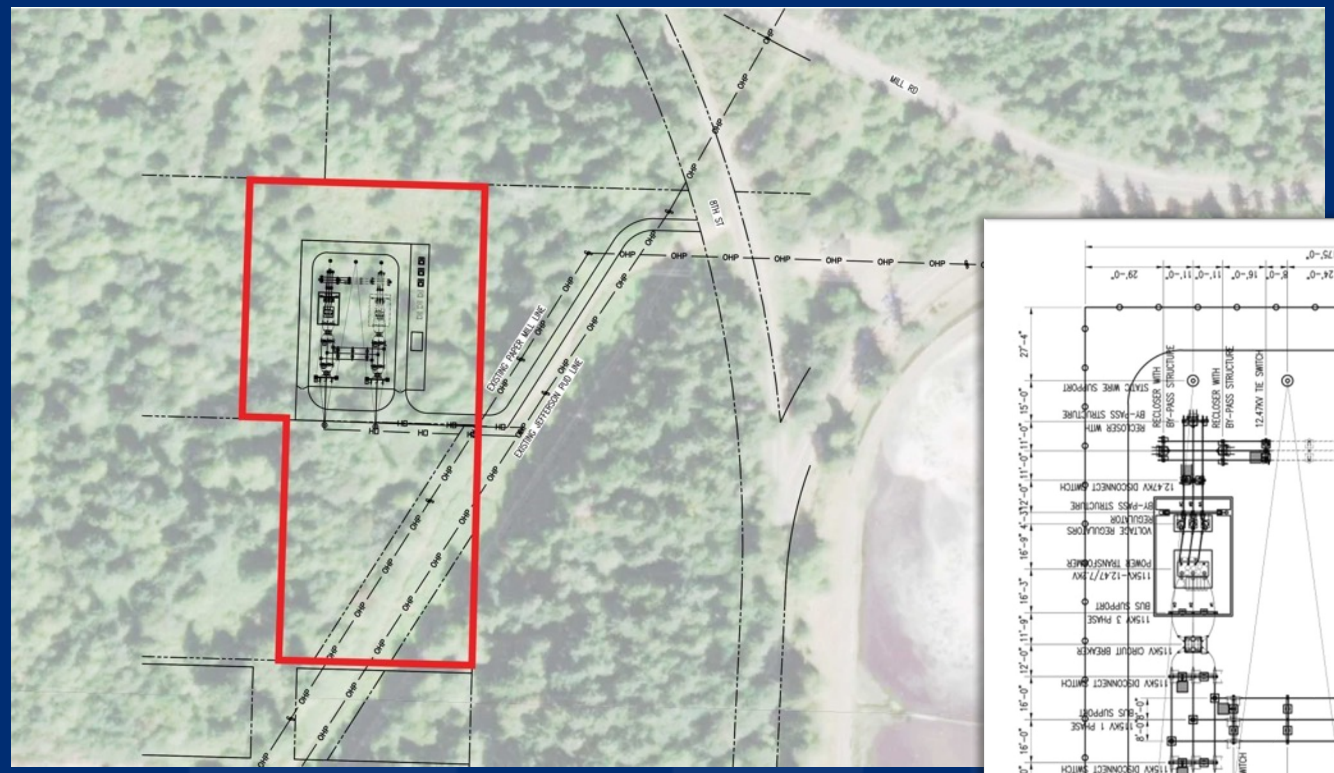
DRAFT concept design by ICPE

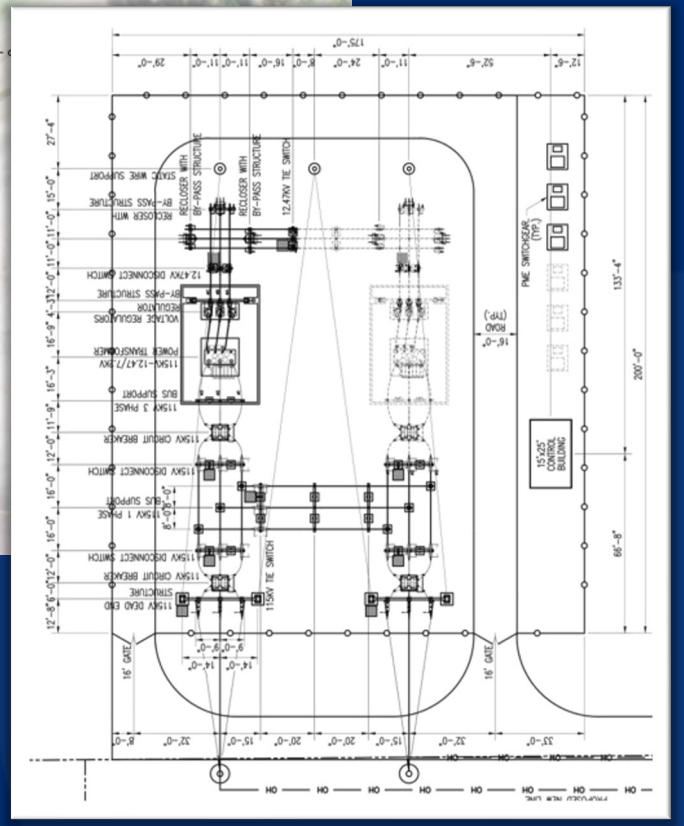
Jefferson County
Public Utility District

Placeholder Slide for Substation Project Fly-over Video
Please see meeting video recording for video review.

4.4 Port Townsend Substation build

04





- 10-acre land purchase from Jefferson County
- 20MW transformer
- 15kV Circuit Switcher
- Recloser & Bypass Structure
- Control Building for switch gear

Project Goals:

- Provide dedicated Indian Island feed via undersea cable
- Handle additional PT capacity
- Improve population center power reliability

Est cost: $10M

BUDGET DISCUSSION

SHOWN: Port Townsend Substation

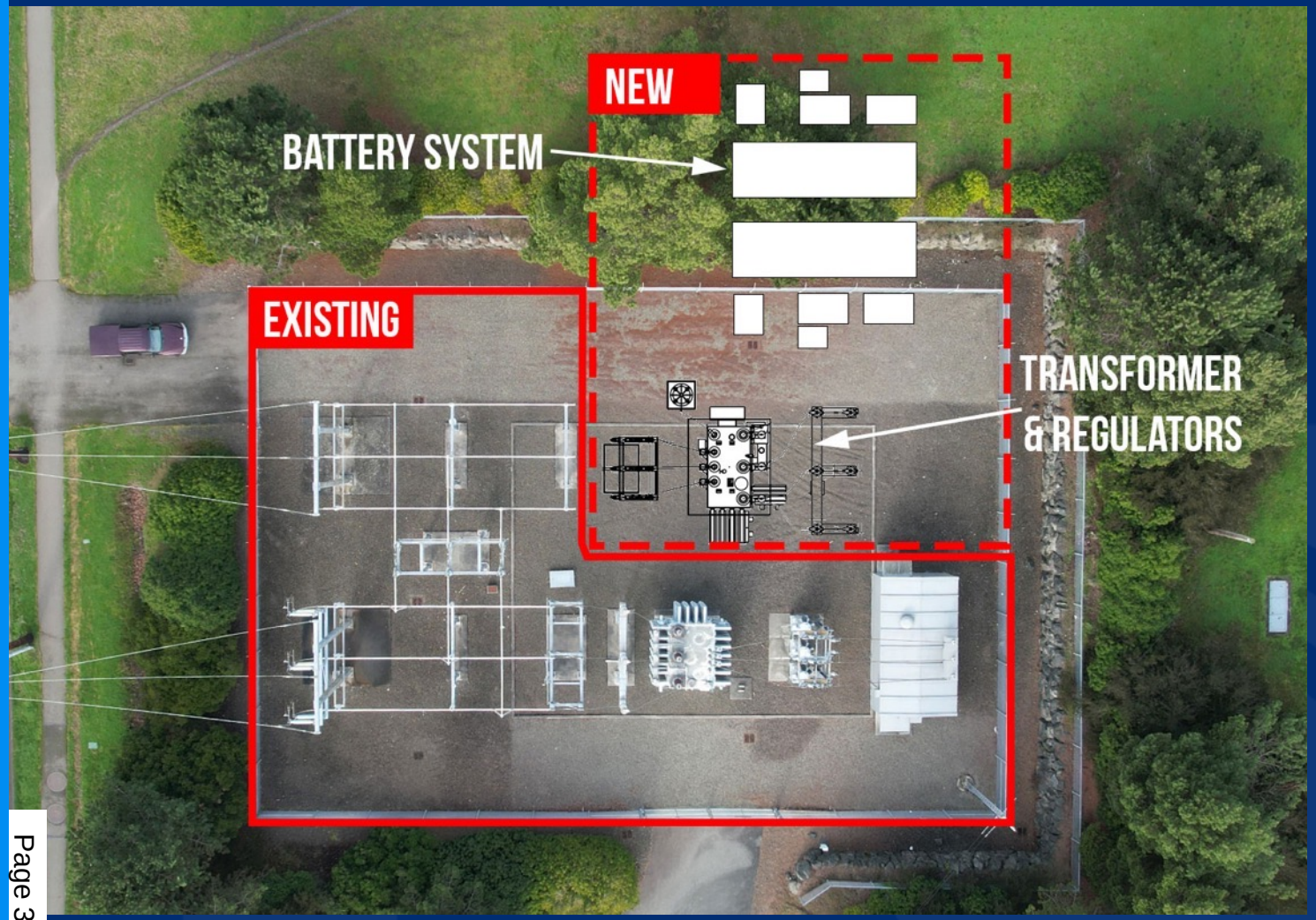
DRAFT concept design by ICPE

Jefferson County
Public Utility District

Placeholder Slide for Substation Project Fly-over Video
Please see meeting video recording for video review.

4.5 Dana Roberts Substation expansion

04



- Additional bay added to sub
- 20MW transformer
- 15kV Circuit Switcher
- Recloser & Bypass Structure
- Bus currently in place
- Battery storage system

Project Goals:

- Provide additional capacity for Port Townsend
- Handle future electrified ferry
- Improve power reliability
- New outgoing feeders
- Improved SCADA control

Est cost: ~$5-7M

BUDGET DISCUSSION

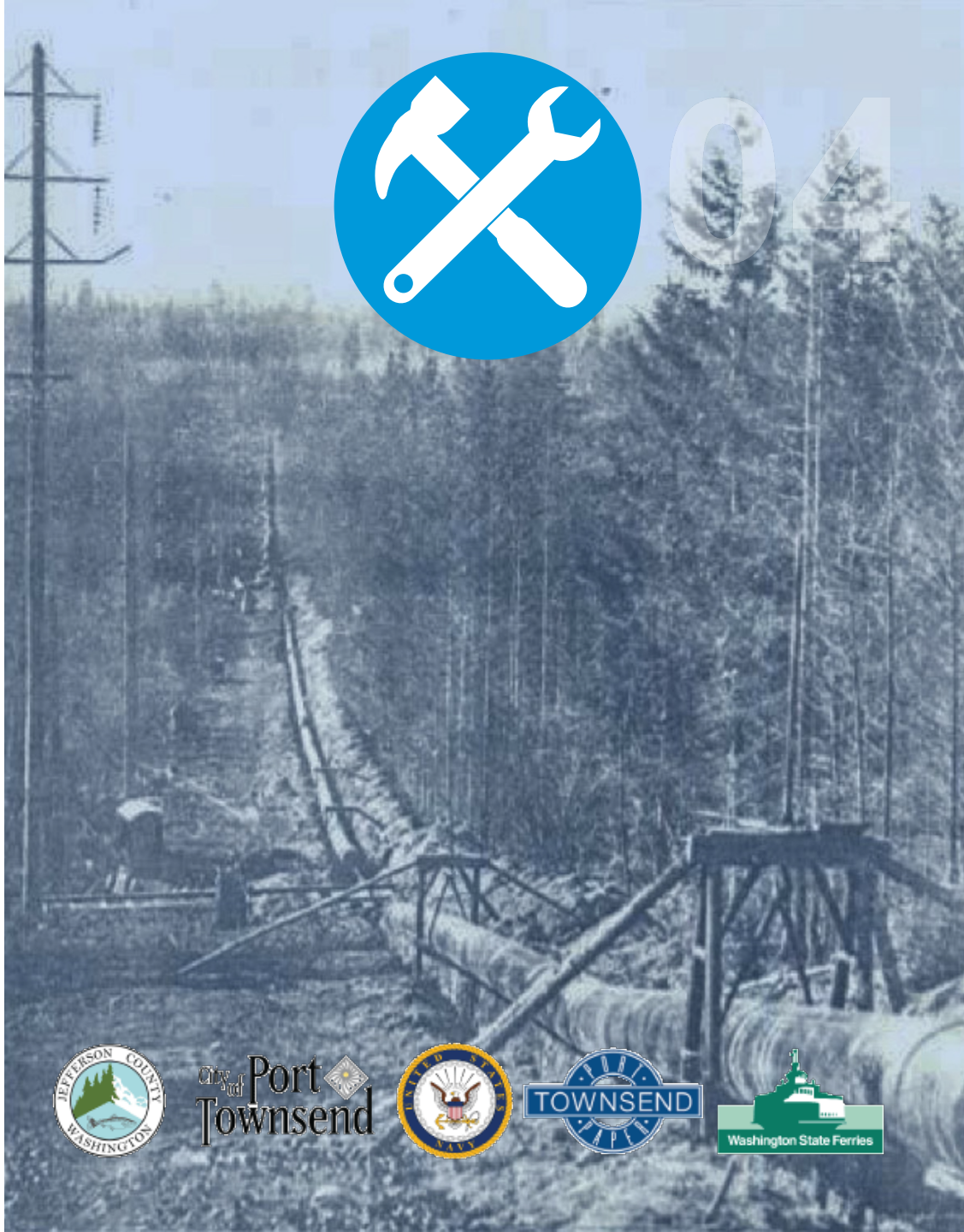
SHOWN: Dana Roberts Substation

DRAFT concept design

How we get there

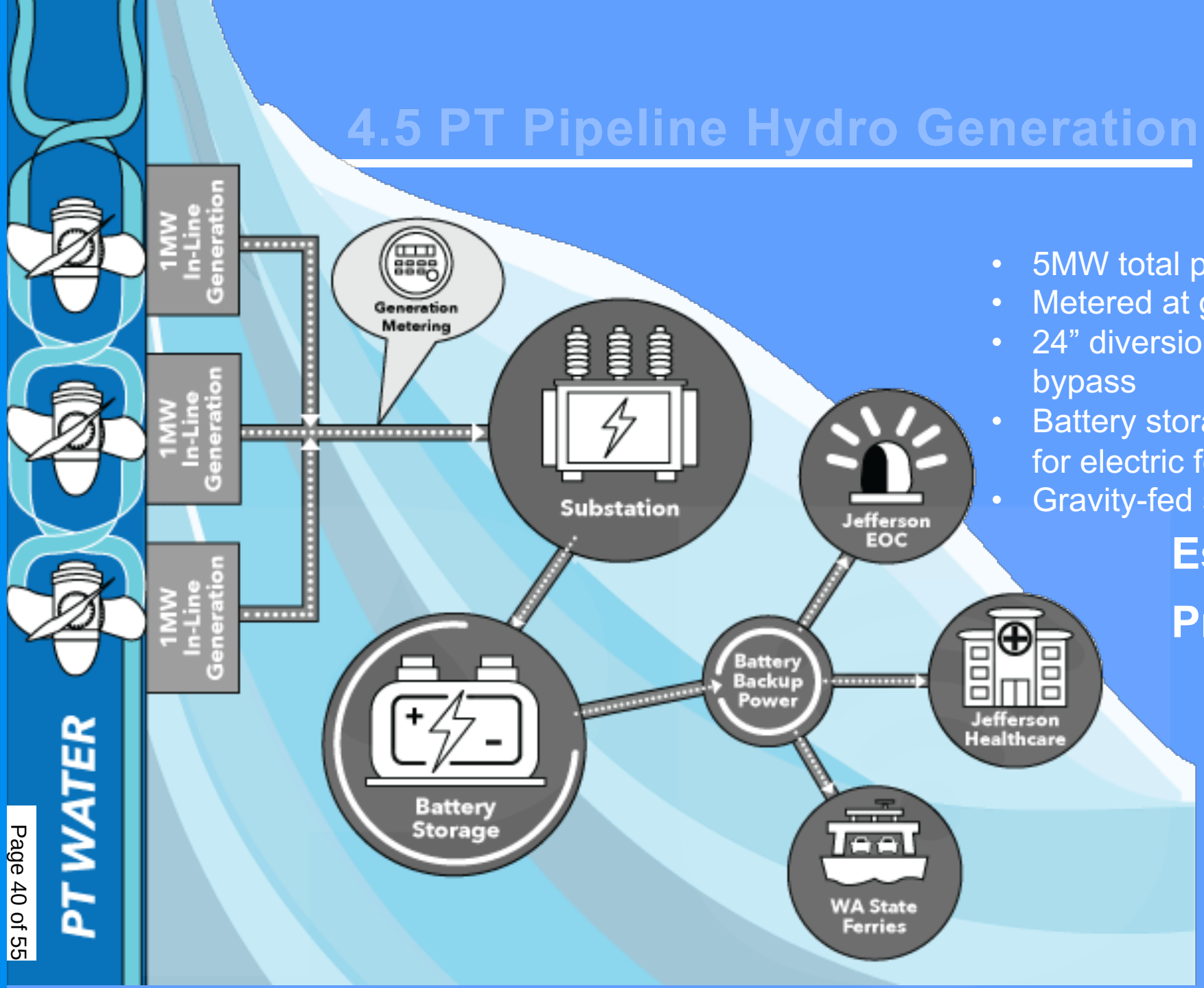
Hydro Generation :

- 5MW total generation
- In-line gravity-fed system
- Regional & National Partners
- Emergency generation
- Battery backup micro grid
- Electrified ferry system demand



4.5 PT Pipeline Hydro Generation

04



- 5MW total power generation (3 generators)
- Metered at generation site
- 24” diversion line from PT pipeline with bypass
- Battery storage at Dana Roberts substation for electric ferry capacity
- Gravity-fed system

Est cost: ~$22.3M

Project Goals:

- Provide backup power for emergencies
- Carbon-free energy
- Reliable source of energy

DRAFT concept design by ICPE

How we get there

04

Power :

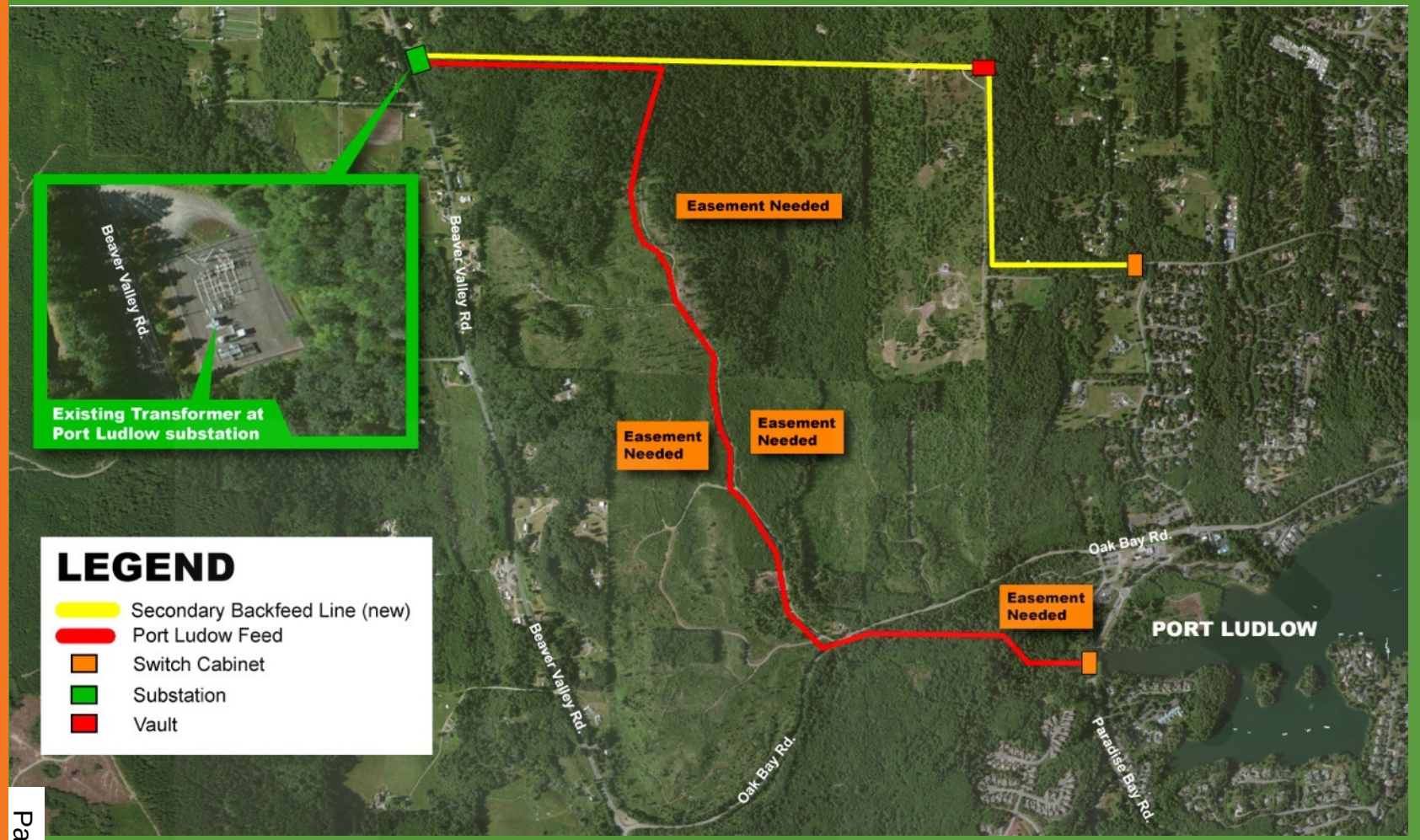
Feeder Project List

- Breaker Lane
- Chimacum
- Undergrounding Marrowstone
- New substation outgoing feeders
- Undersea Cable – Marrowstone, Gardiner
- Feeders out of Irondale Sub

SHOWN: Port Ludlow Transformer

4. Breaker Lane – Port Ludlow

04



- __ miles of underground distribution line
- Switch gear
- Recloser & Bypass Structure
- Vault & Switch cabinets
- Easements required
- DNR permitting required

Est cost: $5.2M

Project Goals:

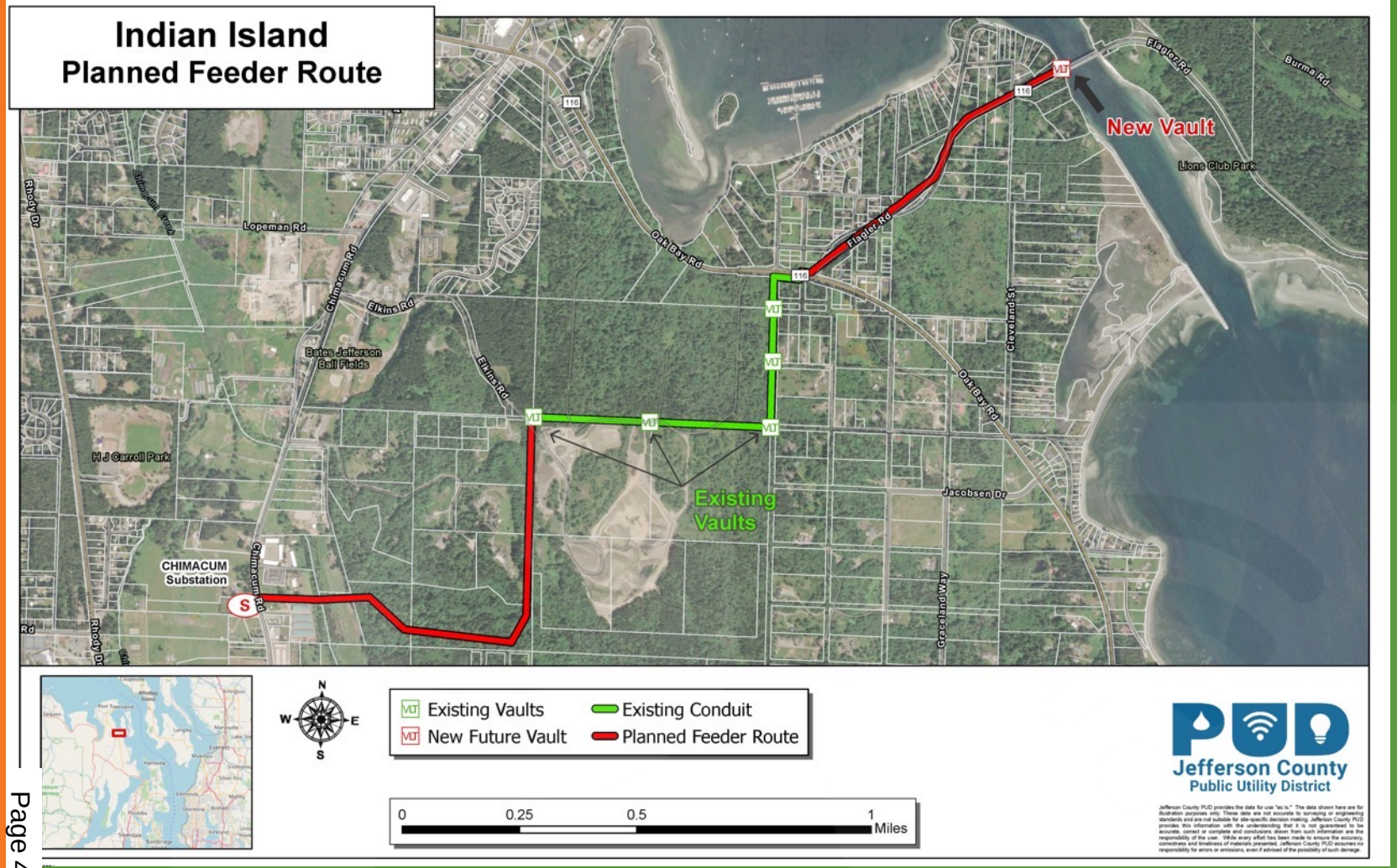
- Provide loop feed to PL north bay customers
- Handle added capacity for urban growth
- Outage reduction

SHOWN: PL Substation-to-Breaker Lane Concept

DRAFT concept art

4. Chimacum Sub–Indian Island Express Feeder

04



- 3 miles of underground distribution line
- Switcher gear
- Recloser & Bypass Structure
- Vault & Switch cabinets
- Easements required
- Boring permit underway
- Easements granted

Est cost: $5.8M

Project Goals:

- Provide dedicated feed to Indian Island Naval Magazine
- In conjunction with proposed undersea cable provides loop feed
- Dedicated Marrowstone Island feed to improve reliability

SHOWN: Chimacum Substation-to-Indian Gov't Cut Concept

DRAFT concept art

4. New PT Sub–Indian Island Loop Feed

04

SHOWN: Proposed PT Substation-to-Indian Island Concept

- 2.7 miles of undersea distribution
- Switcher gear
- Recloser & Bypass Structure
- Vault & Switch cabinets
- Easements & permitting required
- Navy partnering

Est cost: In design

Project Goals:

- Provide dedicated non-ariel feed to Indian Island Naval Mag
- In conjunction with Chimacum sub feeder
- Can provide secondary distribution pathway for Marrowstone Island

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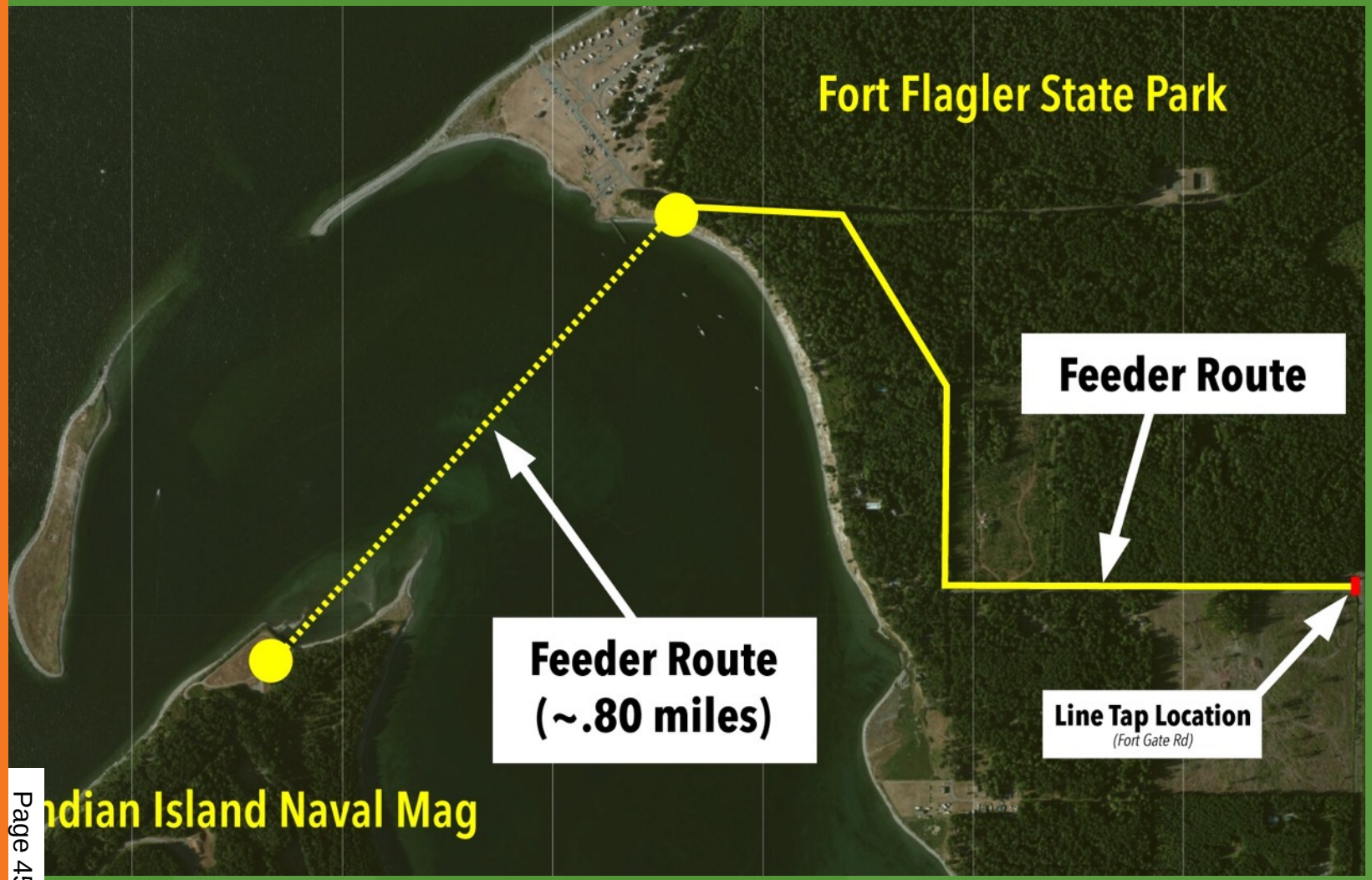
4. Indian Island–Marrowstone Undersea Feed

04



SHOWN: Proposed Indian Island-to-Marrowstone Concept

- .80 miles of undersea distribution
- 2.0 miles of undergrounding
- Follows existing waterline pathway
- Vault & switch cabinets
- Easements & permitting required

Est cost: *In Design*

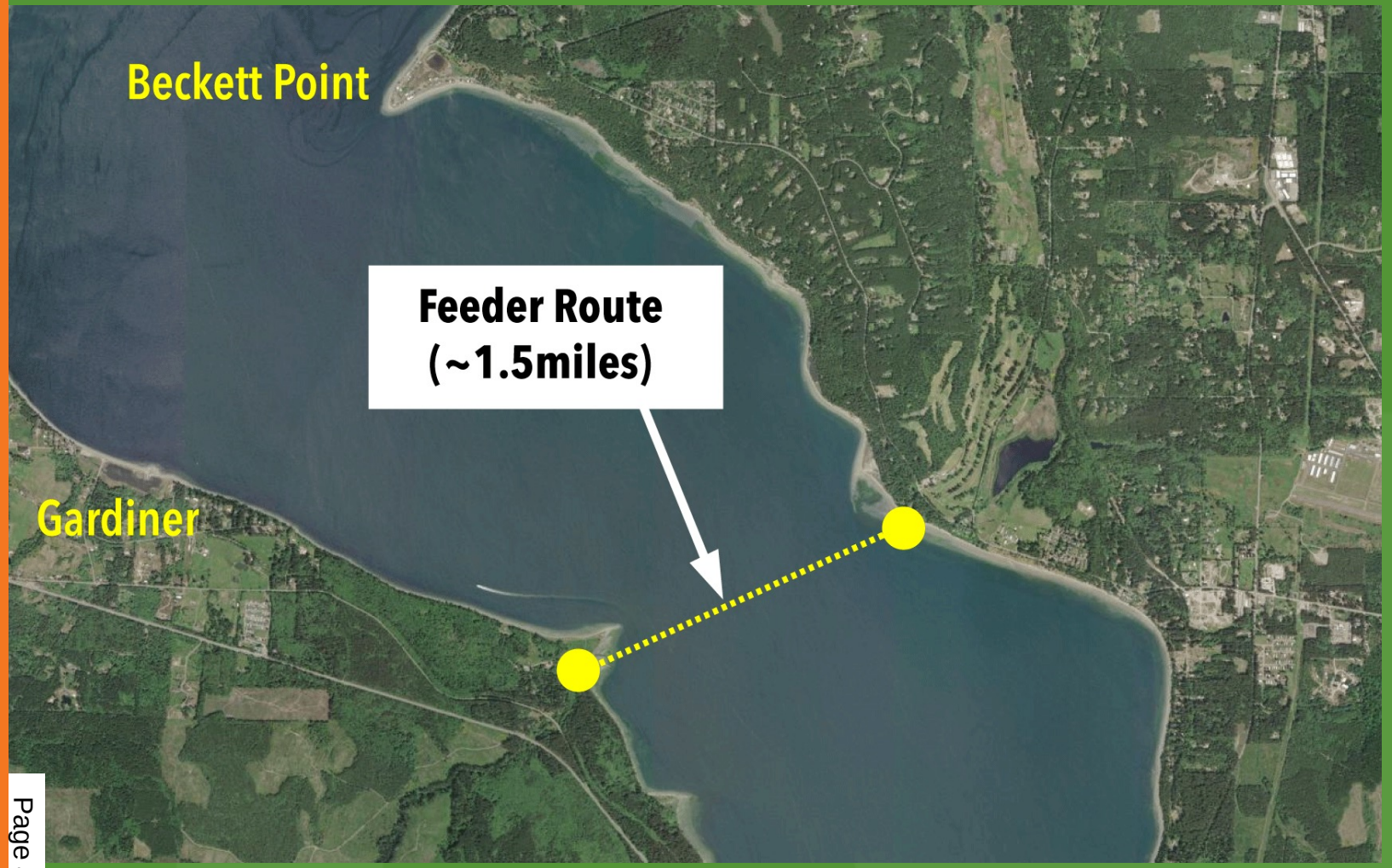
Project Goals:

- Dedicated loop-feed for Marrowstone Island from Indian Island loop feed.
- In conjunction with dedicated Indian Island feeder project.
- Improves reliability.
- Reduces voltage issues.
- Outage reduction.

DRAFT concept art

4. Gardiner Undersea Feeder

04



SHOWN: Proposed Gardiner undersea concept

- ~1.5 miles of undersea distribution
- Switch gear
- Recloser & Bypass Structure
- Vault & Switch cabinets
- Easements & permitting required

Est cost: *In Design*

Project Goals:

- Provide dedicated loop feed for customers in Gardiner from Irondale substation.
- Undersea feed offsets immediate need for future Discovery Bay substation relocation project.
- Outage reduction for Gardiner.

DRAFT concept art

How we get there

Outage Prevention Work

- $1.5M annual spend for vegetation management
- Undergrounding for new construction
- Capacity charge implementation
- Substation upgrades
- SCADA systems
- Identify aerial-to-underground projects
- Replacing failing underground circuits

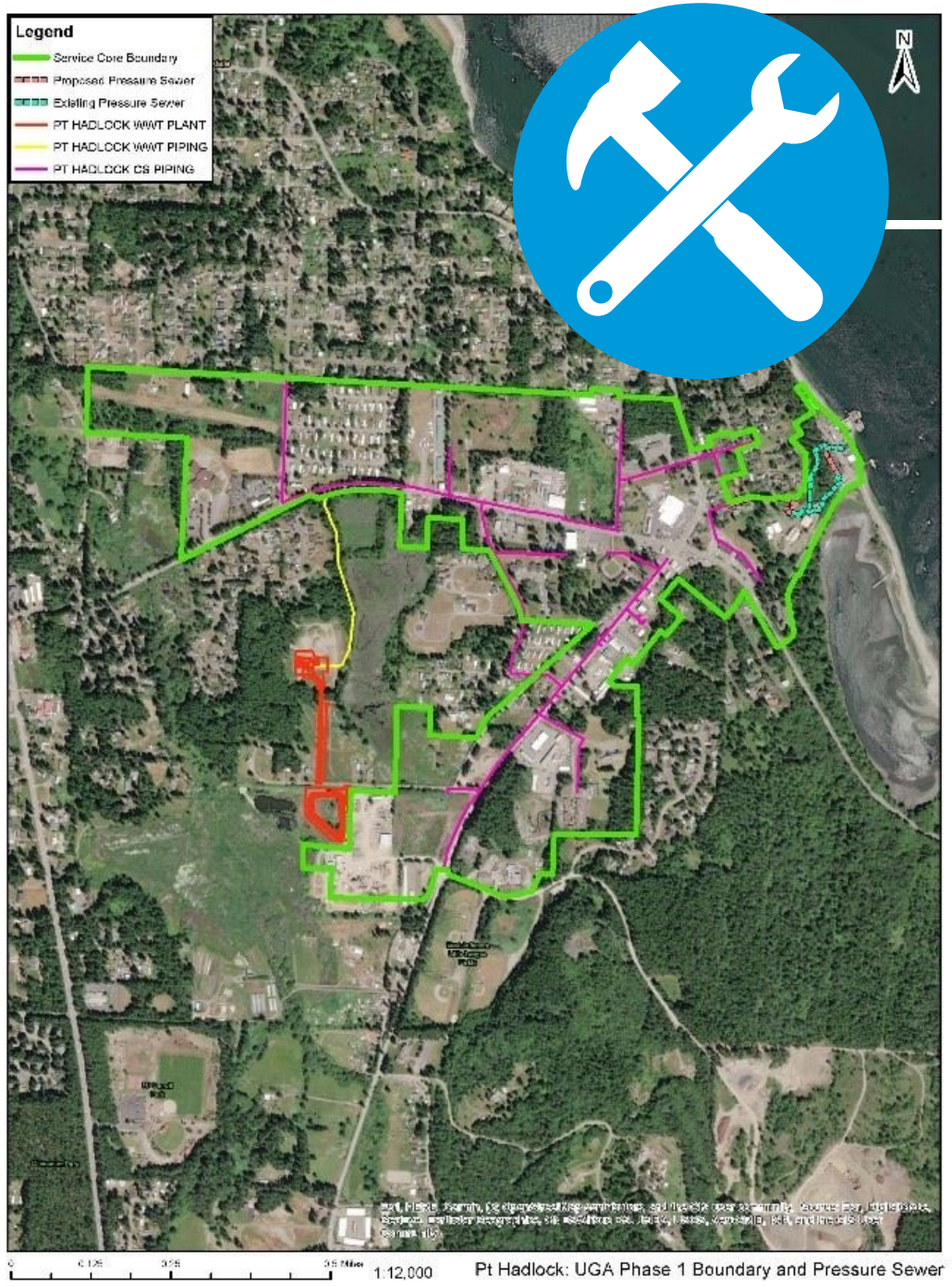
SHOWN: 49th Street 3-Phase Project

Regional Partnership

PUD staff and Jefferson County continue to coordinate an interlocal agreement over management of the Hadlock wastewater system.

Wastewater system operation will serve a large portion of Hadlock residents and increase the PUD workforce.

Connecting our Community



Workforce

04

TAKEAWAY'S

Jefferson PUD is proud to provide high quality living wage jobs in a positive, professional work environment.

As of July 2024, Jefferson PUD has a full-time staff of 76 team members.

We anticipate reaching 100 staff members by 2028 thanks to additional service offerings and a strong customer-focused approach to supporting our customer-owners.

Budget

04
GROWTH

A strong financial standing is the core of a healthy utility. Our inherited, aging infrastructure demands an influx of capital over the next decade to maintain our grid.

Capitol projects, workforce growth, office expansion, grant funding and tracking, and new revenue streams demands more from our finance department.

The Future

04

A decade into serving our community with reliable, affordable power and we must continue to rely on our professional workforce to ensure our local infrastructure remains healthy.

Organizational Structure

A closer look at the internal functions of the utility with a focus on maximizing efficiency.


Thank you!

A Special Thanks to

PUD Directors

Mike Bailey
Jean Pepper
Will O'Donnell
Melanie Des Marais

Primary Advisors and Consultants

Joel Paisner – Ascent Law Partners LLP
Don McDaniel – PUD Management Consultant
Doug Dawson – CCG Consulting
Moss Adams – Accounting & Audit Consultant
Finely Engineering Co. – Broadband Engineering
ICPE – Infrastructure Engineering Consultant
Kathy Feldman – Employment Law
FCS Group – Rate Study Consulting
Our contractor & small works partners

Jefferson County
Public Utility District

Connecting our Community

Questions?