

*Serving our customers*

# TPU Asset Management



# Strategic Directive 7



## Reliability and Resiliency

*"TPU believes long-term strategic planning, including resource planning, financial planning and **asset management planning**, will ensure infrastructure, facilities and personnel sufficient to meet TPU's reliability and resilience goals within budget and rate limitations."*



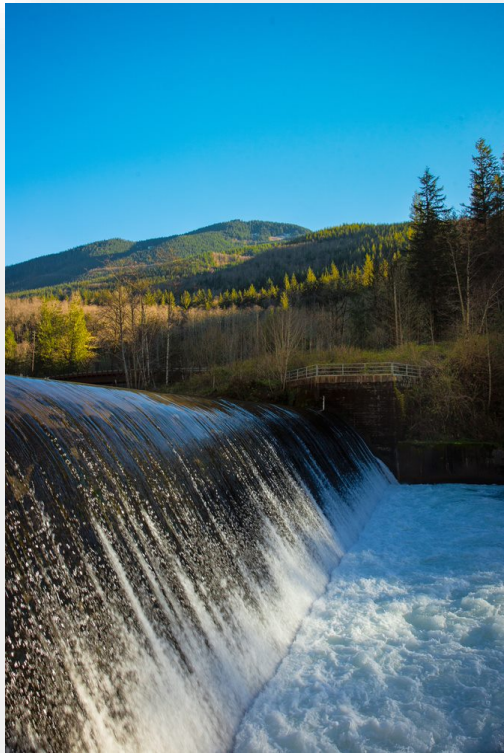
# Why do we need Asset Management?



## Growing challenges:

- Increasing complexity
- Aging infrastructure
- Aging workforce
- Pressure to control costs

# Asset Management at TPU



Water

Power

Rail



# Commitment to Asset Management



## Our Commitment to Asset Management



### A message from the superintendent

"When we manage our assets appropriately by taking a planned and proactive approach, we are able to capture as much value from our assets as possible and deliver that value directly to our customers.

**Asset management helps our utility provide customers the value they have come to expect and the value we will deliver.**

As we transition from a growth utility to a maintenance utility, having strong asset management principles will allow us to make this transition in a responsible and effective way."

**Scott Dewhirst**  
Superintendent

### Purpose

The social, economic, and environmental well-being of our community depends upon the safe, reliable performance of assets owned and operated by our utility. This document demonstrates an organization-wide commitment to apply strategic asset management principles as responsible stewards of those assets.

### In managing our assets, we will:

- Support people in appropriate roles to implement asset management.
- Employ consistent asset management practices across all functions of the organization.
- Ensure asset decisions are well informed and documented.
- Maintain compliance with legal, statutory, and regulatory requirements.
- Define metrics to balance cost, risks, and performance.
- Incorporate environmental, economic, social, and equitable outcomes in long-term investment decisions.
- Seek transparency and inclusion through stakeholder and customer engagement.
- Balance the collection and use of data with the value of the decision being made.
- Apply a continuous improvement mindset to asset management practices.
- Approach decisions from a system-wide perspective.



## Our commitment to Asset Management

### Stewarding our assets wisely is the way we work at Tacoma Power

Asset management supports continuity of knowledge and makes sure that you have the skills and information needed to be successful in your job. We are constantly innovating our data and analytics approach to better deliver long-term affordability to our customers and community.



*I feel strongly that asset management makes it possible to prioritize what's most important to the long-term success of this great utility - safety, reliability and customer value.*

*Strong asset management practices mean that we can make responsible investments in our infrastructure. To keep rates low, people safe and the lights on, requires making solid decisions that are backed by data.*

*Thank you for your part in delivering on this commitment.*

**Chris Robinson**  
Superintendent

### In managing our assets we commit to:

1. Manage our assets to ensure the **safety** of our employees and the public.
2. Align with Tacoma Power's **vision and strategic objectives**. Make the best use of our limited resources to meet these objectives.
3. Ensure our asset management practices follow a **consistent and systematic framework**.
4. Have a big-picture perspective that considers **total cost of ownership** for the full lifecycle of the asset from planning to disposal.
5. Make integrated and informed decisions that account for **interdependencies among assets**.
6. Maintain **compliance** with legal, statutory, and regulatory requirements.
7. Achieve **optimal solutions** by balancing all perspectives and being transparent about the **tradeoffs between risk, cost, and performance**.
8. Utilize a **uniform method** for evaluating risk.
9. Implement **long-term planning** to create sustainability.
10. Measure **realized value** of the asset management program, and utilize results to **continually improve** asset performance.



# What does Asset Management Look Like?



We will share more about:

- Our Assets
- Keeping our Infrastructure Strong
- Right Work, Right Time
- Long-Term Asset Planning





## Generating Power

- Seven dams and spillways
- 23 hydro generators and turbines
- Nine hydroelectric facilities

## Delivering Service to our Customers

- 2,386 miles of power lines
- 43,000+ wooden poles; 5,000+ steel towers
- 113 substations and switchyards

## Caring for our Land and Resources

- Four fish hatcheries
- 2,000+ acres of wildlife habitat
- 300+ buildings; 1,000+ fleet assets

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Value of our Fixed Assets:

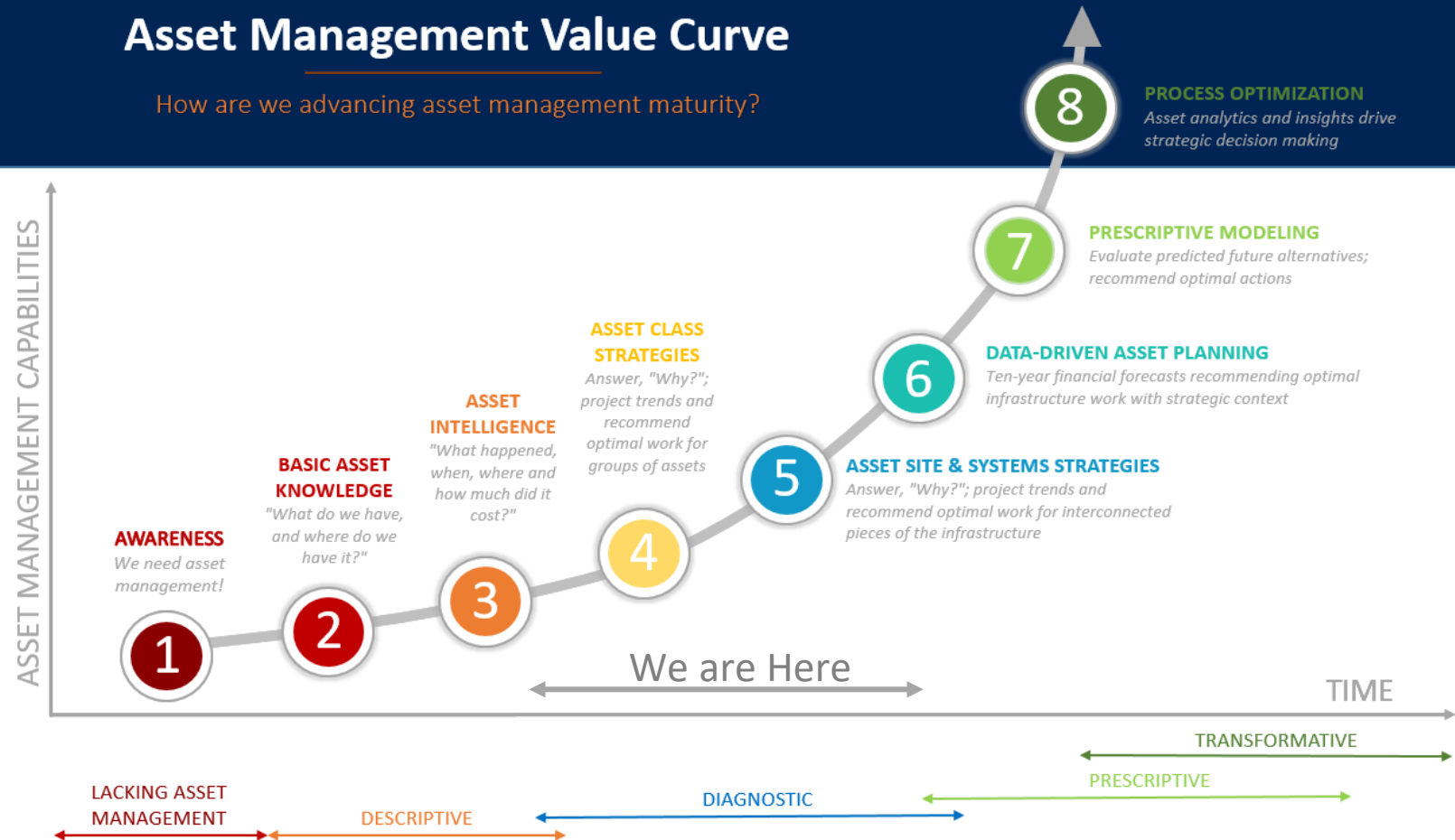
**\$1 Billion+**

# Power: Keeping our Infrastructure Strong



## Asset Management Value Curve

How are we advancing asset management maturity?



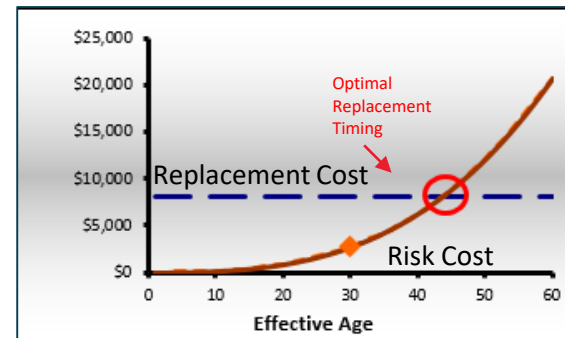


# Power: Right Work, Right Time



**Asset Strategies:** Data-driven work projections for each part of the infrastructure

**Economic Models:** Asset strategies use analytical models to predict the optimal replacement time for critical assets - when it typically becomes more expensive to maintain equipment than replace it



**Expert Teams:** We review asset strategies, including the data and analysis predicting optimal maintenance and replacement work, with the people who understand our equipment best, before including projected work in long-term infrastructure planning

# Power: Long-Term Asset Planning



**Value Framework:** With our leadership team, we developed a Value Framework to prioritize projects within our Asset Management Plans

We are more likely to greenlight projects that specifically enhance:

- Safety
- Compliance and Stewardship
- Customer and Employee Experience
- Reliability and Resiliency
- Rate Affordability and Economic Development

**Levelized Spending:** Prioritized infrastructure planning helps us predict necessary spending so we can spread it out over time - this allows us take care of our infrastructure for future generations, while avoiding cost spikes that could impact our customers



# Rail: Our Assets

## TMBL – Tideflats

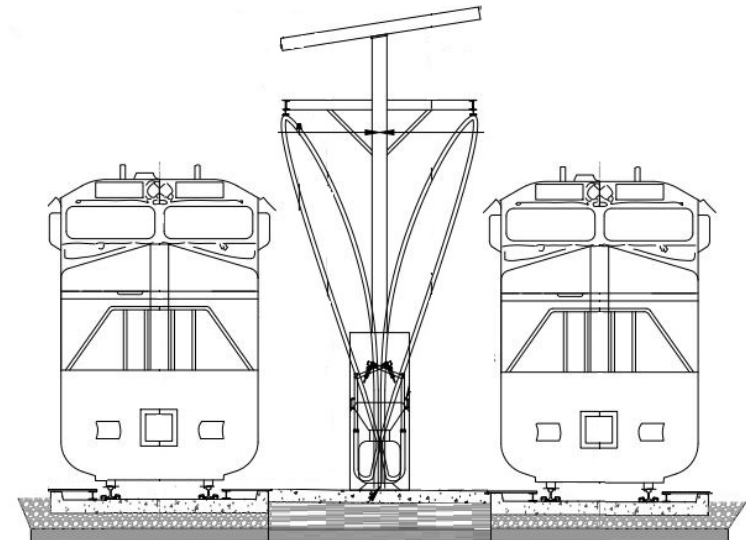
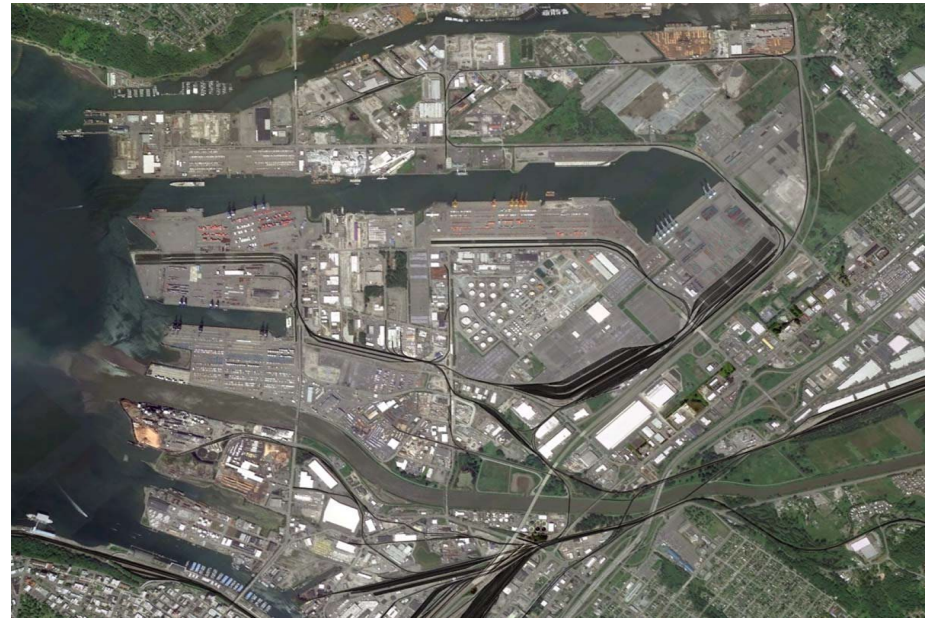
- 33 Miles of Track
- 176 Track Switches
- 148 Grade Crossings
  - 7 signalized
- 3 Bridges
- 18 Locomotives

## TRMW – operated for Public Works

- 51 miles of Track
- 34 Track Switches
- 76 Grade Crossings
  - 26 signalized
- 11 Bridges/trestles

## Locomotive Maintenance Facility:

- Serviced 3,900 foreign locomotives in 2021
- Maintained our own fleet
- Current expansion project underway



# Rail: Keeping our Infrastructure Strong



- **Bridge Safety Management Policy**
  - Regulation implemented in 2011 requires detailed inventory including load capacity calculations, documented inspection program, repair/maintenance procedures, QA/QC record keeping, and program auditing processes.
- **Sustained and ongoing improvements and maintenance based on routine track, bridge, and locomotive inspections**
  - Between 2010-2021, the remaining ~8 miles of pre-WWII forged rail was replaced with new 115lb rail in the Tidelands.
  - 6 of 18 locomotives have been re-powered, modernizations are ongoing.
- **Ultrasonic Rail Flaw Testing**
  - Voluntary non-destructive inspection tool used to identify internal rail flaws in advance of track failure.





# Rail: Right Work, Right Time

Determinations for track renewal projects are based on a combination of inspections, geometry and annual railcar volumes analysis.

As rail customer needs evolve, track reconfigurations help optimize operational efficiencies.

Locomotives are improved or replaced as new technology is developed. The installation of idle reduction technology saves on fuel costs and reduces emissions.

Foreign locomotive power servicing contracts generate additional revenue, assists with regional emissions reductions objectives, and mitigates operational disruptions resulting from global trade imbalances.



# Rail: Long Term Asset Planning

- Electronic Track Mapping
- Addition of Electric Locomotives to fleet
- Upgrade existing Diesel Locomotives
- Use rail customer forecasts to inform track upgrades, reconfigurations and additional infrastructure feature decisions.
- Consider employee recommendations to improve safety, ergonomic convenience and efficiencies.





# Water: Our Assets



- 1,428 miles of Water Mains
- 11,500 fire hydrants
- 24 Active wells
- 28 pump stations
- 76 pressure reducing valve stations
- McMillin Reservoir, 67.6 million gallons
- 17 other reservoirs and standpipes, 69.9 million gallons
- 16 Asset Classes

**Value of Our Fixed Assets:  
Nearly \$1 Billion**



## Asset Management Culture

### Leveraging our Subject Matter Experts

- **Implemented 13 Asset Management Planning Teams**, cross functional teams representing the "voice of the assets"
- Continued assessment with industry experts ensuring we're on the right path

### Strategic Maintenance Management

- **Implemented use of discrete work orders** unlocking cost, performance, and risk data by asset
- **Reorganized and improved asset record data**



# Water: Right Work, Right Time

## Economic Model

- Evaluates the benefit cost ratio to determine whether to replace water main for partner projects such as with Public Works or Environmental Services
- The model assists in projecting long term replacement cost to anticipate and avoid peaks in future replacement costs

## Business Case Evaluations

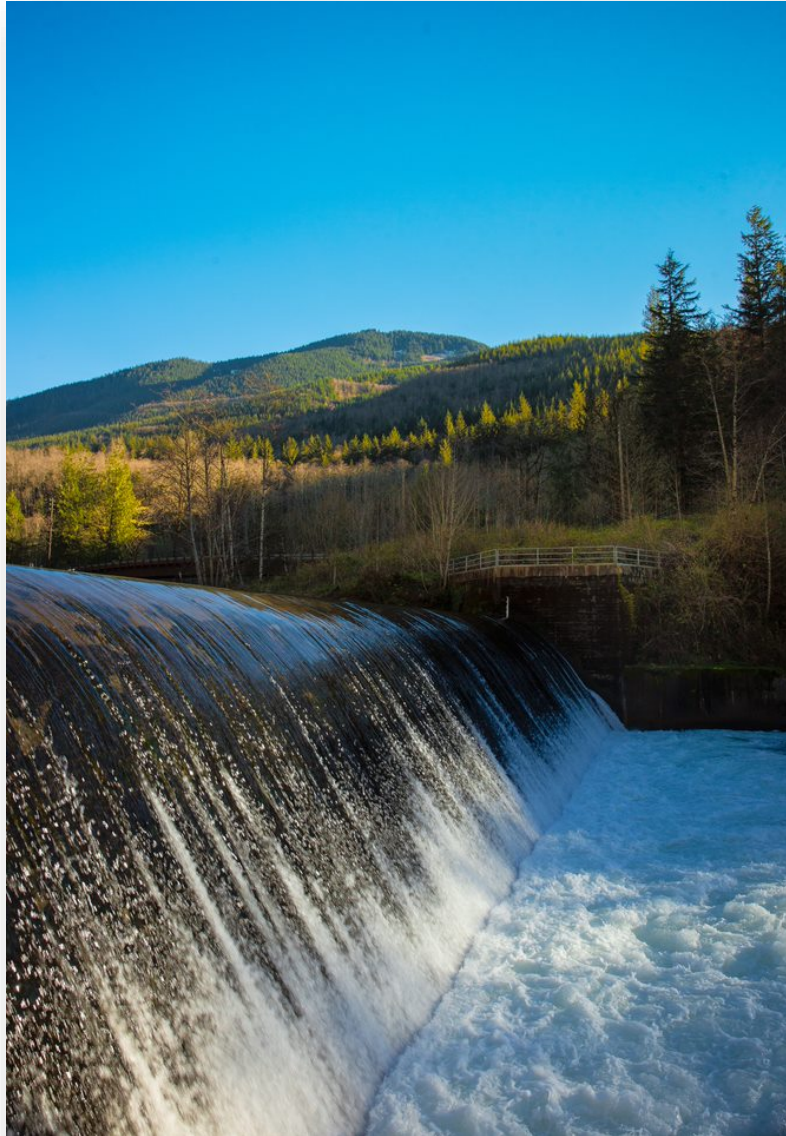
- Established consistent methodology for evaluating alternatives through use of a standardized Business Case Evaluation for all capital projects
- Recommends an alternative incorporating the triple bottom line - social, economic and financial lifecycle costs

## Groundwater Prioritization - Wells Master Plan

- Identified the benefit cost ratio based on water capacity vs rehabilitation costs
- Informed our capital investment plan to best meet target production goals (performance), maintaining sufficient redundancy (risk), the most affordability (cost)



# Water: Long Term Asset Planning



## Asset Management Culture & Lifecycle Decision Making

- Established an Asset Management Governance structure
- Implemented Asset mgmt. principles through targeted **objectives, strategies and plans.**

## System Thinking

- Defining **sub-systems** of Tacoma Water's service territory to evaluate how assets perform together within a sub-system
- Continuing to utilize the **cross-functional teams** to inform our long-range infrastructure investment plan and complex maintenance opportunities

# Conclusion - Working Together





# Questions?

