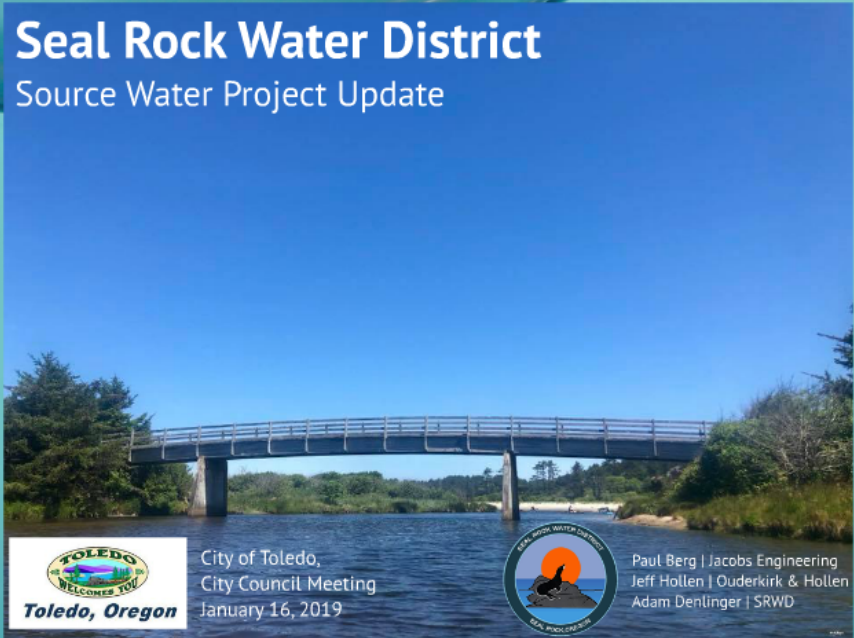


# Seal Rock Water District

## Source Water Project Update



City of Toledo,  
City Council Meeting  
January 16, 2019



Paul Berg | Jacobs Engineering  
Jeff Hollen | Ouder Kirk & Hollen  
Adam Denlinger | SRWD



**Service to the community:**

Seal Rock Water District is committed to providing high-quality water service to its customers. We are dedicated to maintaining and improving our infrastructure to ensure a reliable and safe water supply for our community.

**General Information:**

- Service Territory: 11.5 sq/miles
- Static Population: 5,500
- 9 full-time employees
- Over 65-miles of pipe,
- 2-million gallons of reserve water.
- Service connections: 2,558
- 95% residential customer base.
- Annual Water Sales volume 95-M/Gal

**THE PROBLEM:**

The Seal Rock Water District is currently facing a significant water quality issue. The water source is contaminated, and the current infrastructure is unable to filter out the contaminants. This poses a serious risk to the health and safety of the community.

**THE SOLUTION:**

The Seal Rock Water District is implementing a comprehensive water treatment and distribution system. This includes the installation of advanced filtration technology and the replacement of aging infrastructure. This solution will ensure a clean and reliable water supply for the community.

# Seal Rock Water District

## Source Water Project Update



**Toledo, Oregon**

City of Toledo,  
City Council Meeting  
January 16, 2019



Paul Berg | Jacobs Engineering  
Jeff Hollen | Ouder Kirk & Hollen  
Adam Denlinger | SRWD



# General Information:

- Service Territory: 12.5 sq/miles
- Static Population: 5,500
- 9-full time employees
- Over 65-miles of pipe.
- 2-million gallons of reserve water.
- Service connections: 2,558
- 95% residential customer base.
- Annual Water Sales volume 95-M/Gal



# Service to the community:

- Provide safe reliable drinking water to a growing community.
- District population grows to 8,000 in summer months.
- Emergency interconnection with neighboring communities.
- Support regional rural fire districts.
- Automated Meter Integration (AMI).
- Reduced non revenue water loss system wide.





# THE PROBLEM

- Supply line from Toledo is aged and beyond expected lifespan.
- Vulnerable to earth movement.
- Limited access.
- Liquefied soils/Poole Slough area.
- Multiple line failures.
- Over a million dollars in emergency repair cost.
- A Cascadia event would completely collapse our supply line.







Oregon Office of Emergency Management (OEM)  
January 25, 2017:

***"scientists predict there is a 40% chance that a megathrust earthquake of 9.0 magnitude or greater will occur in the next 50-years".***

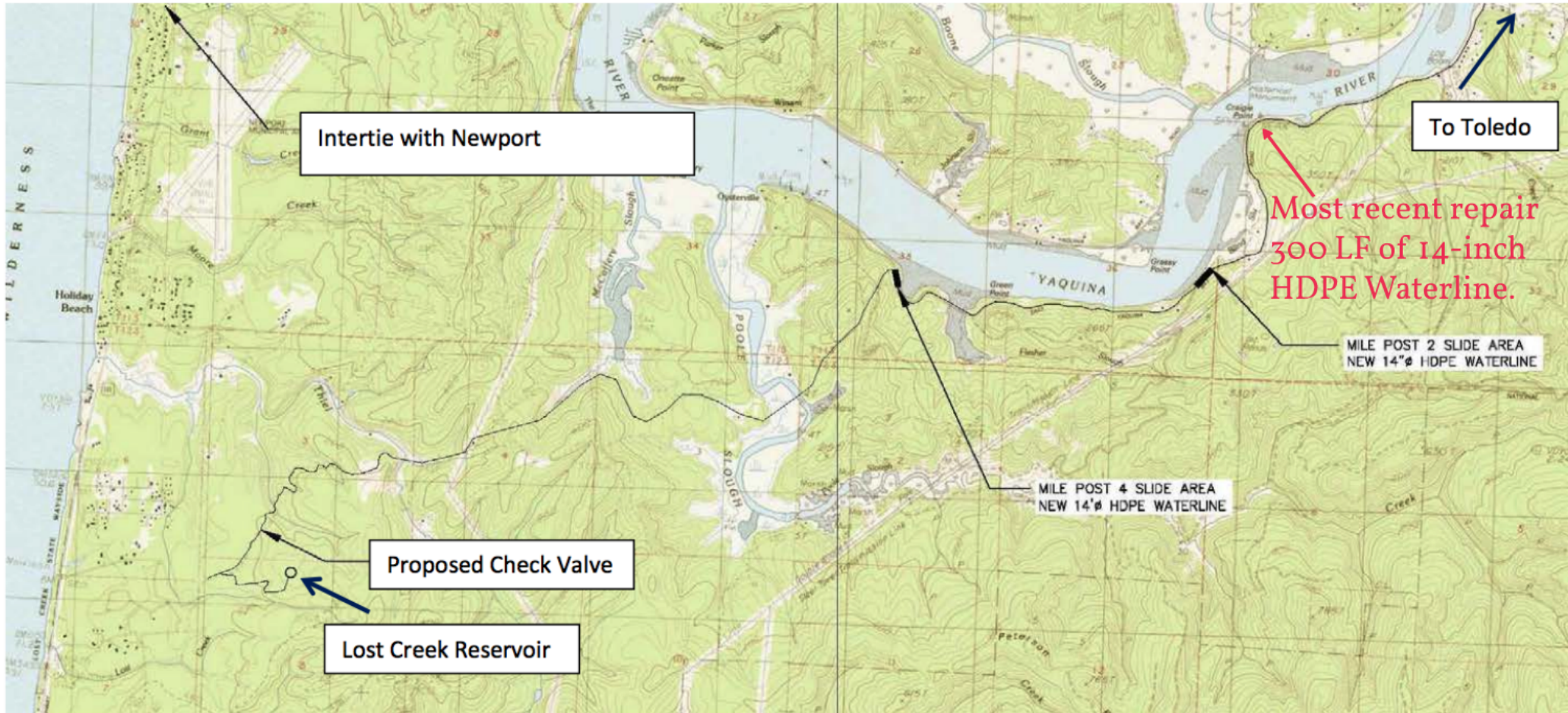


# Shark Tank





## Transmission Line Route Between Toledo and Seal Rock





A topographic map showing a slide area. A red arrow points to a specific location on the map. A white box with a black border contains the text "To Toledo". At the bottom, a white box with a black border contains the text "MILE POST 2 SLIDE AREA NEW 14\"/>

To Toledo

Most recent repair  
300 LF of 14-inch  
HDPE Waterline.

MILE POST 2 SLIDE AREA  
NEW 14"  $\phi$  HDPE WATERLINE



Navigating the complexity of  
developing a resilient sustainable  
primary water source.



On the Oregon Coast!



# Planning for a catastrophic event:

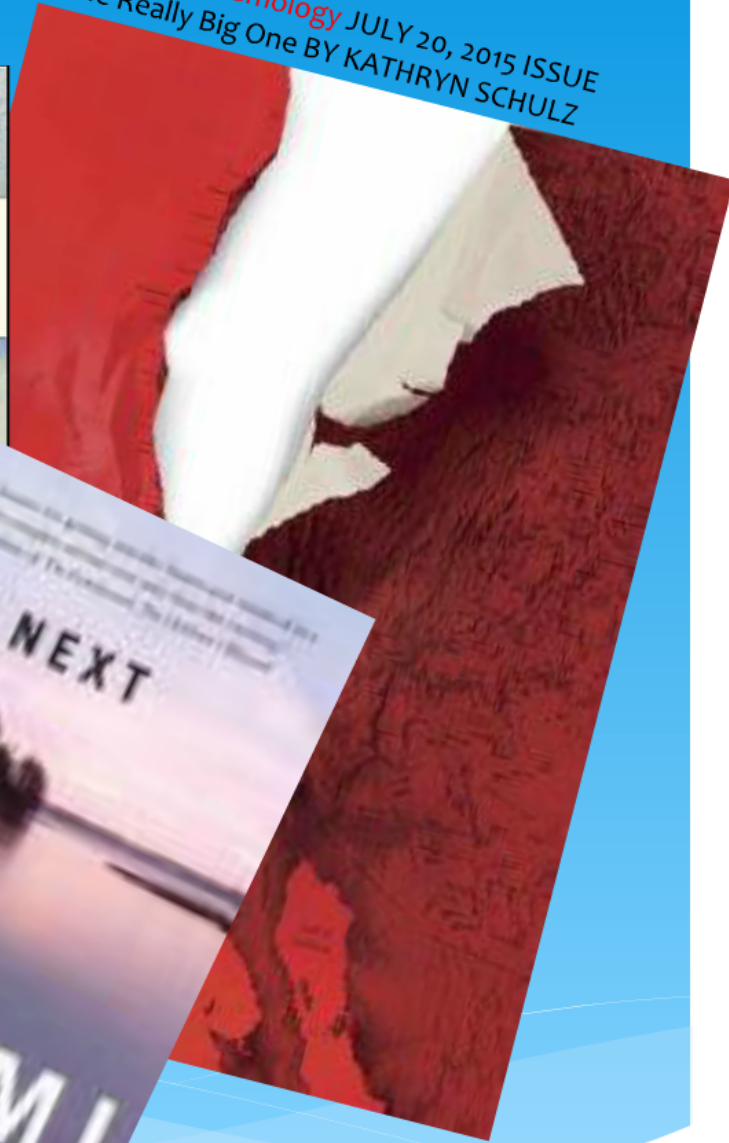
How to Stay Safe When the Big One Comes:  
By: Kathryn Schulz



*Annals of Seismology* JULY 20, 2015 ISSUE  
The Really Big One BY KATHRYN SCHULZ

The cover of a report titled "Lincoln County Multi-Jurisdictional Natural Hazards Mitigation Plan". It features a map of Lincoln County, Oregon, and a small inset photo of a seal. The text on the cover includes: "Lincoln County Multi-Jurisdictional Natural Hazards Mitigation Plan", "Prepared for: Lincoln County, Depoe Bay, Lincoln City, Newport, Siletz, Toledo, Waldport and Yachats".

Lincoln County  
Multi-Jurisdictional Natural Hazards Mitigation Plan  
Prepared for: Lincoln County, Depoe Bay, Lincoln City, Newport, Siletz,  
Toledo, Waldport and Yachats



**The Oregon Resilience Plan**  
Reducing Risk and Improving Recovery for the Next Cascadia  
Earthquake and Tsunami



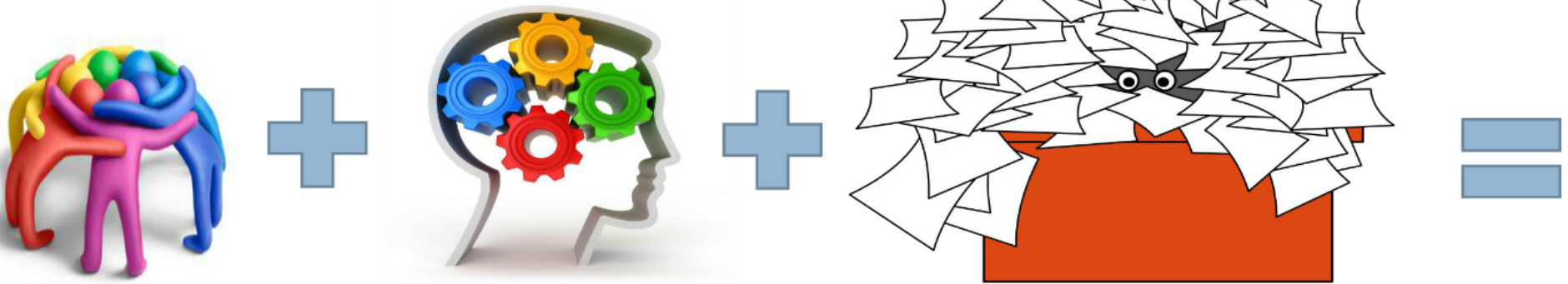
Save Lives, Preserve Our  
Communities and Our Economy

Report to the 77<sup>th</sup> Legislative Assen  
from  
Oregon Seismic Safety Policy Advisory Commission  
Salem, Oregon  
February 2013

The cover of a book titled "THE NEXT TSUNAMI" by Bonnie Henderson. The cover features a sunset over a body of water with trees in the foreground. The text on the cover includes: "THE NEXT TSUNAMI", "Living on a Restless Coast", and "BONNIE HENDERSON".

THE NEXT  
TSUNAMI  
Living on a Restless Coast  
BONNIE HENDERSON

# Key Engagement Steps



Study Process Developed Several Reports



# Completed Studies:

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*Final Report*

## Reconnaissance-Level Source Water Study

Prepared for  
**Seal Rock Water District**



March 2015

Prepared by



FINAL

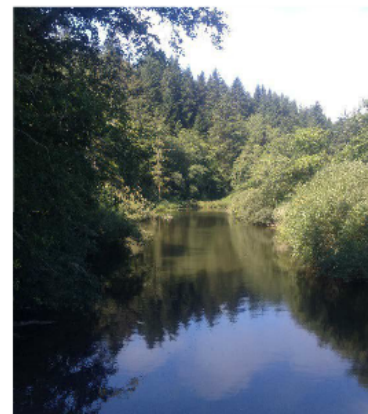
# Phase IV Conceptual Design Report for the Seal Rock Water District Beaver Creek Water Supply

*Prepared for*  
Seal Rock Water District, Oregon

September 2016

**ch2m.**<sup>®</sup>

1100 NE Circle Blvd Suite 300  
Corvallis, OR 97330-3538



FINAL

# Preliminary Engineering Report for Seal Rock Water District, Oregon: Beaver Creek Water Supply Project

*Prepared for*

USDA Rural Development Loan Program

May 2017

**ch2m.**

CH2M HILL Engineers, Inc.  
1100 NE Circle Boulevard, Suite 300  
Corvallis, OR 97330-3538





FINAL

# Environmental Report for Seal Rock Water District, Oregon: Beaver Creek Water Supply Project

*Prepared for*

USDA Rural Development Loan Program

May 2017

**ch2m.**<sup>®</sup>

CH2M HILL Engineers, Inc.  
2020 SW 4th Avenue, Suite 300  
Portland, OR 97201



# Water Supply Options:

- The District's primary feed line is at risk of failure and becoming unreliable.
- Secondary emergency intertie with Newport, while sufficient, may not provide year-round supply.
- Beaver Creek water availability for municipal use.
- Beaver Creek source provides an opportunity for resiliency, rapid recovery and local control.
- Use of Beaver Creek source provides a direct environmental benefit in the region.

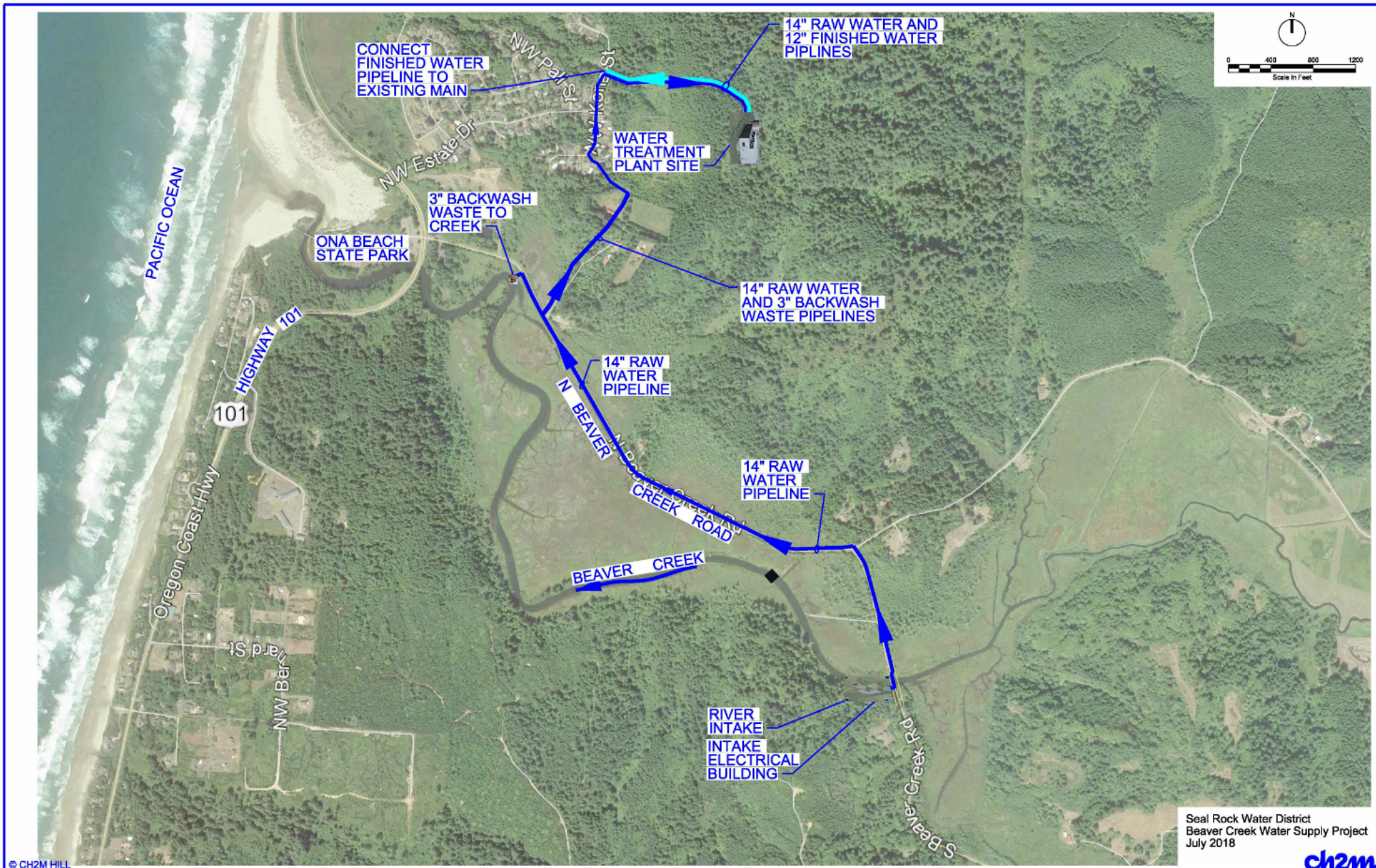


# THE SOLUTION





# THE SOLUTION





**Design Considerations**

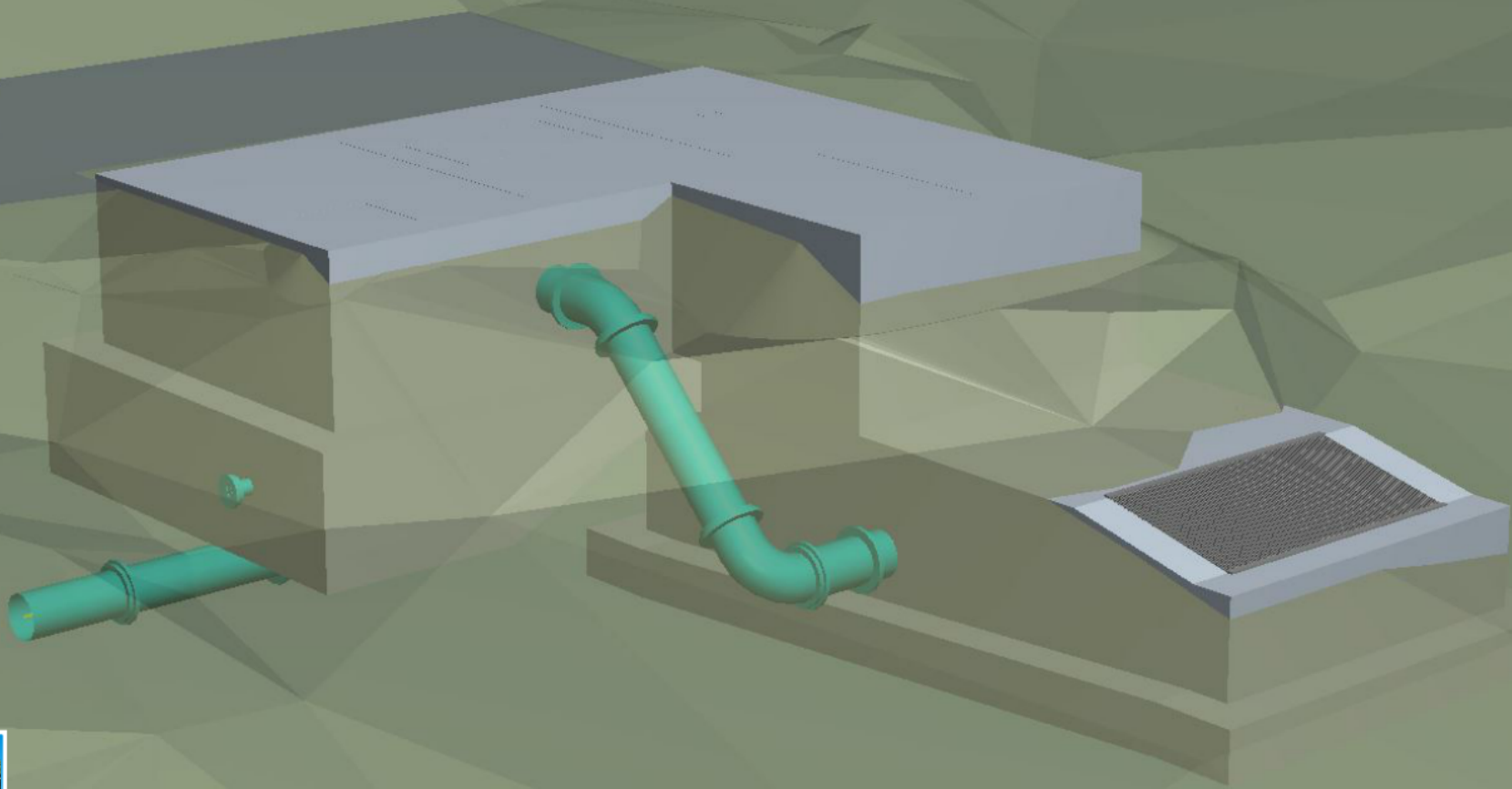
- Geology
- Topography
- Land Use
- Cost - effective
- Rapid recovery
- 100 year flood compliance
- Sustainable water efficiency
- Minimum O&M requirements
- Cascade Subdivision Zone Northgate

JACOBS

Designing an intake that considers the environment.



JACOBS



Designing an intake that considers the environment.



JACOBS

Designing an intake that considers the environment.



JACOBS

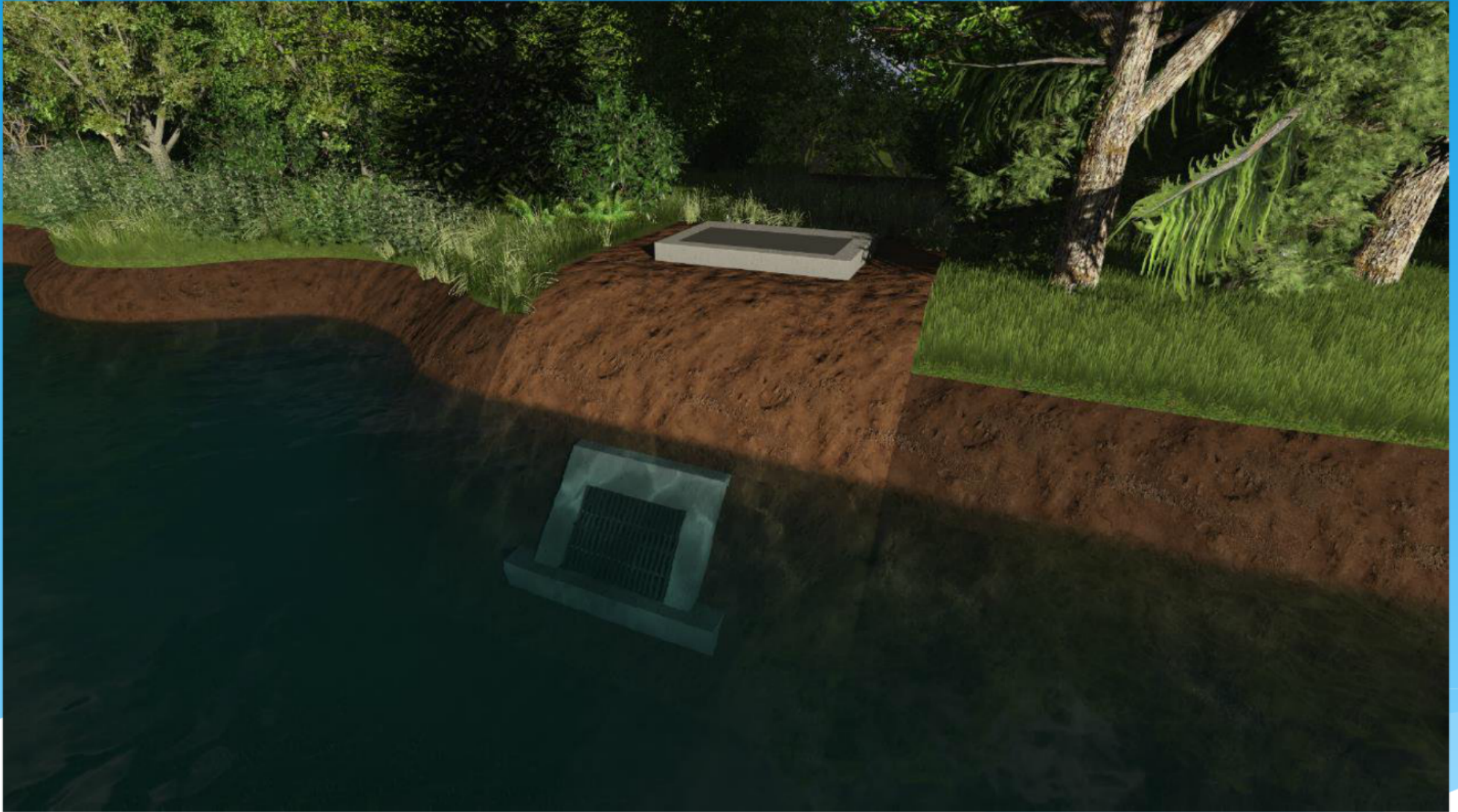
# Design Considerations:

- ◆ Geology
- ◆ Tsunami
- ◆ Landslides
- ◆ Cost – effective
- ◆ Rapid recovery
- ◆ 100 year flood conditions
- ◆ Maximize seismic resiliency
- ◆ Minimize O&M requirements
- ◆ Cascadia Subduction Zone Earthquake





# Designing an intake that considers the environment:

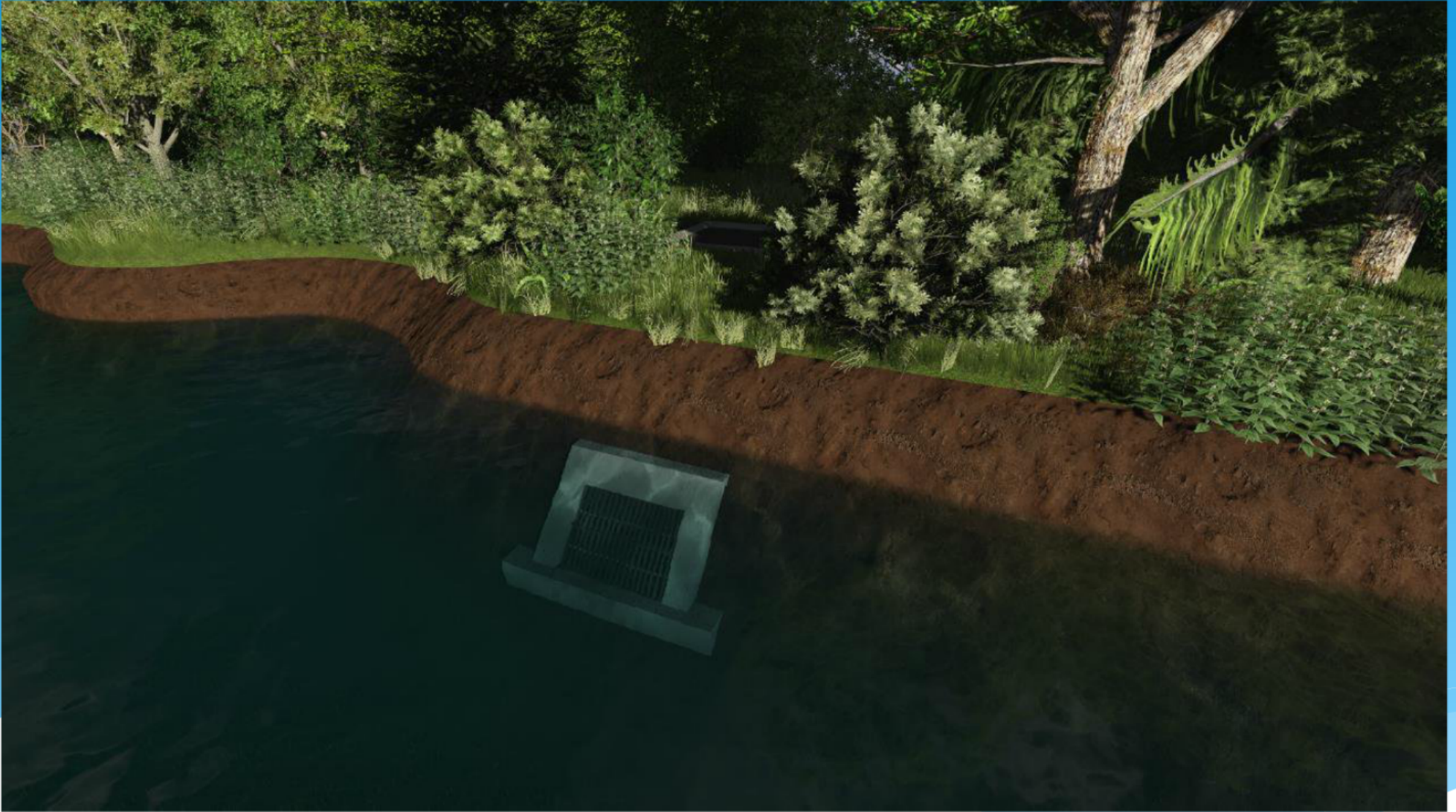


# Designing an intake that considers the environment:





# Designing an intake that considers the environment:



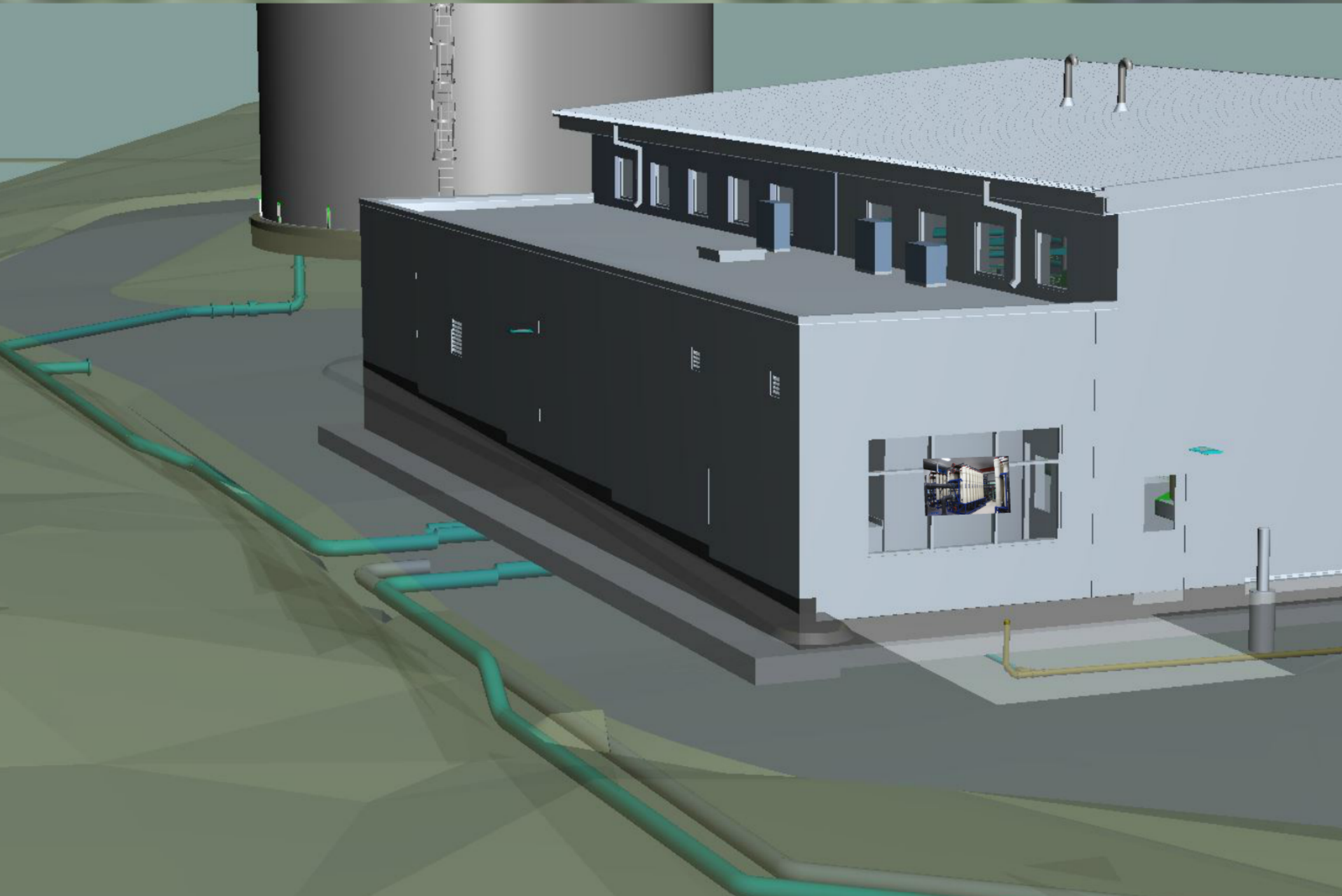


## Beaver Creek State Natural Area













**JACOBS**

# Potential Benefits:

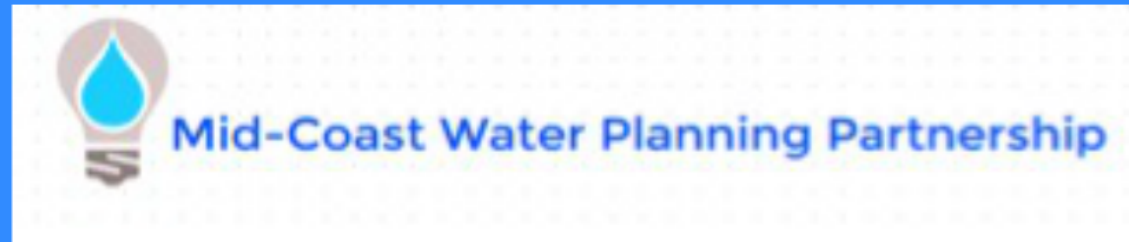
- Less demand on the Toledo system.
- Reduced chemicals and power cost.
- Collaboration to develop an emergency intertie for continued use.
- Partner grant funding opportunities; for example using FEMA's NHMGFP.
- Ongoing sale of water to the District through developing emergency water supply agreement.
- Opportunity for water sales to support commercial/industry base.
- Extend Toledo's portfolio of water-rights beyond 50-year planning horizon.











# *"Collaborative Opportunities"*

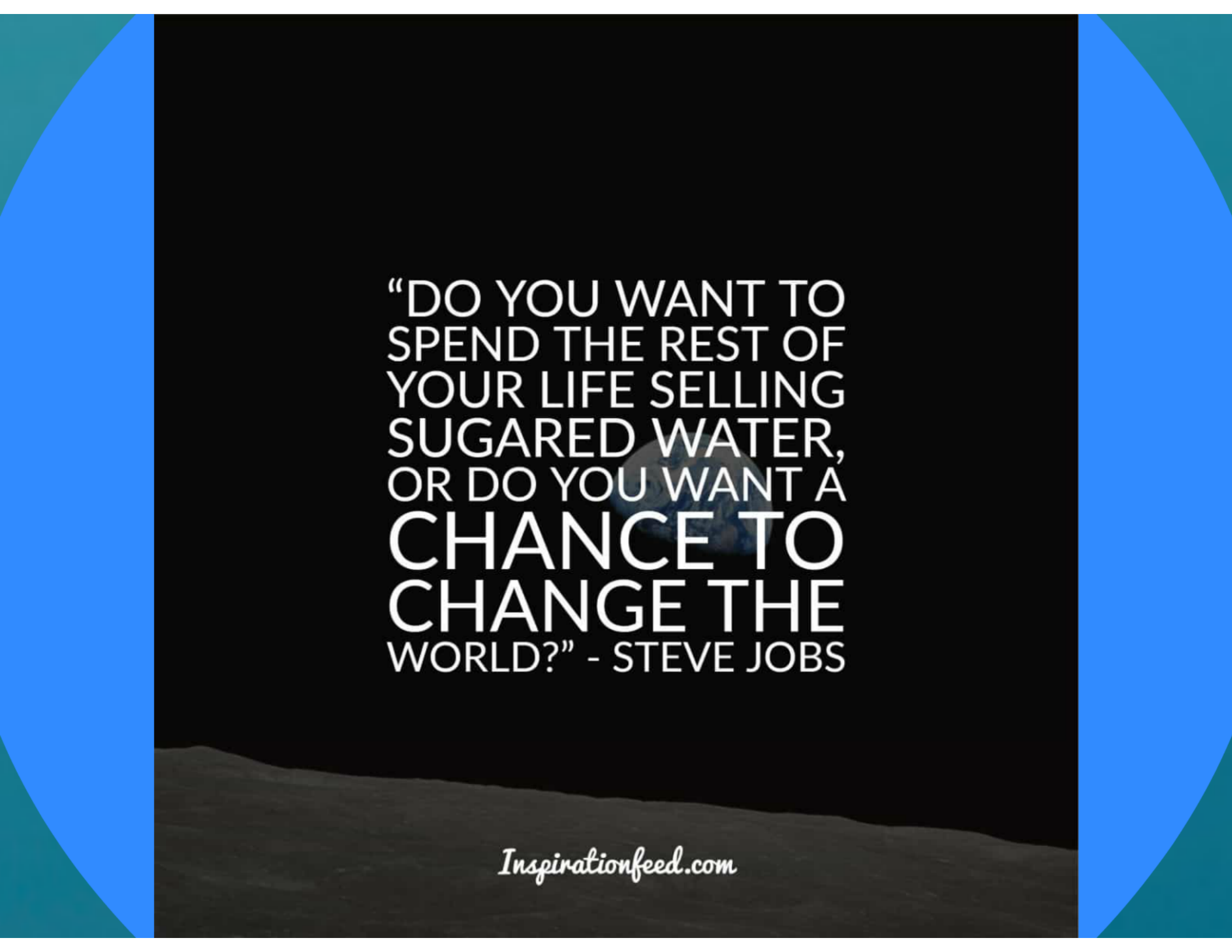


# Thank You

“DO YOU WANT TO  
SPEND THE REST OF  
YOUR LIFE SELLING  
SUGARED WATER,  
OR DO YOU WANT A  
**CHANCE TO  
CHANGE THE  
WORLD?**” - STEVE JOBS

*Inspirationfeed.com*



The image features a quote by Steve Jobs centered on a black background. A faint, semi-transparent globe is visible behind the text. The quote is written in white, with the words "CHANCE TO CHANGE THE" in a larger font size. The background is framed by large, curved shapes in shades of blue and teal on the left and right sides. At the bottom, there is a dark, textured landscape resembling a horizon or a field.

“DO YOU WANT TO  
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*Inspirationfeed.com*

# Question?

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adenlinger@srwd.org | 541.563.4447

Paul Berg, Jacobs | Water Systems Engineer  
Paul.Berg@jacobs.com | 541.768.3413





