


CITY OF NANAIMO
THE HARBOUR CITY

Water Supply Strategy



Prepared by:
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June 12, 2023

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CITY OF NANAIMO
THE HARBOUR CITY

Strategic Importance

Clean, safe, affordable drinking water is essential to sustain vibrant and healthy communities. The Water Supply Strategy will define how our communities grow and thrive.

The previous Water Supply Strategic Plan - main focus was on health and water quality improvements.

Water Supply Strategy will ensure we continue to have a supply of clean, safe, and affordable drinking water

Old Reservoir No. 1 - 2014

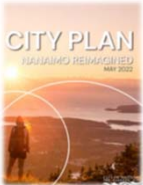

South Fork Water Treatment Plant – Commissioned 2015

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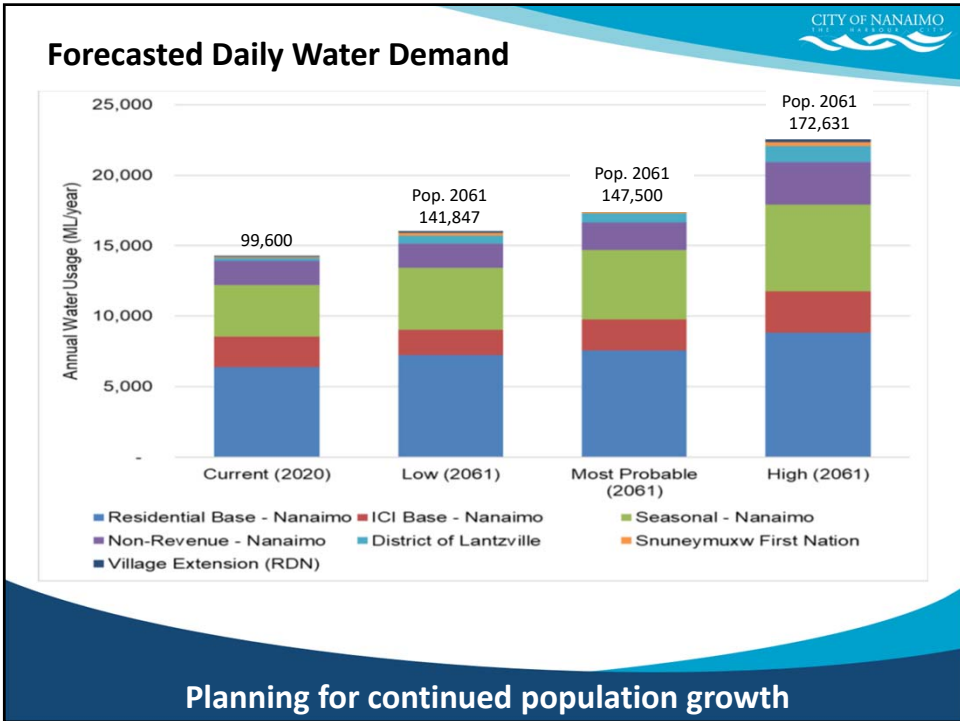
CITY OF NANAIMO
THE WATER SOLUTION

Strategic Importance

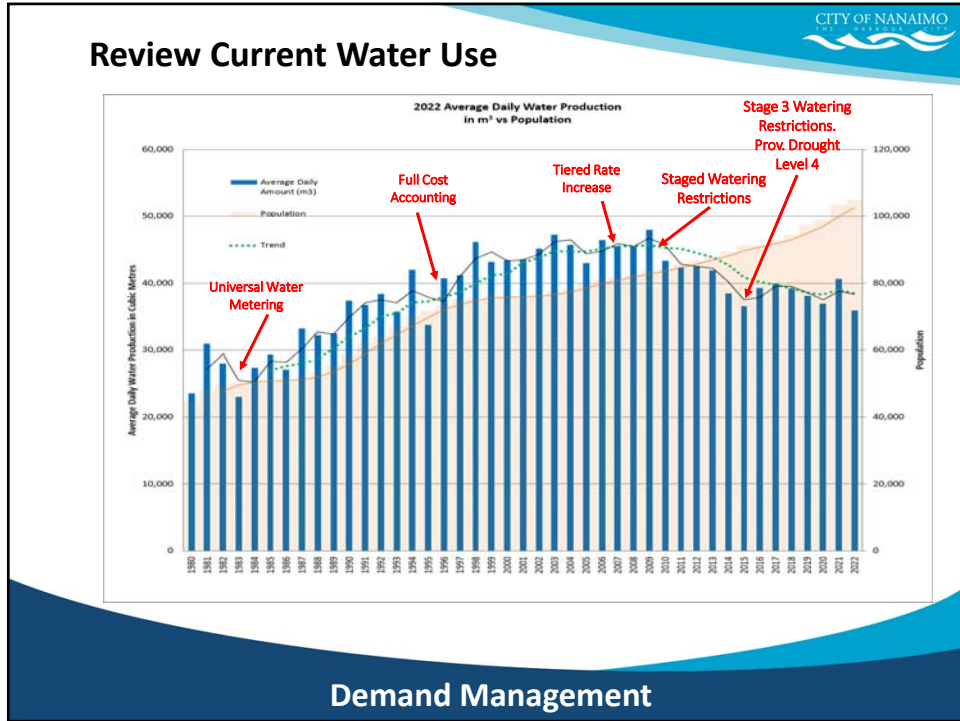
- The City of Nanaimo Water Supply Strategy is a supporting document to the City Plan – Nanaimo Reimagined and sets the 50-year vision for the City’s drinking water. The updated plan will provide guidance the City will follow to:
 - Plan** for continued population growth
 - Help** protect the environment
 - Manage** aging infrastructure
 - Build** resilience to climate change and emergencies

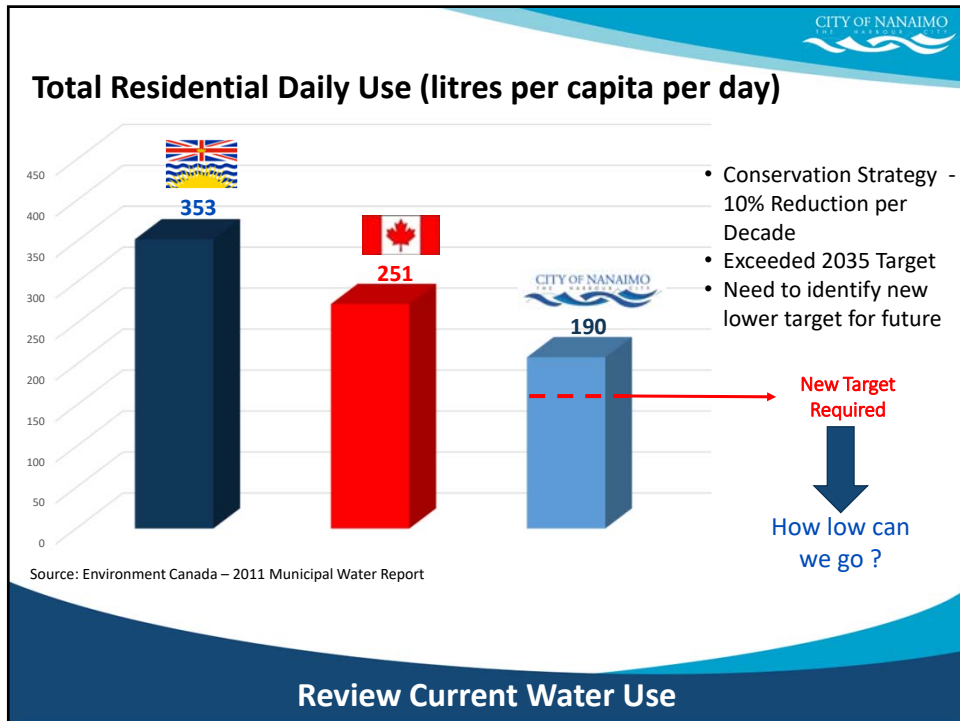
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THE WATER SOLUTION

- Updated Water Conservation Plan completed
- 2021 per capita demand 392 L/cap/day
 - 31% ↓ in 14 years (ahead of target!)
 - New plan target – 5% ↓ (<320 L/cap/day in 2061)
- Coordinated regional water conservation

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REGIONAL DISTRICT OF NANAIMO

TEAM WaterSmart teamwatersmart.ca

WATER RESTRICTIONS IN EFFECT

New Target

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THE WATER SOLUTION

Watershed Yield

- Determine New Dam and Reservoir Timing
- Continue to Pursue Alternate Source Supplies

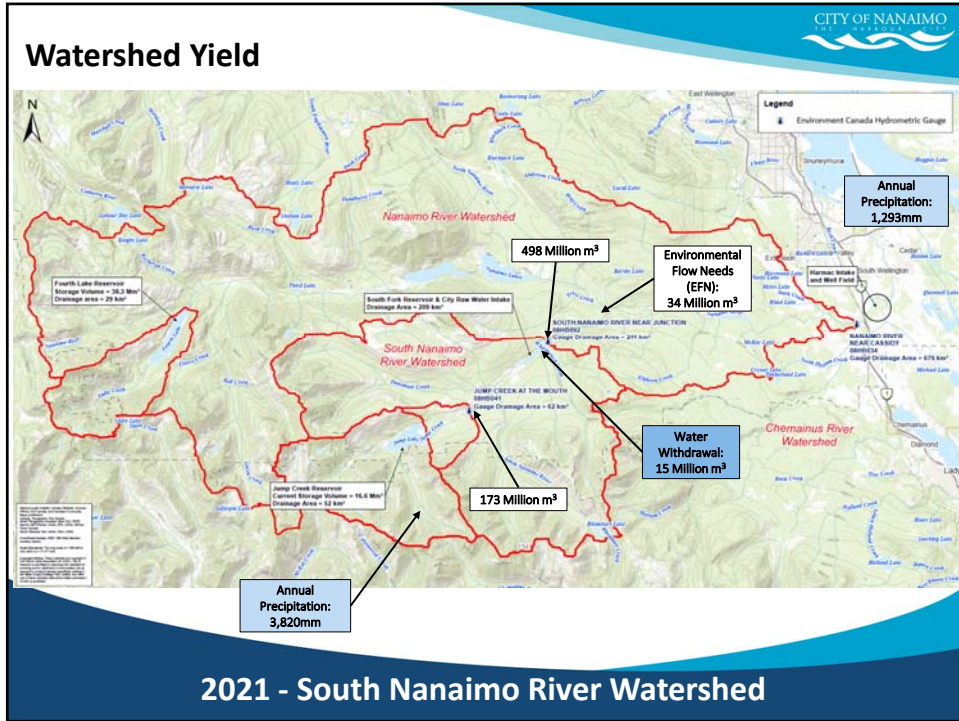
Year	Original Projection for Dam	Current Estimate for Dam* (Need to confirm)	Reservoir Capacity
2015	~18,000	~18,000	20,000
2020	~19,000	~19,000	20,000
2025	~20,000	~20,000	20,000
2030	~21,000	~21,000	20,000
2035	~22,000	~22,000	20,000
2040	~23,000	~23,000	20,000
2045	~24,000	~24,000	20,000
2050	~25,000	~25,000	20,000
2055	~28,000	~25,000	20,000

Unknown:

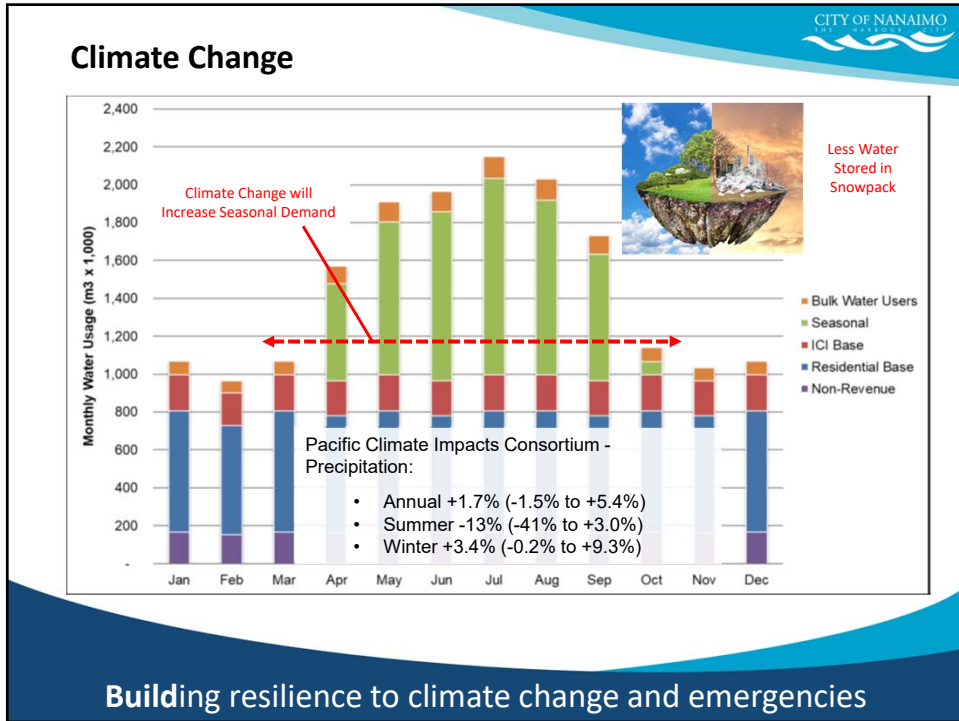
- Climate Change
- Future Fisheries Flow Requirements

Confirm timing of new dam....

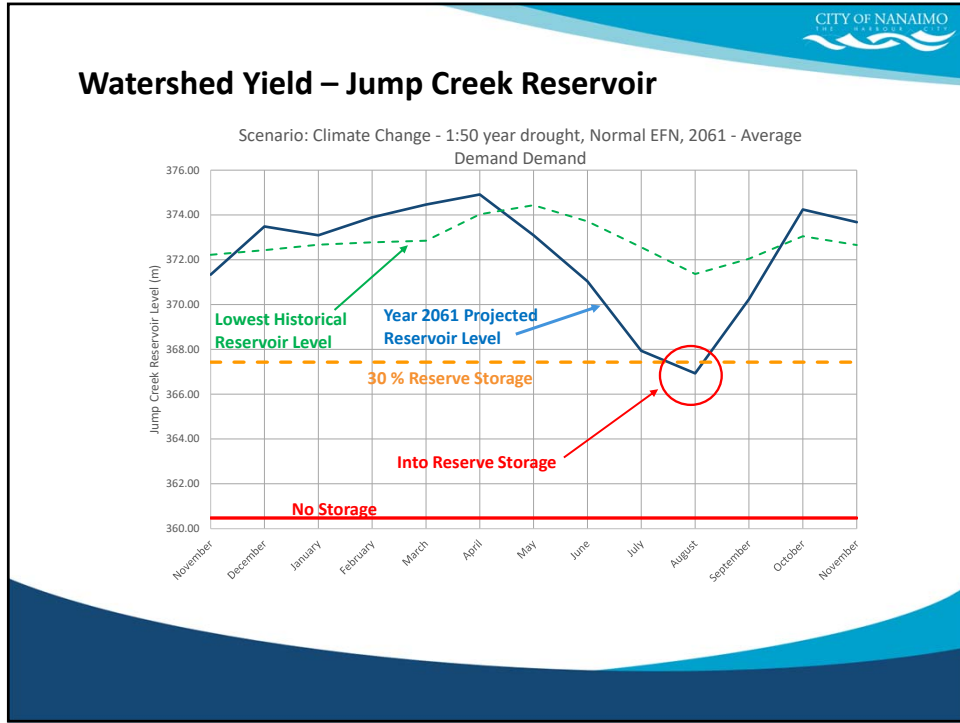
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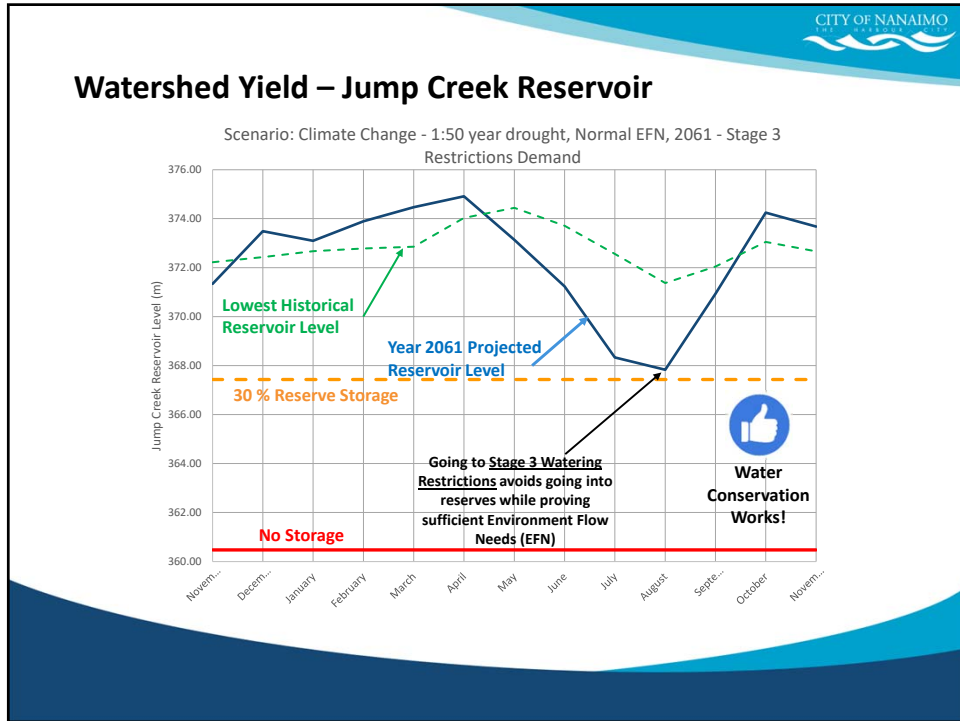
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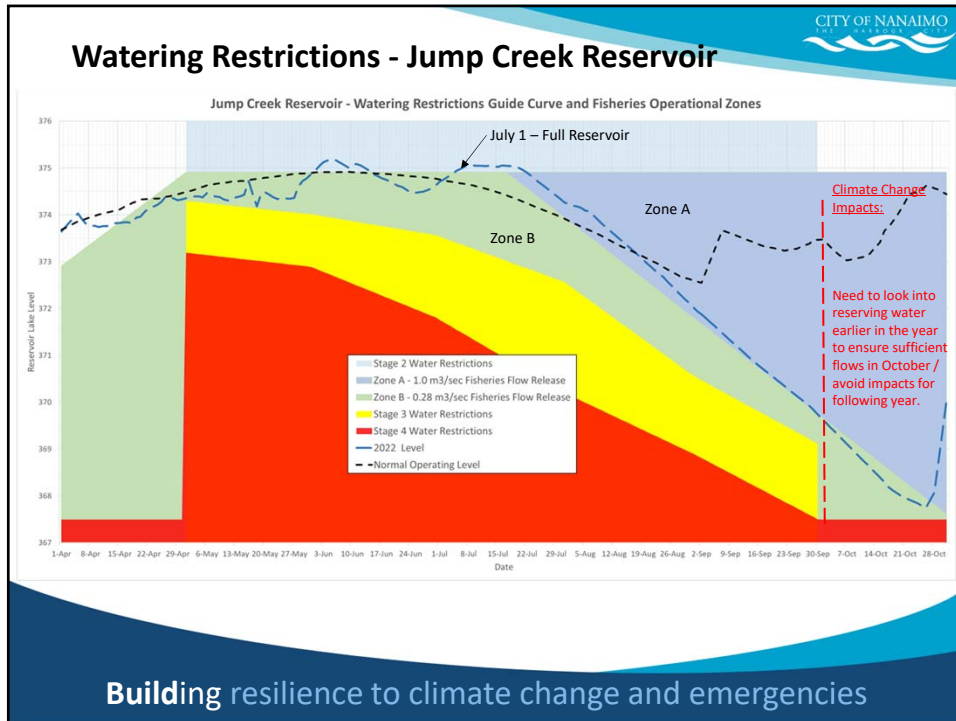
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Findings

- Possibility that with increased reservoir storage, it may not fill to max. storage during certain drought return events.
- There is sufficient storage in Jump Creek Reservoir storage to sustain extreme drought conditions with climate change, while providing Environmental Flow Releases for the next 20 years providing demand management practices are in place.
- Climate Change – Extend Watering Restrictions into October.

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THE WATER SOLUTION

Findings

- Three City Plan growth scenarios do not have notable effect on required storage
- Reviewed our current re-prioritized 10-year capital plan (including the accelerated Midtown Project Phases) and found all projects and timing are justified
- Duke Point Supply Main – no redundancies

Recommendations

- Add secondary intake at South Fork Dam / Seismic Upgrade
- Upgrade / renew 1952 supply main from South Fork Dam to WTP
- Maintain booster pumps at Labieux for emergency
- Treatment at emergency pump station and update agreement with Harmac (could be part of future secondary source)
- Update emergency response plan



Building a Resilient Water Supply


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THE WATER SOLUTION

Midtown Water Supply – Phase 1 & 2

Scope:
Utility replacements, upgrades for growth and building resilience in the water supply. Mitigate major risk, renew end of life infrastructure, build redundancy in the mid-town water supply.

Schedule: 2021 - 2024



Current Capital Plan

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THE QUALITY CONNECTION

Towers Reservoir Upgrade

Scope:
Deferred to allow higher priority Midtown Water Supply Project Ph 1 & 2.
Growth and building resilience. Storage for growth and replace sub-standard reservoir.

Schedule:

- Design – 95% complete
- Construction: 2025 -2026



Towers Reservoir:
1311 Langara
Drive

Capital Plan

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CITY OF NANAIMO
THE QUALITY CONNECTION

South Fork Reservoir Dam Intake

Scope:
Upgrade Dam Seismic requirements (renew for next 80 years).
Install secondary intake (redundancy).
Application for Disaster Mitigation and Adaption Fund – July 19, 2023.

Schedule:

- Seismic Review / Concept Design: 2025
- Detailed Design: 2026
- Construction: 2030 - 2032



Capital Plan

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Midtown Water Supply – Phase 3

Scope:
Development Dependent - growth and. Secondary dedicated supply main to north end and connecting to proposed Vanderneuk Reservoir and Pump Station.

Schedule:

- Design 2034
- Construction 2035-2037

Capital Plan

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Thank You – Questions?

WATER SUPPLY STRATEGY

Physical Infrastructure and Asset Management

- Dams
- Water Treatment Plant
- Supply Mains
- Reservoirs
- Pump Stations

Digital & Physical Security

- Water Fire Supply
- Flood Inundation Mapping
- Downstream Impacts

Emergency Preparedness

Environmental Health & Climate Change

- Demand Management
- Public Education
- Climate Change Mitigation
- Nanaimo River Health
- Fisheries Flow Release

Public Health and Planning

- Future Dam
- Risk, Resilience & Redundancy
- Capital & Maintenance Programs
- Financial Plans
- Study Updates

Governance

- Council
- Servicing Agreements:
 - IR 2,3 & 4
 - SW Extension (Bill 31)
 - Lantzville
 - North Cedar Improvement District (Emergency)
 - NFP - Harmac (Emergency)
- Water Licencing - Province

People

- Water Supply Steering Committee
 - City
 - Snuneymuxw
 - Extension
 - RDN - DWWP
 - CVRD
 - Island Health
 - Mosaic Forest Management
 - DFO
 - Province
 - Public
 - Academic (VIU)
 - BC Dam Safety
 - Lantzville
- Staff / Operations
 - Public
 - Equity Water Rates

Study Update:

- Jump Creek Dam Storage Analysis
- Water Demand Forecast Model
- Capital Plan Review
- System Resiliency Review
- Public Engagement
- Alignment with REIMAGINE Nanaimo

Governance: (GHWO) Background

- Bill 31 Intent
- Servicing Neighbouring Communities Framework Going Forward

Water Supply Strategy

To Provide a Safe, Sustainable and Cost Effective Water Supply and Recognize Water as a Shared Resource Including the Environment and Neighbouring Communities

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