Graham Lake Water Service
June 2023 Update

Comox Valley
REGIONAL DISTRICT

The Comox Valley Regional District respectfully acknowledges the land on which it operates is on the unceded traditional territory of the K'ómoks First Nation, the traditional keepers of this land.

Comox Valley REGIONAL DISTRICT

CVRD Staff Introductions

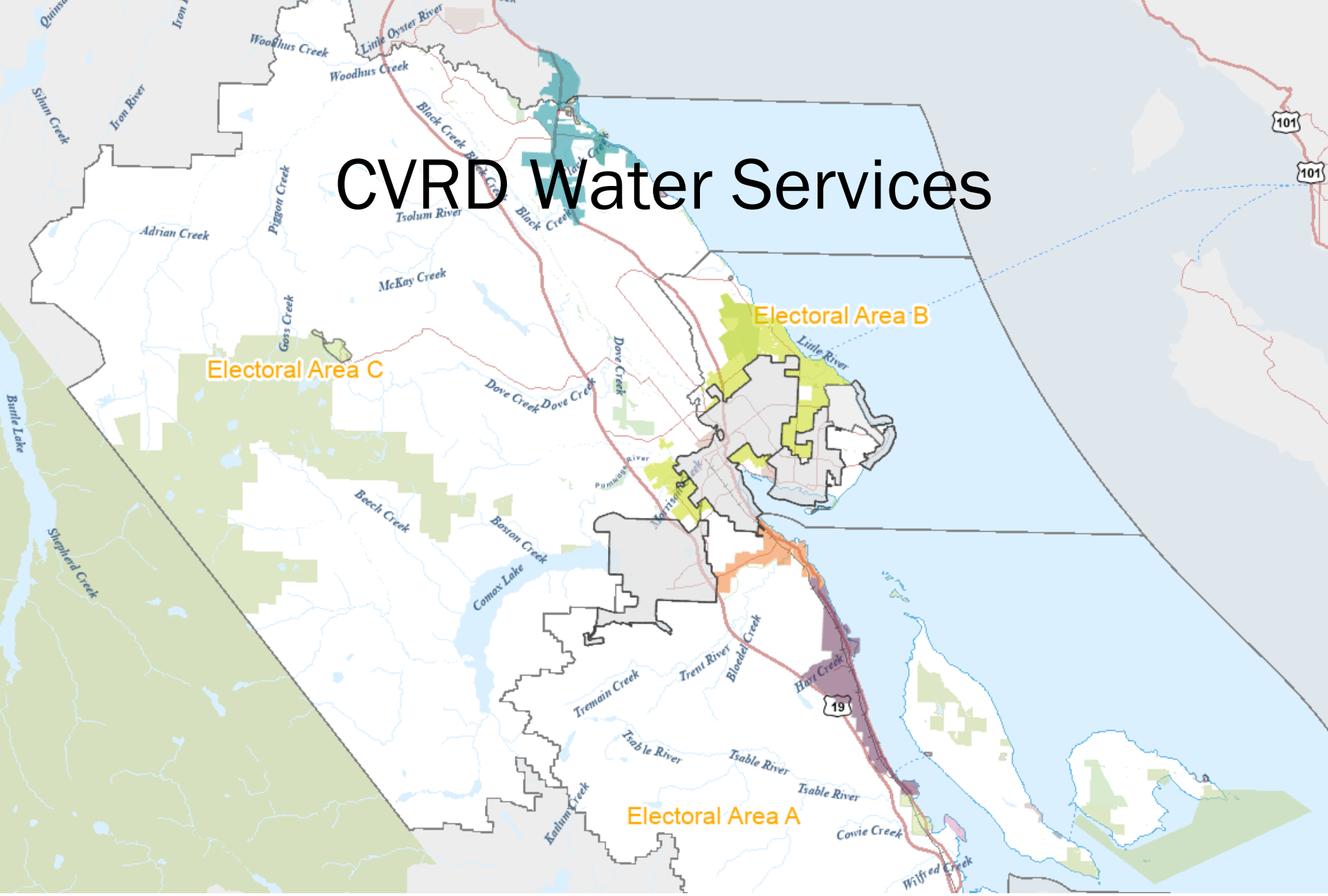
Marc Rutten, P.Eng – General Manager of Engineering Services

Kris La Rose, P.Eng – Senior Manager of Water /Wastewater Services

Mike Hershmiller – Manager of Water Services

Caley Leimert, EIT – Engineering Analyst

CVRD Water Services

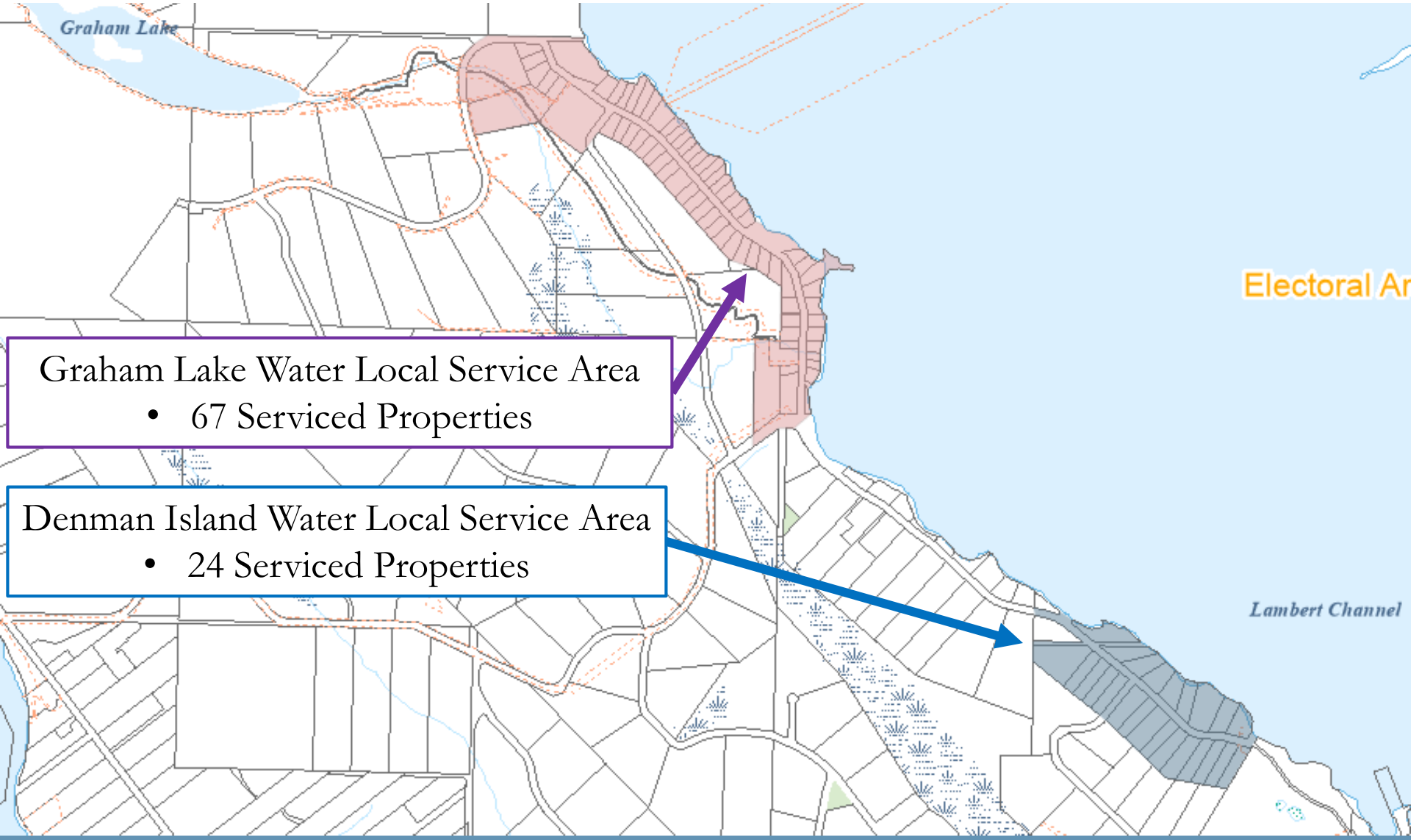


Comox Valley REGIONAL DISTRICT

Graham Lake / Denman Island Water System History

1969	• DIWLSA Water system constructed by developer
1971	• GLID Water system constructed
1972	• CVRD service area established from DIWLSA residents requests due to permanent Boil Water Advisory (BWA)
2003 -2009	• Studies completed to evaluate options to remove DIWLSA BWA • Recommended option- connection to GLID
2012	• Connection to GLID completed, BWA lifted
2017	• Island Health requires GLID to become compliant with Surface Water Treatment Objectives (SWTO), study work commences
2023	• Conversion of GLID to CVRD Service

Service Areas

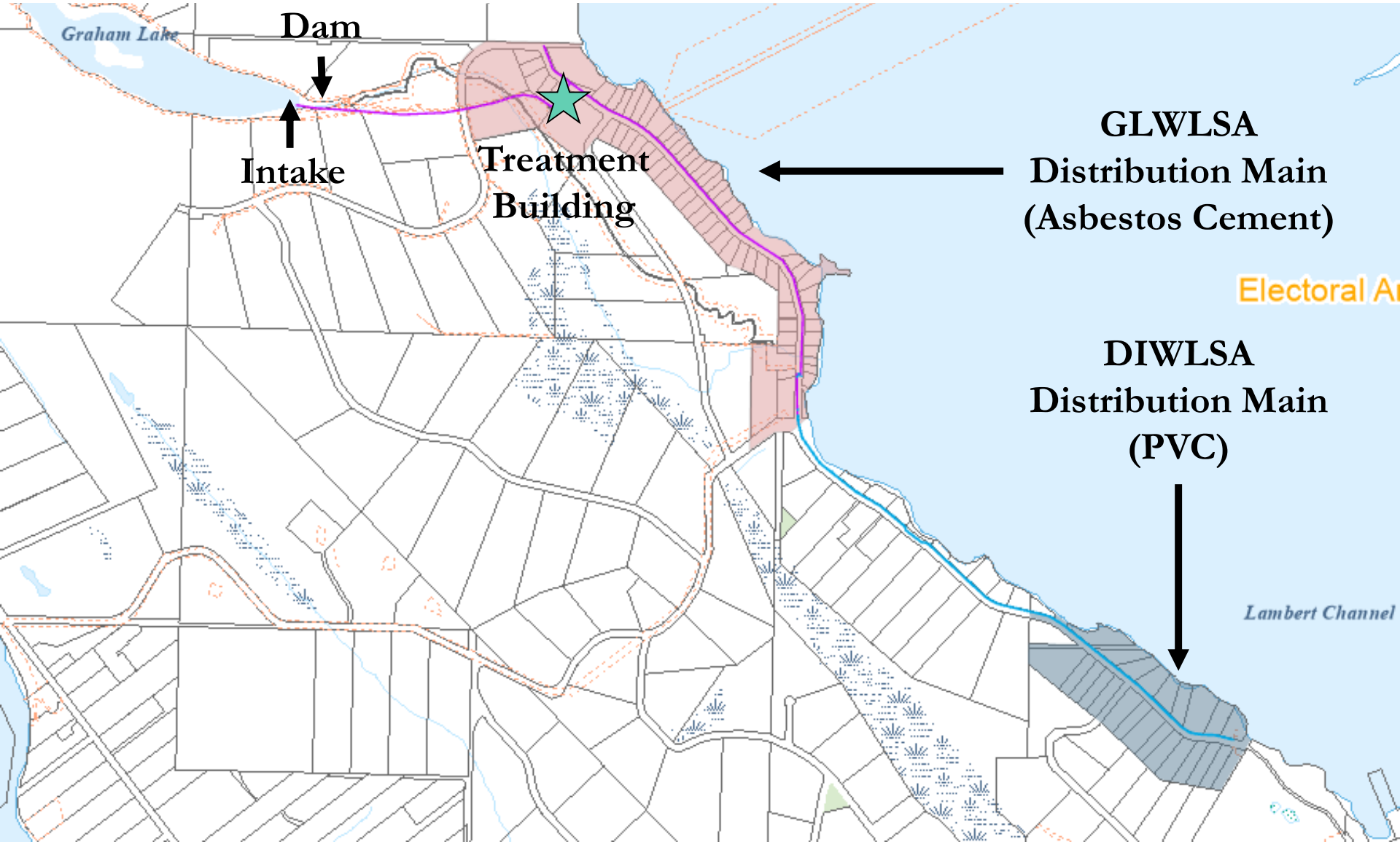


Graham Lake Water Local Service Area
- 67 Serviced Properties

Denman Island Water Local Service Area
- 24 Serviced Properties

Comox Valley REGIONAL DISTRICT

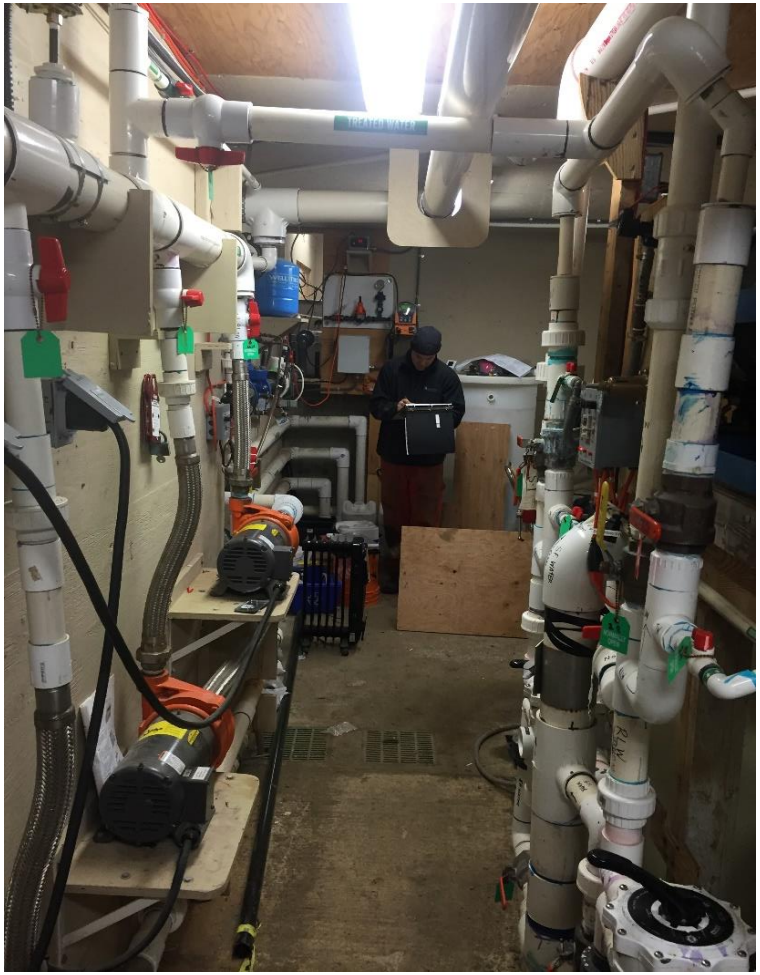
Infrastructure



Comox Valley REGIONAL DISTRICT

GLID/DIWLSA

- 2012 to 2018
  - Managed separately with volumetric rate
- 2018 to 2022
  - DIWLSA operated by GLID
  - DIWLSA users paid same as GLID
- 2023 to…
  - CVRD managing both services
  - GLID operators now under contract to CVRD
  - Rates remain consistent between services
- End goal is amalgamation of services



Recent history

Fall 2022	Proforma
Jan 1, 2023	Conversion
Jan to Jun	Concerns & feedback from residents
Jan 30, 2023	Staff report to EASC
Apr 17, 2023	Staff report to EASC
Ongoing	Analysis and due diligence

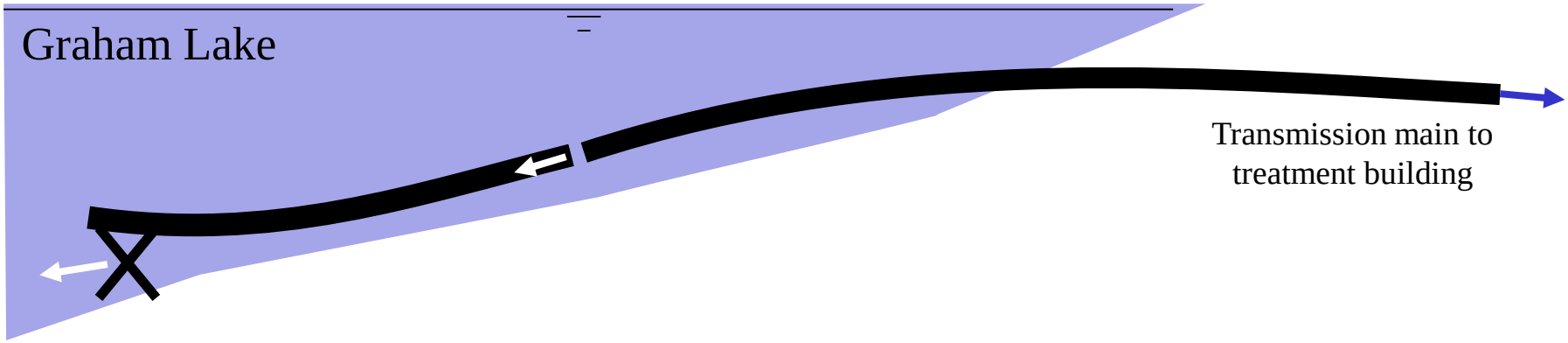
Current Initiatives
Graham Lake Watershed

- **Issue:**
  - Long term water availability not confirmed
- **Analysis Planned/Underway**
  - Watershed hydrology study to confirm future water availability

Current Initiatives
Graham Lake Dam

- **Issue:**
  - Dam ownership carries significant responsibilities.
- **Analysis Planned/Underway**
  - Completing dam review to understand current dam compliance and future maintenance and replacement costs

Current Initiatives
Raw Water Intake



- **Issue:**
  - Intake marine pipeline held together with temporary solution
- **Analysis Planned/Underway**
  - Reviewing documentation, planning dedicated visit to investigate, plan and cost estimate for long term solution

Current Initiatives

Watermain inventory & replacement cost

- **Issue**
  - Industry standard life expectancy of watermains
    - Asbestos Cement – 60 years
    - PVC – 80 years
  - Current Systems
    - Graham Lake
      - 1,950m Asbestos Cement watermain (1971) ~8 remaining years
    - DIWLSA
      - 480m PVC watermain (1969) ~26 remaining years
      - 1,200m PVC watermain (2012) ~69 remaining years
  - Current cost of 6" watermain construction ~$1000/m
    - Cost of replacing Graham Lake watermain nearing end of life ~$2 Million ($22,000 per connection without borrowing costs)
- **Analysis Planned/Underway**
  - Review of watermain replacement alternatives

Current Initiatives
Watermain condition

- **Issue**
  - The watermain replacement year will have a big impact on the service's finances.
  - Condition of the watermains drive replacement timing:
    - Level of service (public tolerance for periodic loss of water as condition deteriorates)
    - Operational cost (increasing main repair costs)
    - System capacity (increasing leaks could absorb treatment & license capacity)
- **Analysis planned/underway**
  - Watermain Condition assessment

Current Initiatives
Water Treatment Project

- **Issue:**
  - SWTO compliance has significant cost implications
  - Type of treatment technology and capacity of the WTP have significant implications to capital and operating costs
- **Analysis planned/underway**
  - Confirmation of appropriate treatment technology
  - Investigate existing water meter to confirm appropriate capacity.
  - Investigate potential for metering to reduce required capacity requirements.
  - Reviewing/revising cost estimate

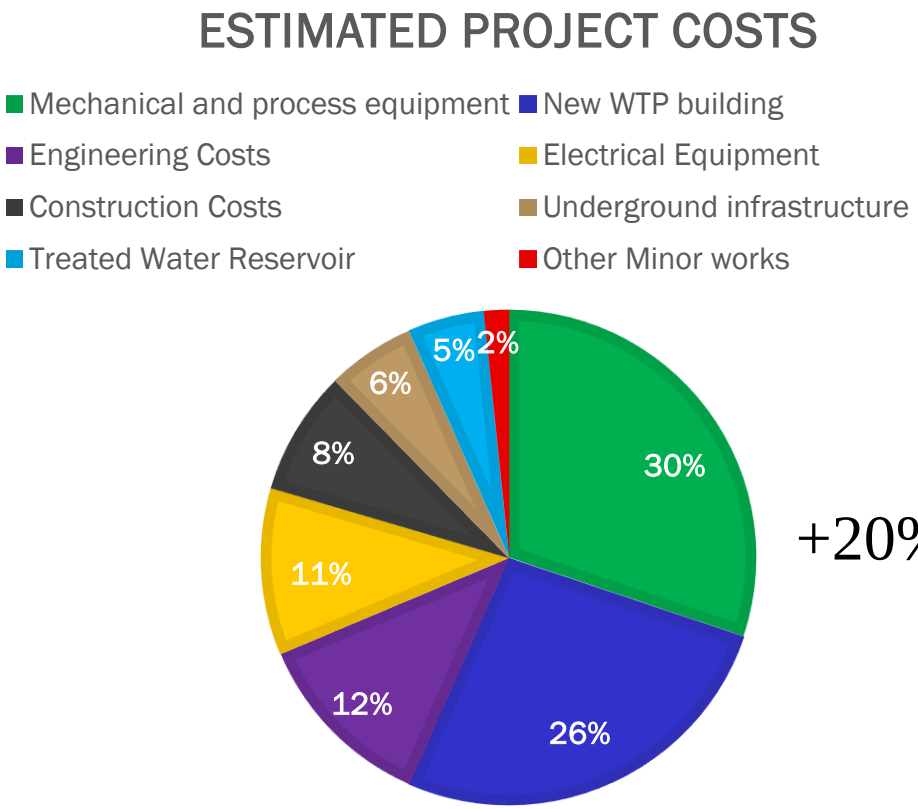
Background
Water Treatment Project

- July 2017 – Notification of requirement to meet SWTO
- Feb 2020 – CVRD Applied for grant
  - $1,995,000 Project Cost Estimate used for grant application (Feb 2020)
  - $1,462,933 funding provided by the Investing in Canada Infrastructure Program (ICIP) - Green Infrastructure Environmental Quality
  - $352,066 Anticipated borrowing ($238/connection annually)
- Summer 2021 - frontrunning treatment technology disqualified
  - WSP recommended piloting Biosand-Filtration + Nano Filtration (BSF+NF)
- Fall 2021 - GLID initiated pilot study with support from CVRD
- Fall 2022 – BSF+NF Pilot study complete
  - Demonstrated technology should be able to meet guidelines
  - $3,029,000 Project Cost Estimate (no land or projected inflation)
- Spring 2023 – updated capital cost estimate with escalation to mid point of construction - $3,400,000 (not including land)

Current Initiatives
Water Treatment Project

- Options already Assessed:
  - ~~Ion Exchange Resin + UV~~ Piloted 2019, not viable
  - ~~Cartridge filtration +UV~~ Piloted 2019, not viable
  - ~~Direct filtration + UV with dewatering~~ Piloted 2020, not viable
  - ~~Ozone + biofiltration + UV,~~ Not viable
  - ~~Ceramic Ultra-Filtration Membrane +UV,~~ Not viable
  - Bio-sand Filtration +NF, Piloted 2022, viable
- Assessing possible alternate with Dissolved Air Floatation (DAF)

Current Initiatives
Water Treatment Project



+20% contingency

Comox Valley REGIONAL DISTRICT

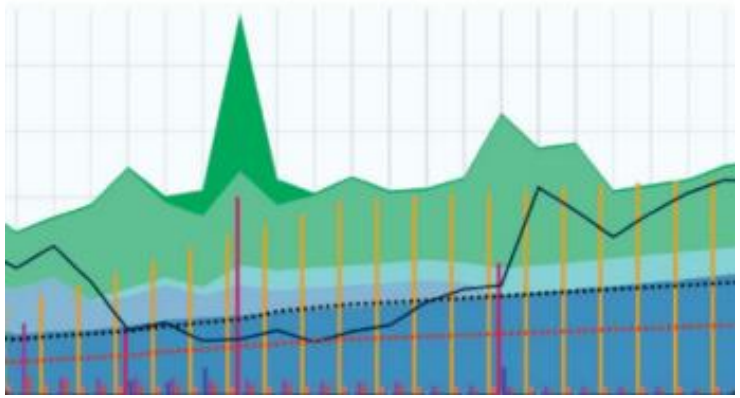
Current Initiatives
Long term Financial Analysis

- **Issue**
  - Services facing dramatic increase in costs
- **Analysis planned/underway**
  - Ensure identification of all significant costs
  - Quantification of required costs
  - Schedule of when costs will likely occur
  - Assess funding options

Current Initiatives
Long term Financial Analysis

- Financial analysis into expected future rates has been done in excel up to this point.
- In 2023, CVRD will be using Waterworth software and services
  - more sophisticated analysis
  - able to quickly and reliably generate multiple scenarios to provide more certainty and detail on a more sustainable rate structure

WATERWORTH™



Comox Valley REGIONAL DISTRICT

Current Initiatives
Investigation into alternatives

- **Issue**
  - Services facing dramatic increases in costs, potentially exceeding the affordability limit for most service participants
  - No flexibility on SWTO compliance
- **Analysis planned/underway**
  - Consultation with Island Health
    - Treatment no distribution
    - Distribution no treatment
      - With or without CVRD managed on site treatment
    - Dissolution of service area
  - Analysis into alternative on site water solutions
    - Wells
    - Rainwater collection

Current Initiatives
Water Meters

- **Issue**
  - Current Max day demand during peak summer months influences required size of water treatment plant
  - Metering the service will increase eligibility for existing & future grants, and allow for a fairer distribution of system costs
- **Analysis planned/underway**
  - Research and modelling impact of reduced consumption on treatment capacity/costs
  - Modelling potential rate structures to achieve objectives without compromising sustainability of the service

Current Initiatives
Grant Opportunities

- **Issue**
  - The existing $1.4M grant expires March 31st 2026, failure to utilise it could impact the future ability for the CVRD to get additional grants for this service.
- **Work planned/underway**
  - Discussions with Investing in Canada Infrastructure Program staff to investigate possibility of grant extension and additional funding.

Timeline

June 2023	Public information event
Summer 2023	Analysis & study work
Fall 2023	Report back to the EASC
Late 2023	Public information session
Early 2024	Electoral

Conclusions

- Rates will be going up significantly, but efforts underway to minimize financial impact to residents.
- CVRD is focused on following best practices and working with the community to determine the best path forward for the service

Questions?

Comox Valley
REGIONAL DISTRICT