

# Drinking Water System Update

COTW Presentation

May 14, 2019

## RESORT MUNICIPALITY OF WHISTLER

4325 Blackcomb Way  
Whistler, British Columbia  
Canada VON 1B4  
[www.whistler.ca](http://www.whistler.ca)

**TEL** 604 932 5535  
**TF** 1 866 932 5535  
**FAX** 604 935 8109



# Agenda

- Governance and Compliance
- Annual Results
- Water Fund
- Water Source Protection
- Water Stability
- Water Capacity Planning
- Water Distribution External Corrosion Protection
- Water Asset Management Planning
- Operating Projects

# Federal/Provincial/Regional Governance

- Federal (*Federal-Provincial-Territorial Committee on Drinking Water*)
  - ✓ Guidelines for Canadian Drinking Water Quality
  - ✓ Guideline Technical Documents
- Ministry of Health (*Provincial Health Services Authority*)
  - ✓ Drinking Water Protection Act
  - ✓ Drinking Water Protection Regulation
  - ✓ BC Centre for Disease Control
  - ✓ Water system construction proposals must be approved by Public Health Engineers
- Regional Health Authority (*Vancouver Coastal Health*)
  - ✓ Drinking Water Officer
  - ✓ Permit to Operate
- Resort Municipality of Whistler
  - ✓ Water supplier

# Local Governance - Bylaws Related to Water

Bylaw	Bylaw No.	Driver
<i>Cross Connection Control (Pending)</i>	<i>No. 2233, 2019</i>	<i>Water quality</i>
Once-Through Water Use	No. 2198, 2018	Conservation
Water Tax	No. 2192, 2018	Financial - All parcels with 100m of infrastructure pay this
Water User Fee Amendment	No. 2186, 2018	Financial - Flat rate (by linear foot for Commercial)
Outdoor Potable Water Use	No. 2179, 2018	Conservation
Consolidated Water User Fees	No. 1826, 2007	Financial and water use specifics
Water Works Charges	No. 1503, 2000	Financial - one-time service charge

# Permit to Operate Evaluation



## Water System Report

<b>Inspection Information</b>	
Facility Name:	<b>RMOW Community Water System</b>
Facility Number:	1110299
Officer:	Dan Glover
Inspection type:	Evaluation
Inspection date:	March 15, 2019
<b>Follow-up Inspection Required:</b>	<b>No</b>
<b>Hazard Rating:</b>	<b>Low</b>

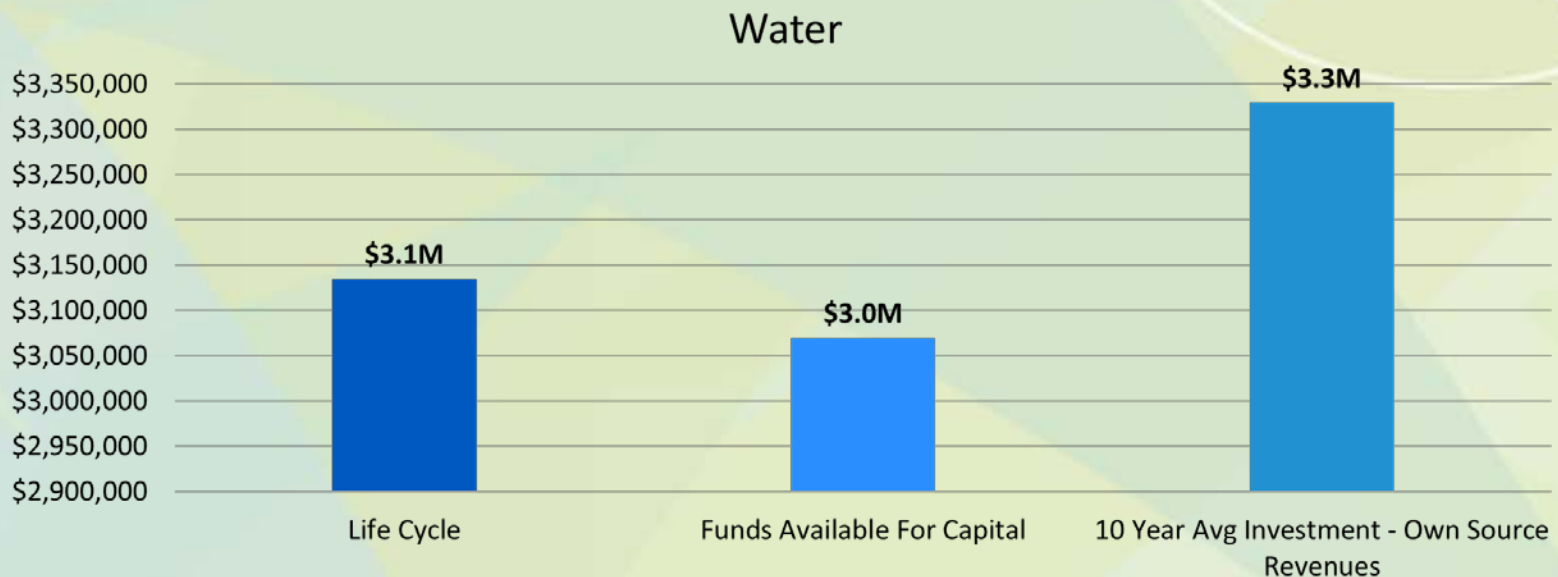
# Permit to Operate Compliance

- A total of 448 bacteriological samples were submitted in 2018 indicating the minimum sampling frequency was exceeded
- Six parameters tested for every two weeks
  - ✓ Coliforms and E. Coli
  - ✓ Turbidity
  - ✓ Residual chlorine
  - ✓ Temperature
  - ✓ pH
- Test at least annually for more than 40 additional parameters



# State of the Water Reserve Funds

- Like for Like, ex. assumes that we replace a 300mm diameter PVC pipe with a new 300mm diameter PVC pipe.



*Developing more infrastructure to increase our water supply would be very expensive to build, operate and maintain. The RMOW is working with the community and businesses to find ways to better manage our existing supply and infrastructure.*

# Resiliency = Complexity

## Complex Source Water Supply

- RMOW water supply can be from:
  - only surface water or
  - only groundwater or
  - both (blended)
- Surface water (one supply location “creek”)
  - 21 Mile Creek supply is unavailable when the creek water is turbid (cloudy), this occurs during rainfall events.
- Groundwater (thirteen active supply locations “wells”)
  - Well supply would only be unavailable due to an emergency event such as contamination or equipment malfunction.



# Complex Water Treatment System

- Surface water (one supply location “creek”)
  - Treatment occurs at one location.
  - UV and Chlorination
- Groundwater (10 active supply wells)
  - Treatment occurs at 7 locations.
  - Chlorination only
- Emerald Estates Groundwater (3 active supply wells)
  - Treatment occurs at 1 location.
  - UV and Chlorination

# Water Source Protection

- Delivery of safe drinking water relies on a multi barrier approach, source water protection is the first barrier
- 21 Mile Creek Surface Water Source
  - ✓ 21 Mile Creek Source Water Protection Plan
    - Work plan reviewed by Technical Advisory Committee twice annually
    - Next meeting is July 25, 2019
- 13 Active Groundwater Well Sources
  - ✓ Groundwater Protection Plan
    - Under review for 2019 update

# 21 Mile Creek Watershed Compliance

- We appreciate the level of compliance attained by winter users
- Hiking/ snow shoeing/ back country skiing are the only permitted recreation activities, **no camping or campfires are permitted.**



# Water Stability

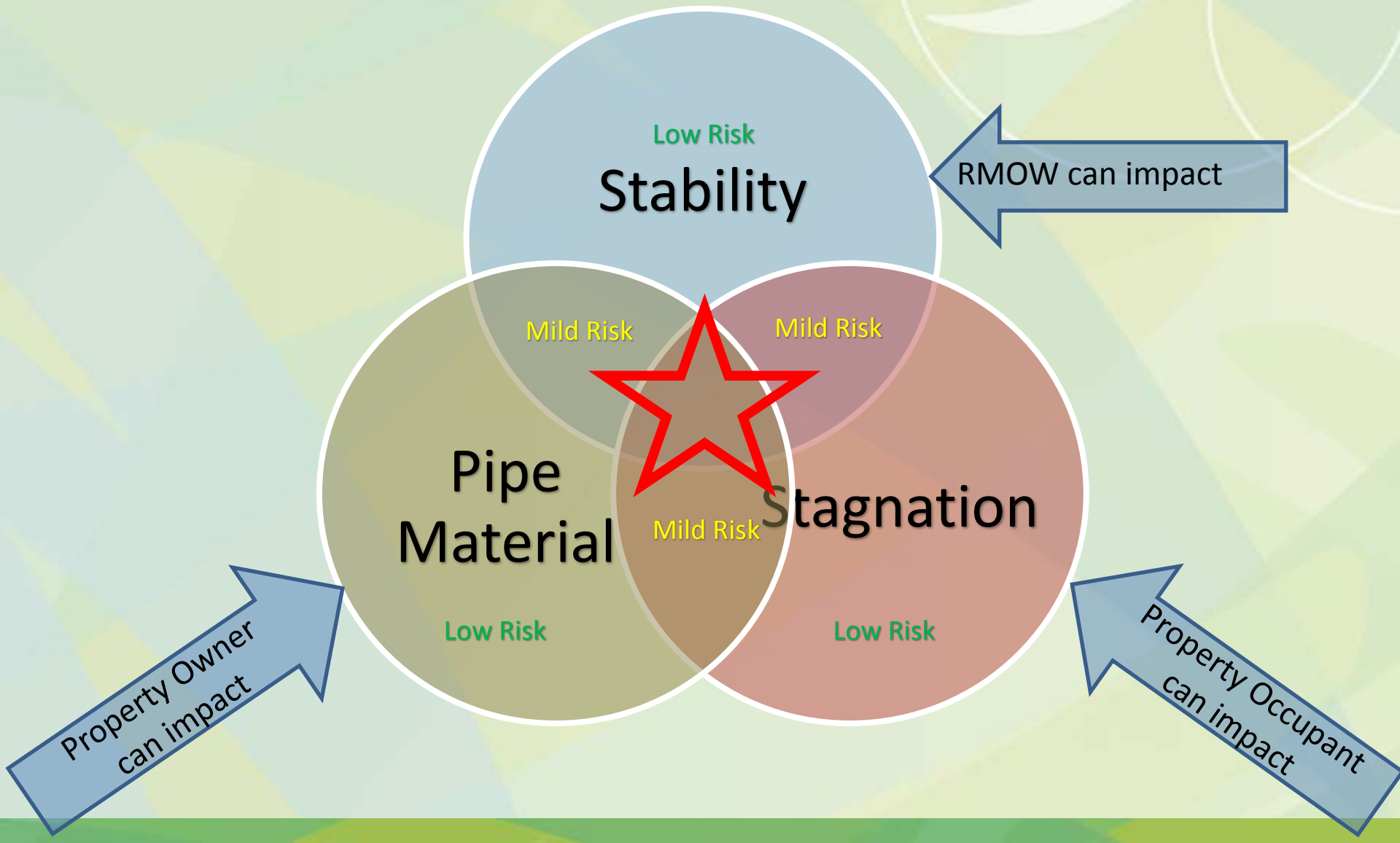
## Excerpts from 2019 VCH Evaluation Report

- ✓ *As a result of a variety of sources....there is some variability of chemical water quality in the system, although no parameters pose an immediate concern.*
- ✓ *....source water in several wells have relatively low pH, below the operational guideline noted in the GCDWQ.*
- ✓ *Options for pH adjustment should be investigated and a long term plan finalized as a means of improving the chemical stability of the treated drinking water.*

Draft report (received March 2019) indicates that cost for each treatment station (8) will be in the \$500K - \$1M range, and this does not include potential application for of additional land to fit expanded footprint.



# Why is stability being looked at?



# Water Capacity Planning

- How much are we using?
  - ✓ Maximum Day Demand Winter
  - ✓ Maximum Day Demand Summer
- How do we figure that out?
  - ✓ Tracked by flow meter totalizers reporting to the Supervisory Control and Data Acquisition System





# Water Capacity Planning

- How much should we expect to be using?
  - ✓ Water use category of development (current and build out)
  - ✓ Existing water account information (number of dwelling units, floor areas for commercial uses, etc.)
  - ✓ Estimated irrigable areas for outdoor uses
  - ✓ **Benchmark water use rates** for indoor (L/cap/day, L/day/m<sup>2</sup> floor area, etc.) and outdoor water use (L/day/m<sup>2</sup> irrigable area)
  - ✓ Appropriate (**benchmark-based**) allowances for leakage and unaccounted for water
  - ✓ Assume 100% occupancy.

# Water Capacity Planning

- Why can't we just add more supply?
  - ✓ We don't own it
  - ✓ The regulatory process to get permission to extract water supply is onerous and expensive
  - ✓ We would be asked to demonstrate our conservation approaches
  - ✓ It will be expensive to build (where would we build it?), operate and maintain (this approach is not Like for Like!)
- Well 219 (located in Rainbow Park)
  - ✓ Secondary well for 21 Mile System Supply
  - ✓ In process of applying for an Environmental Assessment Exemption to use this well (in addition to W218) at certain times of the year and only if 21 Mile Surface water source is offline

# 2014 Water Supply Plan *capital estimates*

Table 4-12: Potential Additional Water Supplies

Source	Yield	Treatment	Comment	Capital Cost Estimates for ~100 L/s
Whistler Cay Aquifer	>100 L/s	Iron and Manganese Filtration	The 2004 study, "Evaluation of Groundwater Sources" noted that treatment would be required due to elevated manganese and iron. Additionally, the site has limited access from existing roads/utilities.	\$10-20 M
Green Lake	530 L/s	Surface water filtration	The proximity of Green Lake to the municipal demand was considered a significant advantage, however the use of the source as a recreational water body and a lack of watershed control would risk imparting a negative impression on the public.	\$20-25 M
Cheakamus River	2170 L/s	Surface water filtration	Cheakamus River would be suitable for a very large demand but the location at the lowest elevation within the Municipality would cause this to have the highest operating cost.	\$25-30 M
21-Mile Creek	150 L/s (73 L/s)	Surface water filtration	25 year drought low flow is estimated around 73 L/s, while typical flows can provide 150 L/s as currently operated.	\$15-20 M

So....if we needed \$20M in 10 years, this would require an additional ~\$2.0M per year, which would require an increase of 28% to the current water parcel taxes and user fees

# Conservation and Supply Plan

## 2015 Initiative Ranking Update

Priority	Initiative Name	Completion
C1	Once-Through Water Use By-law	2018
C2	Update Comprehensive Water Usage bylaw	2018
C3	Water Use bylaw - Outreach	2018
C4	Water Leakage Reduction Program	2019 (formal RFP) Ongoing
C5	Public Education	Ongoing
S1	Spring Creek Booster Station	On Hold

# Water Metering

- Ranked as next most cost effective method for reducing water consumption (2015 Water Conservation and Supply Plan)
- Industrial/Commercial/Institutional usage data gathering, assessment, and rates analysis in 2019
- Additional zone meter and commercial meter installations this year.



# Water Distribution System

## External Corrosion Protection

- How do we get the water to where it needs to go?
  - ✓ Lorimer Rd
  - ✓ How to predict other areas of concern
    - Corrosion of fasteners
    - Mitigated by wrapping since 2005





# Water Distribution System Asset Management Planning

- What should we be focused on?
  - ✓ 2014 AECOM Water Rehabilitation Report recommendations
    - Ductile Iron
      - Alpine Meadows subdivision completed
      - Review other sections in 2020
    - Asbestos Cement pipe replacement
      - White Gold subdivision underway
      - Alta Vista subdivision scheduled next

# 2019 Operating Projects

- **Cross Connection Control**
  - ✓ Noted in 2019 VCH Evaluation
  - ✓ Bylaw development in process, to be presented to Council mid-year
- **Leak Detection**
  - ✓ RFP issued March 2019
  - ✓ First areas of interest:
    - Lorimer Rd pipeline
    - Alta Lake pipeline
    - Alta Vista Subdivision
- **Confined Space Entry**
  - ✓ Hazard assessments need revision
- **Emergency Management Planning**
  - ✓ Utilities team using Connect Rocket
  - ✓ Utilities staff participating in Emergency Operating Centre training
  - ✓ Identifying operational gaps for emergencies

# Questions?

## Whistler Loves Water

Let's Work Together to Use Less



By using our drinking water wisely, we can save it for drinking and fire protection.

Please check the weekly Water Conservation Stages & reduce your overall drinking water use.

Visit [whistler.ca/savewater](http://whistler.ca/savewater)

