

Community Emergency Preparedness Fund Falcon Ridge

Regional Board Meeting

March 29th, 2021

1450 K.L.O. Road
Kelowna, BC, V1W 3Z4
rdco.com



Union of British Columbia Municipalities: Community Emergency Preparedness Fund – 2021 Grant Application

- Propose:

- To request Board support for a UBCM Community Emergency Preparedness Fund Application – Flood Risk Assessment, Mapping and Mitigation Planning stream.

Background

- The Community Emergency Preparedness Fund is intended to enhance the resiliency of local governments and their residents in responding to emergencies.
- \$80 million in funding is provided by the Province of BC and is administered by UBCM.



CEPF: 7 Funding Streams

- **Flood Risk Assessment, Flood Mapping & Flood Mitigation Planning**
- Structural Flood Mitigation
- Emergency Social Services
- Emergency Operations Centres & Training
- Evacuation Route Planning
- Volunteer & Composite Fire Departments Equipment & Training
- Indigenous Cultural Safety & Cultural Humility Training

New Application – Flood Risk Assessment & Mitigation Planning

- The intent of this funding stream is:
 - “to support eligible applicants to ensure they have accurate knowledge of the flood hazards they face and to develop effective strategies to mitigate and prepare for those risks”.
- Funding Available:
 - 100% of the cost of eligible activities to a maximum of \$150,000.00.
- Our Project Cost:
 - \$39,730.00

'Community Emergency Preparedness Fund Flood Risk Assessment, Mapping & Mitigation Planning 2021 Program, UBCM, Union of BC Municipalities, 2021, <https://www.ubcm.ca/EN/main/funding/lqps/community-emergency-preparedness-fund/flood-risk-assessment-mapping-mitigation-planning.html> , (March 18, 2021).

The Project – Falcon Ridge Intake Site Protection

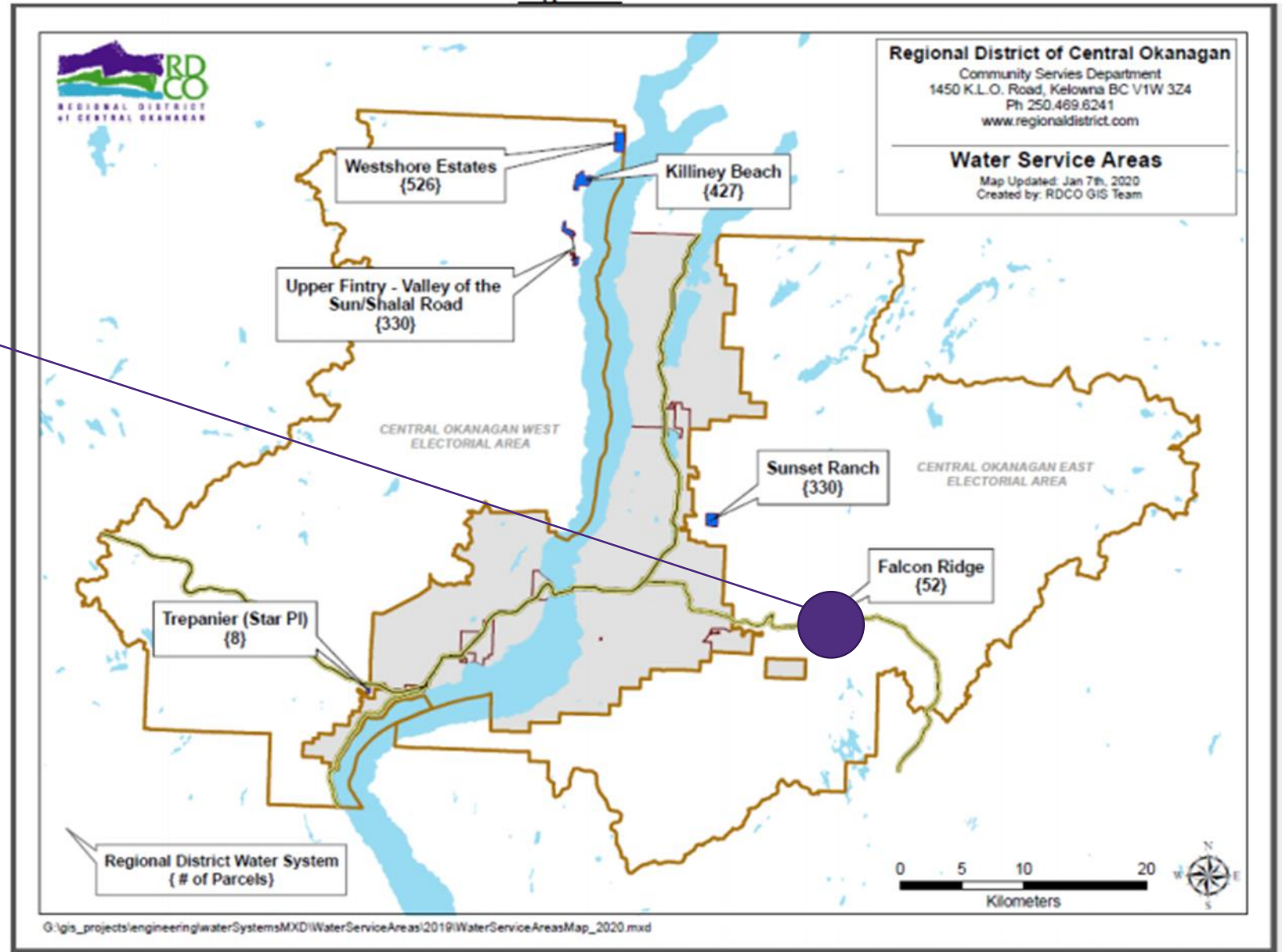
■ The Challenge:

Flooding in recent years has eroded the creek banks upstream from the intake, and deposited silt and debris in a manner causing the flow to move away from the intake.

- electrical kiosks and intake site access road are located in the creek floodplain, making them vulnerable to flooding.
- **The Goal:** to preserve the supply of potable water to the Falcon Ridge Water System given the flood risk at the site.
 - Supports the RDCO value of Resilience.

Falcon Ridge Water System

- **Source Water:**
 - Mission Creek
- **Dwellings Served:**
 - 2020 = 56
 - 2021 = 64
 - Max Capacity = 110
- **Reservoir Capacity:**
 - 467m³



Changing Flow Patterns

Historic Flow Pattern – pre 2017

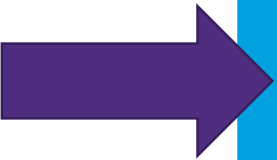
Current Flow Pattern - 2021



Figure 2 – Original flow path past intake in 2017 (solid blue line) and 2021 flow path (dashed blue line).

3 Project Phases

	Project Phase	Completion Date (Anticipated)
1	Preliminary Risk Assessment and Short-Term Works (Immediate Actions)	March/2021 (Completed)
2	Detailed Risk Assessment and Mitigation Planning	2021
3	Undertaking the Mitigation Works (Long-Term Works)	2022



Dobson Engineering Report January 25th, 2021

■ Immediate Actions

- Removal of large wood debris pile on gravel bar adjacent to intake.
- Restoration of right bank past intake.
- Removal of gravel to encourage flow past the intake as flow increases in spring

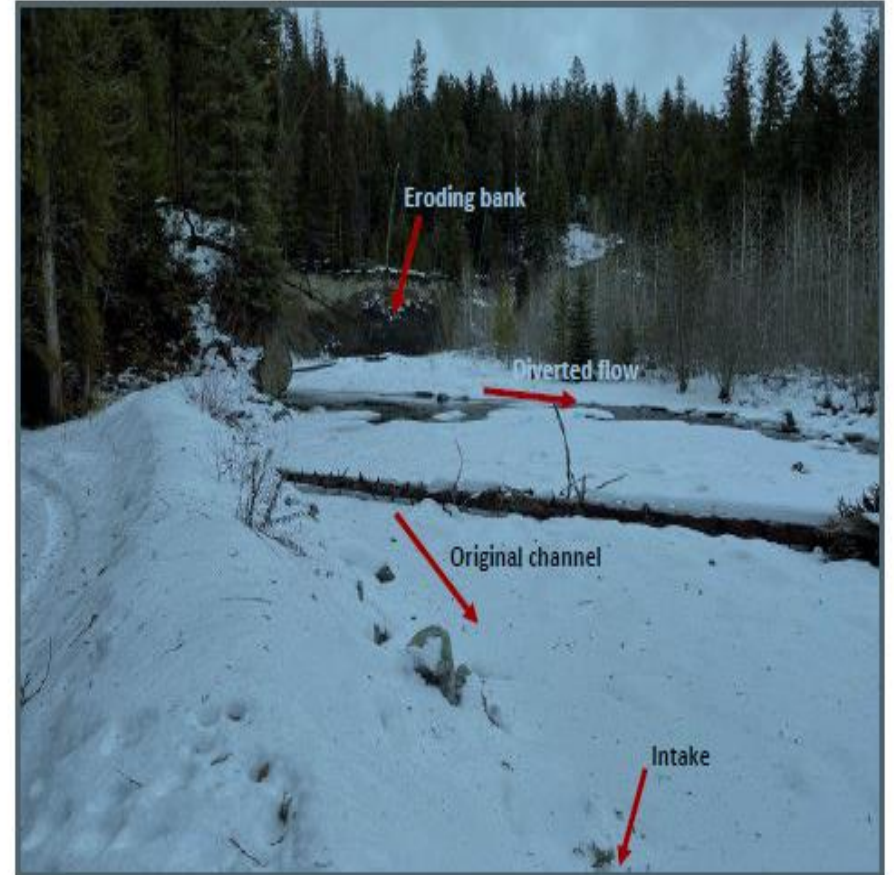


Photo 1 – Looking upstream from the intake showing the flow diverted to the left bank isolating the intake (date of phot January 13, 2021).

March - 2021

- Emergency Conditions
 - No water flow past the Intake
 - Well Intake Frozen



Phot 3 – Wood debris accumulations on the bar at the intake.

Dobson Engineering Report



Memo

Project: 21012

January 25, 2021

To: Mimi Miller, Asset management Analyst, Engineering

cc: Kevin Trotter

From: Don Dobson

Subject: Falcon Ridge Water Intake on Mission Creek - Preliminary Risk Assessment

This memo summarizes the results of my risk assessment at the Falcon Ridge Mission Creek water intake that was completed with Kevin Trotter on January 13, 2021.

1. The Issue

The concern, as discussed at our meeting on January 7, 2021, is the risk of the flow patterns changing in Mission Creek near the Falcon Ridge water intake that could result in a loss of flow to the water system. The shift in the flow pattern was initially noted following the high flows in 2017 and then again in 2018, that caused significant erosion of the right bank on the sharp bend upstream of the intake and the large gravel bar that has formed adjacent to the intake diverting the low flows towards the left bank (Figure 1).

To date staff have managed to maintain some flow past the intake during the low flow period in August/September by manually moving rocks in the channel to divert flow. Staff are concerned that the intake may be completely isolated from the stream flows during the low flow period in August/September this year.

2. Proposed solution

The RDCO proposes to apply for grant funding to assist in developing and implementing a permanent solution to maintain flows past the intake. The grant opportunity being considered is a 2-step process with year 1 – 2021, if approved, being the design phase and year 2 – 2022 being the implementation phase.

I suggested that a field visit was recommended to determine the level of risk of losing water at the intake in 2021 and if it was considered high, that the RDCO may have to consider action sooner than 2022. It was agreed that a field visit was a good idea. Mimi would continue with the grant application in the meantime as there was a February deadline.

3. Results of Field Investigations

The large gravel bar that has formed near the intake has diverted all the flow across the channel to the left bank with minimal flow past the intake (Photo 1). The reasons that the large bar has formed are likely due to the very large bed load volume that is currently moving down Mission Creek, especially during the 2017 and

- **Long-term Solutions:** (Preliminary Recommendations)
- Remove the log jam on the left bank to reduce the diversion of high towards the right bank.
- Design riprap deflection structures on left bank to deflect flows towards the left bank past the intake.
- Restore the channel; removing the gravel near the right bank and placing downstream of the deflection

Long-term Solutions

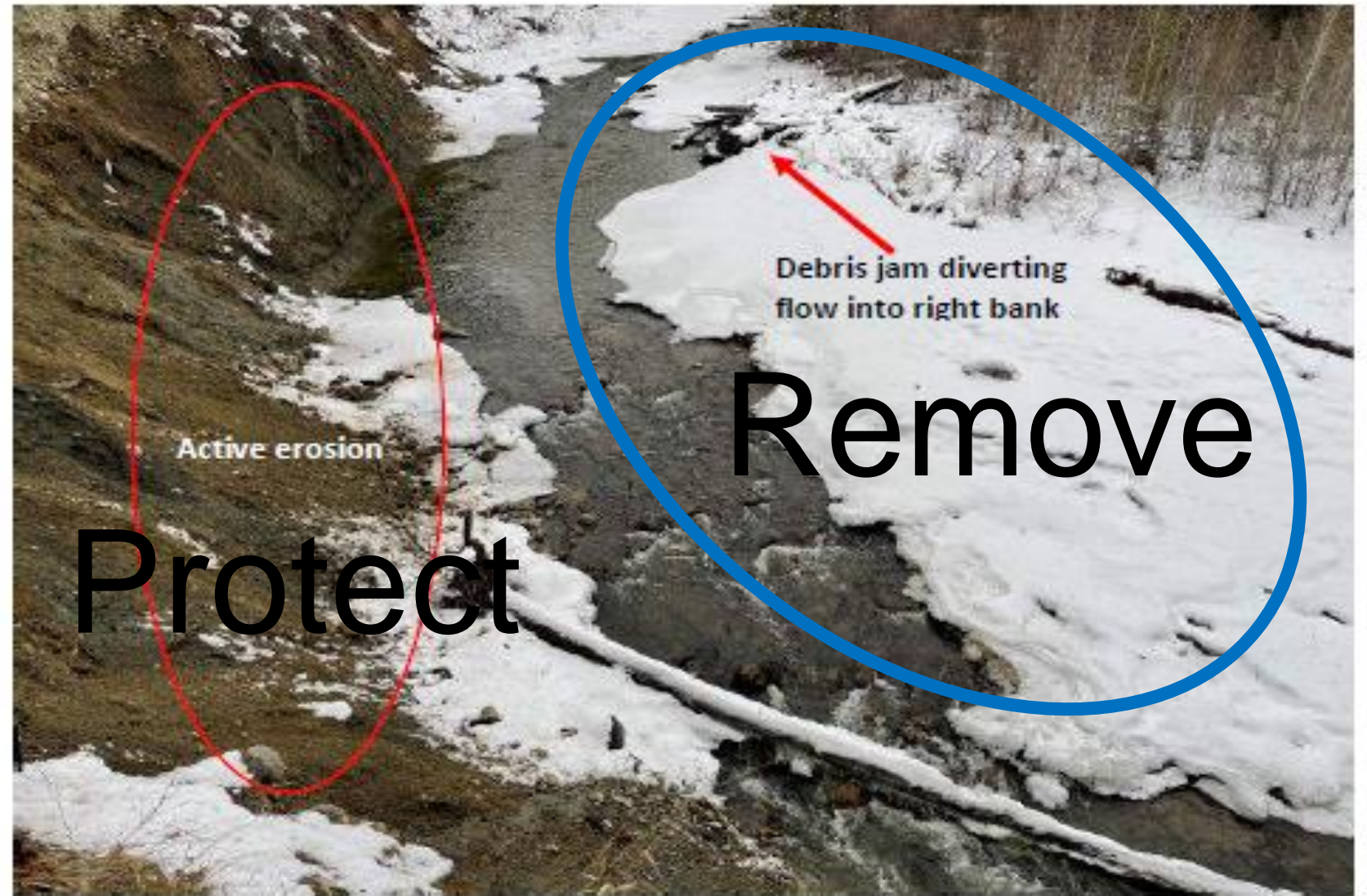


Photo 2 – Actively eroding bank upstream of intake

Project – Falcon Ridge

Identify the best possible long-term solutions:

- Complete a detailed flood risk assessment;
- Identify of assets at risk; and
- Planning of mitigation activities.
 - flood risks to the availability of flow to the intake, and
 - flood risk to the water system infrastructure and access road.

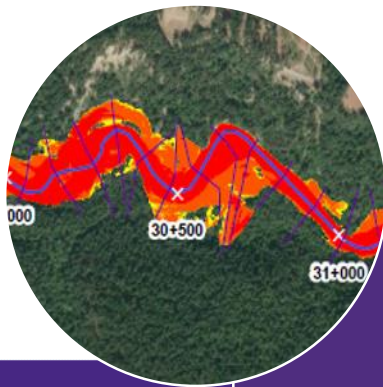
Resiliency through Planning, Communication and Collaboration



Successful Project
Outcomes



Staff Observations



Floodplain
Management Plan

Recommendation

- THAT the Regional Board approve submitting a UBCM – Community Emergency Preparedness Fund Application to complete further flood risk assessments and mitigation planning at the Falcon Ridge Water System intake site.



Thank You