WHISTLER

AGENDA

REGULAR MEETING OF MUNICIPAL COUNCIL
TUESDAY, JULY 10, 2018, STARTING AT 5:30 P.M.

Franz Wilhelmsen Theatre at Maury Young Arts Centre
4335 Blackcomb Way, Whistler, BC V0N 1B4

ADOPTION OF AGENDA

That Council adopt the Regular Council Meeting Agenda of July 10, 2018.

ADOPTION OF MINUTES

That Council adopt the Regular Council Meeting Minutes of June 19, 2018.

PUBLIC QUESTION AND ANSWER PERIOD

PRESENTATIONS AND DELEGATIONS

RCMP Strategic Plan Update

A presentation by RCMP Officer in Command Kara Triance regarding the RCMP Strategic Plan Update.

MAYOR'S REPORT

INFORMATION REPORT

Increases In Provincial Taxation 2018/2019
File No. 1970(LGMA)
Report No. 18-089

A presentation by municipal staff.

That Council receive Information Report No. 18-089, Increases in Provincial Taxation 2018/2019.

ADMINISTRATIVE REPORTS

Whistler Blackcomb Temporary Use Area Events During 2018 Crankworx
File No. LLR128
Report No. 18-090

A presentation by municipal staff.

That Council approve a Temporary Use Area (TUA) liquor licensed event for more than 500 people to be held at the Whistler Mountain Bike Park Boneyard on Thursday, August 16, 2018;
and further,

That Council approve a Temporary Use Area (TUA) liquor licensed event for more than 500 people to be held at the Whistler Mountain Bike Park Boneyard on Saturday, August 18, 2018, or, alternatively, on Sunday, August 19, 2018 in the event of inclement weather.

Twenty-One Mile Creek Watershed Source Water Protection Plan
File No. E14201
Report No. 18-091

A presentation by municipal staff.

That Council endorses the Twenty-One Mile Creek Watershed Source Water Protection Plan attached as Appendix A to Administrative Report 18-091, and the continuation of the development of an annual work plan by the Technical Advisory Committee (TAC).

RZ1135 – Nesters Crossing – CTI1 Zone Amendment File No. RZ1135 Report No. 18-092	*A presentation by municipal staff.* **That** Council consider giving third reading to "Zoning Amendment Bylaw (CTI1 Zone) No. 2187, 2018".
Building and Plumbing Regulation Amendment Bylaw (Energy Step Code) No. 2197, 2018 File No. A073 Report No. 18-093	*A presentation by municipal staff.* **That** Council consider giving first, second, and third readings to, "Building and Plumbing Regulation Amendment Bylaw (Energy Step Code) No. 2197, 2018"; and **That** Council direct staff to continue to provide Power Down Home Energy Assessment incentives to help support the transition to the new Energy Step Code performance regulations; and **That** Council direct staff to advise the Province of BC's Energy Efficiency Policy, Electricity and Alternative Energy Division that the RMOW will provide $2,000 top-up incentive funding for eligible heat pump conversions, to a maximum of $50,000 over two years, in support of the upcoming Home Renovation Rebate - Retrofit Partnership program.
Whistler Village Land Co. Ltd. 2018 Annual Report File No. VAULT Report No. 18-088	*No presentation.* **That** Council of the Resort Municipality of Whistler in open meeting assembled, hereby resolves that the Municipality, as sole shareholder of the Whistler Village Land Co. Ltd. (the "Company") pass the 2018 consent resolutions of the shareholders of the Whistler Village Land Co. Ltd., a copy of which is attached to Administrative Report to Council No 18-088 as Appendix "A", and that the Mayor and Municipal Clerk execute and deliver the attached resolutions on behalf of the Municipality; and **That** Council accept the resignation of Ken Roggeman as Director and Officer of Whistler Village Land Co. Ltd. as of April 26, 2018.

MINUTES OF COMMITTEES AND COMMISSIONS

Liquor Licence Advisory Committee	Regular Meeting Minutes of the Liquor Licence Advisory Committee of January 11, 2018.
May Long Weekend Committee	Regular Meeting Minutes of the May Long Weekend Committee of April 3, 2018.
Recreation Leisure Advisory Committee	Regular Meeting Minutes of the Recreation Leisure Advisory Committee of May 3, 2018.
Whistler Bear Advisory Committee	Regular Meeting Minutes of the Whistler Bear Advisory Committee of May 9, 2018.

Forest and Wildland Advisory Committee	Regular Meeting Minutes of the Forest and Wildland Advisory Committee of May 9, 2018.

BYLAWS FOR FIRST, SECOND AND THIRD READINGS

Building and Plumbing Regulation Amendment Bylaw (Energy Step Code) No. 2197, 2018	**That** "Building and Plumbing Regulation Amendment Bylaw (Energy Step Code) No. 2197, 2018" be given first, second and third readings.

BYLAWS FOR THIRD READING

Zoning Amendment Bylaw (CTI1 Zone) No. 2187, 2018	**That** "Zoning Amendment Bylaw (CTI1 Zone) No. 2187, 2018" be given third reading.
Zoning Amendment Bylaw (Bunbury Lands) No. 2191, 2018	**That** "Zoning Amendment Bylaw (Bunbury Lands) No. 2191, 2018" be given third reading.
Zoning Amendment Bylaw (Personal Cannabis Home Cultivation) No. 2195, 2018	**That** "Zoning Amendment Bylaw (Personal Cannabis Home Cultivation) No. 2195, 2018" be given third reading.

BYLAWS FOR ADOPTION

Land Use Contract Termination Bylaw (Alpine Meadows) No. 2166, 2017	**That** "Land Use Contract Termination Bylaw (Alpine Meadows) No. 2166, 2017" be adopted.

OTHER BUSINESS

Energy Use and Emissions Reporting	**That** Council direct staff to provide Council with quarterly updates with details by the list of actions and data on emissions and energy use (as available) with the first report due by the end of September.

CORRESPONDENCE

Strategic Community Investment Fund - Traffic Fine Revenue Sharing File No. 2014	Correspondence from Kelly Kenney, Corporate Officer, City of Langley, dated June 13, 2018, advising of the City of Langley's resolution regarding provincial traffic fine revenue sharing.

Whistler Development Corporation File No. 3009	Correspondence from G.D. Maxwell, dated June 15, 2018, regarding the Whistler Development Corporation.
Air Traffic and Noise Pollution File No. 3009	Correspondence from Jim Horner, dated June 15, 2018 and July 4, 2018, regarding air traffic and noise pollution in Whistler.
Rail Safety Week Proclamation File No. 3009.1	Correspondence from Stephen Covey, Chief of Police and Chief Security Officer, CN Rail, dated June 18, 2018, requesting that September 23 to 29, 2018 be proclaimed as Rail Safety Week in Whistler.
National Housing Co-Investment Fund Applications File No. 2014	Correspondence from Pamela Goldsmith-Jones, Member of Parliament for West Vancouver, Sunshine Coast and Sea-to-Sky Country, dated June 20, 2018, advising that applications are now welcome for the National Housing Co-Investment Fund.
FireSmart Program File No. 3009	Correspondence from Ken Melamed, dated June 21, 2018, thanking the Resort Municipality of Whistler for the FireSmart program and tree thinning efforts throughout the valley.
Housing and Minimum wages in Whistler File No. 3009	Correspondence from Marine Grandin, dated June 20, 2018, regarding housing and minimum wages in Whistler.
Tourism and Exchange Rates in Whistler File No. 3009	Correspondence from Michael Fahy, dated June 25, 2018, regarding tourism and exchange rates in Whistler.
Application for 2018 Community Excellence Awards File No. 2014	Correspondence from Danyta Welch, dated June 27, 2018, advising that Whistler's application for Excellence in Governance: Affordable Housing Program has been received and advising of the date, time and location of award reception.
Stand Up to Cancer Light Up Request File No. 3009.1	Correspondence from Adam Miller, dated June 28, 2018, requesting that the Fitzsimmons Bridge be lit up red on September 7, 2018 in support of cancer awaren
Environmental Legacy Fund 2017 Statement	Correspondence from Carol Coffey, Director of the Community Foundation of Whistler, dated June 29, 2018, providing the 2017 statement for the Environmental Legacy Fund.

Whistler Development Corporation, Gateway Loop and Artificial Turf Field File No. 3009	Correspondence from Robert Cessford, dated June 29, 2018, regarding the Whistler Development Corporation, Gateway Loop and Artificial Turf Field.
Communities on the Move Vision and Values File No. 3009	Correspondence from Communities on the Move, received June 29, 2018, regarding vision and values for creating smart, fair, and healthy transportation option British Columbia Communities.
National (Whistler) Beerhall Inc. Application File No. LLR1309	Correspondence from Patrick Smyth, dated June 30, 2018, regarding National (Whistler) Beerhall Inc.
National (Whistler) Beerhall Inc. Application File No. LLR1309	Correspondence from Richard P. Gibbons, dated June 30, 2018, regarding National (Whistler) Beerhall Inc.

TERMINATION

That the Regular Council Meeting of July 10, 2018 be terminated.

WHISTLER

MINUTES

REGULAR MEETING OF MUNICIPAL COUNCIL
TUESDAY, JUNE 19, 2018, STARTING AT 5:30 P.M.
Franz Wilhelmsen Theatre at Maury Young Arts Centre
4335 Blackcomb Way, Whistler, BC V0N 1B4

PRESENT:

Mayor: N. Wilhelm-Morden
Councillors: S. Anderson, J. Crompton, J. Ford, C. Jewett and S. Maxwell

Chief Administrative Officer, M. Furey
General Manager of Infrastructure Services, J. Hallisey
General Manager of Corporate and Community Services, N. McPhail
General Manager of Resort Experience, J. Jansen
Director of Corporate, Economic and Environmental Services, T. Battiston
Director of Planning, M. Kirkegaard
Director of Human Resources, D. Wood
Municipal Clerk, B. Browning
Manager of Communications, M. Comeau
Manager of Building Services, J. Mooney
Manager of Economic Development, T. Metcalf
Senior Planner, M. Laidlaw
Building Official III, J. Klassen
Planner, F. Savage
Planner, R. Brennan
Planner, A. Antonelli
Protective Services Policy Analyst, K. Creery
Planning Analyst, R. Licko
Council Coordinator, S. Termuende

WDC Board Chair, Eric Martin
Whistler Housing Authority Manager, Marla Zucht
GHL Consultants, Gary Chen
Valkyrie Law Group Partner, Sandra Carter
Sager LLP Legal Advisors, Mark Sager
Witness, Richard Diamond

Mayor Nancy Wilhelm-Morden acknowledged the attendance of Freedom of the Municipality Holders Garry Watson and Eric Martin.

ABSENT: Councillor J. Grills

ADOPTION OF AGENDA

Agenda

Moved by Councillor J. Ford
Seconded by Councillor J. Crompton

That Council adopt the Regular Council Meeting Agenda of June 19, 2018 as amended to include a Notice of Motion under Other Business.

CARRIED

ADOPTION OF MINUTES

Minutes

Moved by Councillor S. Anderson
Seconded by Councillor J. Crompton

That Council adopt the Regular Council Meeting Minutes of June 5, 2018.

CARRIED

PUBLIC QUESTION AND ANSWER PERIOD

Lance Bright
2129 Lake Placid Road

Re: Forest Fires and Community Safety

Mr. Bright asked why Council chose the lesser of two options regarding fire mitigation recommendations, and asked if Council is reconsidering these recommendations.

Mayor Nancy Wilhelm-Morden stated that over a million dollars is spent annually on wildfire management. She stated that Emergency Program Coordinator Erin Marriner gave a presentation at the Committee of the Whole Meeting held earlier in the day.

Mayor Nancy Wilhelm-Morden stated that the Resort Municipality of Whistler takes the wildfire risk extremely seriously. She stated that she just experienced a wildfire evacuation on Anderson Lake and stated that she understands how quickly wildfires spread. Mayor Nancy Wilhelm-Morden encouraged people to FireSmart their homes and stated that this is the most important thing property and homeowners can do. She stated that homeowners can call the fire department to do FireSmart assessments on homes at no cost to the homeowners. The Fire Department also conducts wood chipper days in the spring and fall all at no cost. Mayor Nancy Wilhelm-Morden stated once more that the RMOW considers wildfire as the most significant risk in Whistler.

Mr. Bright sought clarification regarding the two recommendations presented to Council and asked if Council thought it was a better option to spend 1.8 million to mitigate wildfire in 30 – 40 acres versus spending 3 million dollars on 80 acres a year.

Chief Administrative Officer Mike Furey stated that the Resort Municipality of Whistler receives approximately $850,000 from the province in grant funding. He stated that the RMOW is working on fuel breaks in the Callaghan and has more fuel breaks in the North. Mr. Furey stated that the RMOW is increasing wildfire mitigation plans in the future. Mr. Furey stated that the RMOW conducts an average of 15 home inspections every day by the Fire Service and stated that the RMOW just retained one of the first Fire Watch software programs that uses heat seeking tracking 24 hours a day, 7 days a week. Mr. Furey stated that the RMOW is coordinating with the Province regarding the Provincial Fire Fighter program. Mr. Furey stated that the RMOW is a model in the province and for other municipalities and stated that the RMOW is working with Bruce Blackwell to continue mitigation efforts.

Mr. Bright asked if the lesser of the two options was taken at the time.

Chief Administrative Officer Mike Furey stated that the RMOW has been accelerating and improving wildfire information and mitigation efforts and agreed that wildfire is the biggest risk to community. Chief Administrative Officer Mike Furey offered Mr. Bright a

meeting with himself and the Fire Chief. Mr. Bright encouraged Council to seek funding from the Province for support for these initiatives.

Mayor Nancy Wilhelm-Morden stated that she spoke to the Premier at the UBCM convention, and stated that the Premier stated the RMOW was the first community to bring wildfire mitigation efforts forward. She stated that the Premier expressed considerable interest after what happened in the British Columbia Caribou and in Fort McMurray, and he stated the wildfire concern is a very high priority for the Province.

Mayor Nancy Wilhelm-Morden stated that the RMOW brings 1.3 million dollars annually and 1.4 billion dollars annually to the Province, and as such the Province is aware of the economic impact Whistler has.

Mr. Bright asked if there was a consideration by Council to up the fire mitigation efforts to the 3 million dollar mark.

Mayor Nancy Wilhelm-Morden stated that all recommendations are under active consideration by staff.

Mr. Bright asked how much consultation and if any efforts have been made by community stakeholders on crown land.

Mayor Nancy Wilhelm-Morden stated that the RMOW is currently working with the First Nations community in the Cheakamus Community Forest.

Mr. Bright stated that the Whistler Fire Department has done a phenomenal job and thanked them for their service. Mr. Bright stated that he did not believe the problem of forest fires was getting the attention it deserves.

Mayor Nancy Wilhelm-Morden stated that the RMOW and Whistler community all share similar concerns and are all working to mitigate the pressures of climate change to save the valley.

Dawn Titus
8440 Bear Paw Trail

Re: Sea to Sky Multimodal Evacuation Plan and WHA Home Tax Deferment

Ms. Titus inquired as to the status of the Sea to Sky Multimodal Evacuation Plan.

Mayor Nancy Wilhelm-Morden stated that the Emergency Program Coordinator Erin Marriner made a 40 minute presentation at the Committee of the Whole Meeting held earlier in the day, and stated that this Meeting is public and taped. Mayor Nancy Wilhelm-Morden stated that the preliminary draft of the Plan was presented and felt that the Plan was well at hand.

Ms. Titus asked about the reasoning behind the inability of Whistler Housing Authority homeowners over the age of 55, to defer their taxes.

Mayor Nancy Wilhelm-Morden stated that this was a provincial legislation matter, and stated that the RMOW worked and lobbied the Province to change the legislation and close this loophole. Mayor Nancy Wilhelm-Morden stated that this legislation change has now gone through. Mayor Nancy Wilhelm-Morden stated that Whistler Housing Authority Lease holders cannot defer their taxes, however fee simple Whistler Housing Authority home owners now can defer taxes after age 55.

Ms. Titus inquired as to the community notification process and asked if Council had

advised current Whistler Housing Authority homeowners of this change.

Mayor Nancy Wilhelm-Morden stated that the change is listed on the website, and that the Whistler Housing Authority knows that this option is available.

Chief Administrative Officer Mike Furey stated that this Memorandum of Understanding and the Report was part of the Public Council Package.

PRESENTATIONS AND DELEGATIONS

2018 May Long Weekend RCMP Report

A presentation by RCMP Staff Sergeant Paul Hayes and Protective Services Planning Analyst Kevin Creery regarding the 2018 May Long Weekend RCMP Report.

Mayor N. Wilhelm-Morden called a recess of the Regular Council Meeting at 6:00 p.m. for a Show Cause Hearing.

SHOW CAUSE HEARING – SECTION 57 NOTE AGAINST TITLE

Note Against Title That Building Regulations Contravened - 2349 Gondola Way File No. RF279 Report No. 18-034

Moved by Councillor J. Crompton
Seconded by Councillor J. Ford

That Council conclude the Show Cause Hearing and defer the decision until the next Council Meeting.

CARRIED

Mayor N. Wilhelm-Morden reconvened the Regular Council Meeting at 6:42 p.m.

MAYOR'S REPORT

Mayor's Report

OCP community forum, June 25
The second phase of the process to renew Whistler's Vision and Official Community Plan in underway. A community forum is being held on Monday, June 25. It is on from 4 to 8:30 p.m. at the Whistler Conference Centre. Whether you can pop in for just a few minutes, or stay for the presentations and table top discussions, Mayor Nancy Wilhelm-Morden encouraged everyone to join this event. There will be the opportunity to review and discuss the draft Vision and Official Community Plan. Everything will also be available on our website for review following the forum. The drafts are based on input from the community, committees, partner organizations and Council.
More than 450 hours of community and committee input have been provided so far in phase one. This builds on more than 2500 hours of community and stakeholder engagement since 2010. You can see the summary of input from Phase One and find out more about the process to renew Whistler's Vision and OCP at whistler.ca/MyFutureWhistler.

Seasonal summer transportation initiatives begin June 15
In the peak summer months, the RMOW, BC Transit and community partners roll out a range of seasonal transportation initiatives. These initiatives were first introduced last year from the Transportation Action Plan. The goals of the Transportation Action Plan are to:

- Increase parking availability and flexibility in travel options
- Reduce highway congestion and reduce contributions to climate change, and
- Promote business success.

Starting June 15, you can ride transit services for free on Saturday and Sundays, and holiday Mondays. The Route 8 Lost Lake shuttle is back up and running as a free service. A reminder that pay parking has resumed in all Day Lots and pay parking has been introduced on Blackcomb Way. It is great to see expanded free bike parking will be available for the community during events in Village. You can learn more about the summer transit changes and action plan at whistler whister.ca/MovingWhistler.

RMI Funding of Whistler's Festivals, Events and Animation program
The Province of B.C. has confirmed our total 2018 RMI funding of $6.26 million. Recent examples of programs and projects that receive RMI funds include the following:

- Village enhancements such as the Gateway Loop and wayfinding upgrades;
- Alpine Trails Network;
- Cultural Connector;
- Village Shuttle; and
- Investments into the annual Festivals, Events and Animation program.

One of our investments is into the Tough Mudder event, which took place again this last weekend. Congratulations to the organizers for another great event.
Coming up next are the annual Canada Day long weekend celebrations and two special Vancouver Symphony Orchestra performances. Other summer highlights include the Whistler Children's Festivals, Whistler Presents: Outdoor Concert Series, IRONMAN Canada, Crankworx, GranFondo and Whistler Village Beer Festival.
Mayor Nancy Wilhelm-Morden stated that Council is extremely thankful to the Province for its foresight in this program, which brings dollars back to communities with a tourism focused economy to reinvest in tourism.

New Recreation Software
The Resort RMOW of Whistler's recreation department will be moving to a new account and registration system in August. This new software will help make recreation classes and programs more accessible online, and will fulfil important functionality requirements that are no longer supported by the current system.
In preparation for fall and winter program registrations, if you are registering for a program you will need to create a new online account. You can do this easily online by visiting whistler.ca/newrectech.

New Options For Recycling Flexible Plastic Packaging; Tipping Fees Updated
Last week, the RMOW joined more than 100 waste depots around BC that will now be collecting flexible plastic packaging to be recycled. These plastics include zip-lock pouches, net bags holding produce and crinkly potato chip bags, which are some of the fastest growing packaging types. As the largest category of packaging that was previously wasn't collected, this is a great initiative by Recycle BC to divert these plastics from landfill. You can sort these items separately and dispose at the Nesters and Function Junction waste depots. There are great waste reduce and recycling resources available for individuals and businesses on the RMOW's website at whistler.ca/solidwaste.

Councillor Cathy Jewett attended the Whistler Secondary School Graduation Ceremony on June 16, 2018. She stated that there were 78 graduating students and stated that 54 per cent of graduating students received scholarships. Councillor Jewett stated that 22 students graduated with a 95 per cent grade average. She stated that there are thousands of dollars in scholarships available and that the new Epic Scholarship is a grant paid out to students over four years. Three Epic

Scholarships were distributed to the grad class and more would be granted if there were more applicants. Councillor Jewett encouraged more students to apply for scholarships.

Councillor Cathy Jewett attended the Cheakamus Community Forest Open House on June 7, 2018 and attended the Bio Blitz Opening on June 8, 2018 with Bruce McLennan, a large mammal biologist who talked about the importance of preventing habitat fracturing through additional logging road activation.

ADMINISTRATIVE REPORTS

LLR1295 – Whistler Brewing Company Brewery Lounge Patio
File No. LLR1295
Report No. 18-077

Moved by Councillor J. Crompton
Seconded by Councillor J. Ford

That Council pass the resolution attached as Appendix "A" to Administrative Report No. 18-077 providing Council's recommendation to the Liquor Control and Licensing Branch regarding an application from Whistler Brewing Company to add an 18 person capacity brewery lounge patio to its liquor manufacturing licence No. 303716.

CARRIED

LLR1311 – Handlebar Café and Apres Permanent Change to Food Primary Hours of Liquor Service
File No. LLR1311
Report No. 18-086

Moved by Councillor S. Anderson
Seconded by Councillor J. Crompton

That Council authorize the resolution attached as Appendix "A" to Administrative Report No.18-086 providing Council's recommendation to the Liquor Control and Licensing Branch in support of an application for a Permanent Change to Hours of Liquor Service for Handlebar Café and Après, Food Primary Licence No. 307135, to change hours of liquor service to 9:00 a.m. to 1:00 a.m. Monday through Sunday.

CARRIED

DP1556 – 2010 and 2011 Innsbruck Drive – Creekside Plaza
File No. DP1556
Report No. 18-078

Moved by Councillor S. Anderson
Seconded by Councillor J. Ford

That Council approve the issuance of Development Permit DP1556 for the proposed Creekside Plaza property located at 2010 and 2011 Innsbruck Drive as illustrated on the architectural and landscape plans A-01, A-2.0, A-2.1, A-2.2, A-2.3, A-4.1, A-4.2, A-4.3, A-4.4, A-5.1, A-5.2 and A-6.1 dated May 2/18 and A-1.0, A-3.1, A-3.2, L-1.1 and updated Exterior finishes/Materials/Lighting details dated May 15/18 prepared by Murdoch Company Architecture + Planning Ltd. including the following variances to "Zoning and Parking Bylaw No. 303, 2015":

a) Vary the west building setback from 5.0 metres to 4.0 metres; and
b) Vary the north building setback from 5.0 meters to 2.2 metres; and

Subject to the following conditions:

1. Adoption of "Zoning Amendment Bylaw (Creekside Plaza) No. 2165, 2017"; and
2. Adoption of "Housing Agreement Bylaw (Creekside Plaza) No. 2193, 2018".

CARRIED

RZ1009 – 2501, 2505 and 2509 Gondola Way – Rezoning Proposal
File No. RZ1009

Moved by Councillor J. Crompton
Seconded by Councillor J. Ford

That Council consider giving first and second readings to "Zoning Amendment Bylaw (Bunbury Lands) No. 2191, 2018";

Report No. 18-085

That adoption of "Zoning Amendment Bylaw (Bunbury Lands) No. 2191, 2018" is subject to achieving consistency with the RMOW Official Community Plan;

That Council authorize staff to schedule a Public Hearing for "Zoning Amendment Bylaw (Bunbury Lands) No. 2191, 2018";

That Council direct staff to advise the applicant that before consideration of adoption of "Zoning Amendment Bylaw (Bunbury Lands) No. 2191, 2018", the following matters shall be completed to the satisfaction of the General Manager of Resort Experience:

The following will be required prior to adoption of the Bylaw:

1. Registration of a Section 219 development covenant in favour of the Resort RMOW of Whistler with respect to the following:

    a) Prohibit subdivision of the land except generally in accordance with the concept plan for five lots shown in Appendix "B" of Administrative Report to Council No. 18-085, and restricting the development to no greater than five single family residential dwelling lots;
    b) Restrict use of the land to the three existing houses until the land is subdivided;
    c) Implement the recommendations and conclusions of the January 5, 2018 Initial Environmental Review by Cascade Environmental including environmental monitoring during constriction and a snow management strategy for protection of the Streamside Protection Enhancement Area;
    d) Identification of tree preservation areas with provisions for FireSmart fuel thinning subject to RMOW approval;
    e) Require development to achieve a minimum of BC Energy Step Code 3;
    f) Require development to meet the FireSmart BC Guidelines; and
    g) Require submission of detailed on-lot infiltration systems in accordance with the September 11, 2017 Preliminary Servicing Design Brief prepared by Gilbey Engineering Services, its installation and a commitment to operate and maintain the permanent works prior to the development of any building on the lands.

2. Registration of an agreement between the owners of the subject property and Strata VAS 2639 concerning access across the Bear Creek strata roadway to the subject property and related considerations including potential road repairs resulting from construction activities, any necessary road improvements, on-going road maintenance and repairs and snow storage and removal.

That Council waive the required five per cent park dedication of lands or its cash equivalent at time of subdivision of the property in exchange for 2.7 hectares of the lands to be rezoned from RS-E1 to PAN1 and maintained by the property owner(s);

That Council repeal "Official Community Plan Amendment Bylaw (Bunbury Lands) No. 1845, 2008", "Zoning Amendment Bylaw (Bunbury Lands) No. 1845, 2008" and "Phased Development Agreement Bylaw (Bunbury Lands) No. 1835, 2008"; and

That Council authorize the Mayor and Municipal Clerk to execute the necessary legal documents for this application.

CARRIED

RZ1148 - 3373 Panorama Ridge – Land Use Contract Discharge and Rezoning
File No. RZ1148
Report No. 18-084

Moved by Councillor J. Ford
Seconded by Councillor J. Crompton

That Council consider giving first and second readings to "Land Use Contract Discharge and Zoning Amendment Bylaw (3373 Panorama Ridge) No. 2196, 2018";

That Council authorize staff to schedule a Public Hearing regarding "Land Use Contract Discharge and Zoning Amendment Bylaw (3373 Panorama Ridge) No. 2196, 2018"; and further,

That Council direct staff to advise the applicant that before consideration of adoption of "Zoning Amendment Bylaw (3373 Panorama Ridge) No. 2196, 2018", the following matters shall be completed to the satisfaction of the General Manager of Resort Experience:

1. Registration of a Section 219 development covenant in favour of the Resort Municipality of Whistler requiring development on the parcel to achieve a minimum of BC Energy Step Code 3; and
2. Payment of outstanding rezoning application fees.

CARRIED

RZ1143 – 1501 Alta Lake Road (Prism Lands) Amenity Zoning
File No. RZ1143
Report No. 18-079

Moved by Councillor J. Crompton
Seconded by Councillor J. Ford

That Council consider giving third reading to "Zoning Amendment Bylaw (Prism Lands) No. 2172, 2018".

CARRIED

Review of Council Remuneration
File No. 3009.5
Report No. 18-080

Moved by Councillor C. Jewett
Seconded by Councillor J. Ford

That Council adopt Council Policy A-30: *Council Remuneration* as amended and attached as Appendix "A" to Administrative Report to Council No. 18-080;

That Council consider the results of the Council remuneration review; and further,

That Council set the salaries for Councillors at $38,178 and the Mayor at $97,310 effective January 1, 2019.

CARRIED

Consideration of a Regional Transit Memorandum of Understanding
File No. 527.22
Report No. 18-081

Moved by Councillor C. Jewett
Seconded by Councillor J. Ford

That Council endorse the Regional Transit Memorandum of Understanding between the Lil'wat Nation, Squamish Nation, District of Squamish, Village of Pemberton, Squamish-Lillooet Regional District and the Resort Municipality of Whistler, attached as Appendix "A" to Administrative Report No. 18-081; and further

That Council authorize the Mayor to sign the Memorandum of Understanding.

CARRIED

2017 Annual Report
File No. 4325
Report No. 18-082

Moved by Councillor J. Ford
Seconded by Councillor J. Crompton

That the 2018 Corporate Plan including 2017 Annual Report and Financial Statements as attached as Appendix "A" to Administrative Report No. 18-082 be received and considered by Council; and

That Council consider submissions and questions from the public with respect to the annual report.

OPPOSED: Councillor S. Maxwell

CARRIED

Mayor Nancy Wilhelm-Morden thanked the General Manager of Corporate and Community Services Norm McPhail for his many years of service for the Resort Municipality of Whistler and wished him all the best for his future plans.

2017 Statements of Financial Information
File No. 4325
Report No. 18-083

Moved by Councillor J. Ford
Seconded by Councillor S. Anderson

That Council approve the 2017 Statements of Financial Information attached as Appendix "A" to Administrative Report No. 18-083.

CARRIED

INFORMATION REPORTS

Private Sector Employee Housing Initiative – Update
File No. 7734
Report No. 18-075

Moved by Councillor J. Ford
Seconded by Councillor C. Jewett

That Information Report No.18-075, which provides an overview of the preliminary rezoning applications received for the Private Sector Employee Housing Initiative, be received by Council.

CARRIED

Mayor's Task Force on Resident Housing – Cheakamus Crossing Expansion Update
File No. 2150
Report No. 18-087

Moved by Councillor J. Crompton
Seconded by Councillor S. Anderson

That Information Report No. 18-087 regarding progress of the Cheakamus Crossing Expansion initiative, a key element of the Mayor's Task Force on Resident Housing, be received.

CARRIED

MINUTES OF COMMITTEES AND COMMISSIONS

Transportation Advisory Group

Moved by Councillor J. Ford
Seconded by Councillor C. Jewett

That Council receive the Regular Meeting Minutes of the Transportation Advisory Group of March 15, 2018 and May 17, 2018.

CARRIED

BYLAWS FOR FIRST AND SECOND READINGS

Zoning Amendment Bylaw (Bunbury Lands) No. 2191, 2018

Moved by Councillor J. Crompton
Seconded by Councillor J. Ford

That "Zoning Amendment Bylaw (Bunbury Lands) No. 2191, 2018" be given first and second readings.

CARRIED

Land Use Contract Discharge and Zoning Amendment Bylaw (3373 Panorama Ridge) No. 2196, 2018

Moved by Councillor J. Ford
Seconded by Councillor C. Jewett

That "Land Use Contract Discharge and Zoning Amendment Bylaw (3373 Panorama Ridge) No. 2196, 2018" be given first and second readings.

CARRIED

BYLAWS FOR THIRD READING

Zoning Amendment Bylaw (Prism Lands) No. 2172, 2017

Moved by Councillor J. Crompton
Seconded by Councillor J. Ford

That "Zoning Amendment Bylaw (Prism Lands) No. 2172, 2018" be given third reading.

CARRIED

BYLAWS FOR ADOPTION

Zoning Amendment Bylaw (Creekside Plaza) No. 2165, 2017

Moved by Councillor J. Crompton
Seconded by Councillor S. Anderson

That "Zoning Amendment Bylaw (Creekside Plaza) No. 2165, 2017" be adopted.

CARRIED

Housing Agreement Bylaw (Creekside Plaza) No. 2193, 2018

Moved by Councillor J. Ford
Seconded by Councillor C. Jewett

That "Housing Agreement Bylaw (Creekside Plaza) No. 2193, 2018" be adopted.

CARRIED

Water Tax Bylaw No. 2192, 2018

Moved by Councillor J. Ford
Seconded by Councillor C. Jewett

That "Water Tax Bylaw No. 2192, 2018" be adopted.

CARRIED

OTHER BUSINESS

Notice of Motion

Moved by Councillor S. Maxwell
Seconded by Councillor C. Jewett

That a motion be placed on the next Regular Council Meeting of July 10, 2018 for Council to direct staff to provide Council with quarterly updates with details by the list of actions and data on emissions and energy use (as available) with the first report due by the end of September.

CARRIED

CORRESPONDENCE

WDC Approved Business Plan Amendment
File No. VAULT

Moved by Councillor C. Jewett
Seconded by Councillor J. Crompton

That correspondence from Eric Martin, WDC Board Chair, dated May 23, 2018, regarding the WDC approved business plan amendment be received and referred to staff.

CARRIED

Applications for the British Columbia Environmental Quality Program
File No. 2014

Moved by Councillor J. Ford
Seconded by Councillor C. Jewett

That correspondence from Pamela Goldsmith-Jones, Member of Parliament for West Vancouver-Sunshine Coast-Sea to Sky Country, dated May 28, 2018, advising of the acceptance of application submissions to the British Columbia Environmental Quality Program be received and referred to staff.

CARRIED

CN Rail Right of Way Vegetation Control
File No. 3009

Moved by Councillor C. Jewett
Seconded by Councillor J. Crompton

That correspondence from Joslyn Young, Manager of Public Affairs, British Columbia Region, dated June 6, 2018, advising of CN Rail's annual Right of Way Vegetation clearing be received and referred to staff.

CARRIED

Follow up Regarding Rezoning Request
File No. 3009

Moved by Councillor J. Crompton
Seconded by Councillor J. Ford

That correspondence from John Wood, dated June 9, 2018, following up regarding his original letter dated January 3, 2018 requesting Council consider changing the zoning in the area north of Lorimer Road for park land and environmentally protected areas be received and referred to staff.

CARRIED

RMOW Resolutions Regarding Unaddressed Admail and the Collection of Unpaid Bylaw Fines endorsed at LMLGA
File No. 2014

Moved by Councillor J. Crompton
Seconded by Councillor J. Ford

That correspondence from Wendy Booth, Director and President of UBCM, dated June 1, 2018, advising that the RMOW resolutions regarding Unaddressed Admail and the Collection of Unpaid Bylaw Fines were endorsed at the LMLGA Annual General Meeting and that the resolutions will be presented to the UBCM membership for their consideration in September 2018 be received.

CARRIED

National Whistler Beer Hall Liquor Licenses and Covenant Modifications Application
File No. LLR1309

Moved by Councillor C. Jewett
Seconded by Councillor S. Anderson

That 14 pieces of correspondence from the following individuals, received from June 8, 2018 to June 13, 2018 regarding LLR1309 - National Whistler Beer Hall Liquor Licenses and Covenant Modifications Application be received and referred to staff:

- The Whistler Bar Group Association;
- The Whistler Pub Sector;
- Paul Lewis, Partner, Brickworks Hospitality Group;
- Eric Griffith, Owner, Alta Bistro;
- Priyanka Lewis, Owner/Operator, Brickworks Hospitality Group;
- Graham Page, General Manager, Buffalo Bills Bar and Grill;
- Anthony Flemming, General manager, The Firerock Lounge;
- Brendon King, General Manager, Garfinkel's;
- Matty Upton, General Manager, Longhorn Saloon and Grill;
- Chris Baddeley, General Manager, Stonesedge Kitchen;
- Paul Stoker, General Manager, Tapley's Neighbourhood Pub;
- The Restaurant Association of Whistler;
- Diane Rothdram, General Manager, Dubh Linn Gate Irish Pub; and

- Stephanie Gagne, Executive Chef, Brickworks Hospitality Group.

CARRIED

TERMINATION

Motion to Terminate

Moved by Councillor J. Crompton
Seconded by Councillor J. Ford

That the Regular Council Meeting of June 19, 2018 be terminated at 9:53 p.m.

CARRIED

Nancy Wilhelm-Morden,
Mayor

Brooke Browning,
Municipal Clerk

WHISTLER

REPORT | INFORMATION REPORT TO COUNCIL

PRESENTED: July 10, 2018 **REPORT:** 18-089

FROM: Corporate and Community Services **FILE:** 1970(LGMA)

SUBJECT: INCREASES IN PROVINCIAL TAXATION 2018/2019

COMMENT/RECOMMENDATION FROM THE CHIEF ADMINISTRATIVE OFFICER

That the recommendation of the General Manager of Corporate and Community Services be endorsed.

RECOMMENDATION

That Council receive Information Report No. 18-089, Increases in Provincial Taxation 2018/2019.

PURPOSE

The purpose of this Report is to provide Council with information regarding increases in school tax for 2018 and increased provincial taxation in 2019 due to the introduction of the Employer Health Tax and the additional school tax on high value residential properties.

DISCUSSION

School Tax 2018

School tax is collected by the Resort Municipality of Whistler ("RMOW") on behalf of the province to fund the cost of providing education in British Columbia. The province sets a separate residential school tax rate for every school district in the province; non-residential property rates for all other classes are the same province wide.

In April of 2018 the RMOW received the school tax rate for the Sea to Sky school district. The initial rate set by the province resulted in a 10.97per cent increase in school tax to all properties in the RMOW and a 14.69 per cent increase to the residential tax payers in the RMOW. On May 4, 2018 the RMOW received an amendment reducing the school tax rate for the Sea to Sky school district resulting in a 7.95 per cent overall increase to school taxes and a 10.35 per cent increase to residential taxes. The rates for Class 2 Utility properties declined by 3.22 per cent and the rates for Class 5 Industrial properties declined by 13.9 per cent. Class 6 Business and Class 8 Recreation properties had modest increases.

Residential properties in Whistler experienced an average 21per cent increase in property values and while the school tax rate dropped by 10.7 per cent, the overall result was higher school taxes for most Whistler residents in 2018. Each year Whistler experiences new development or "non-market growth" and some of the increase in school taxes is absorbed by this new development.

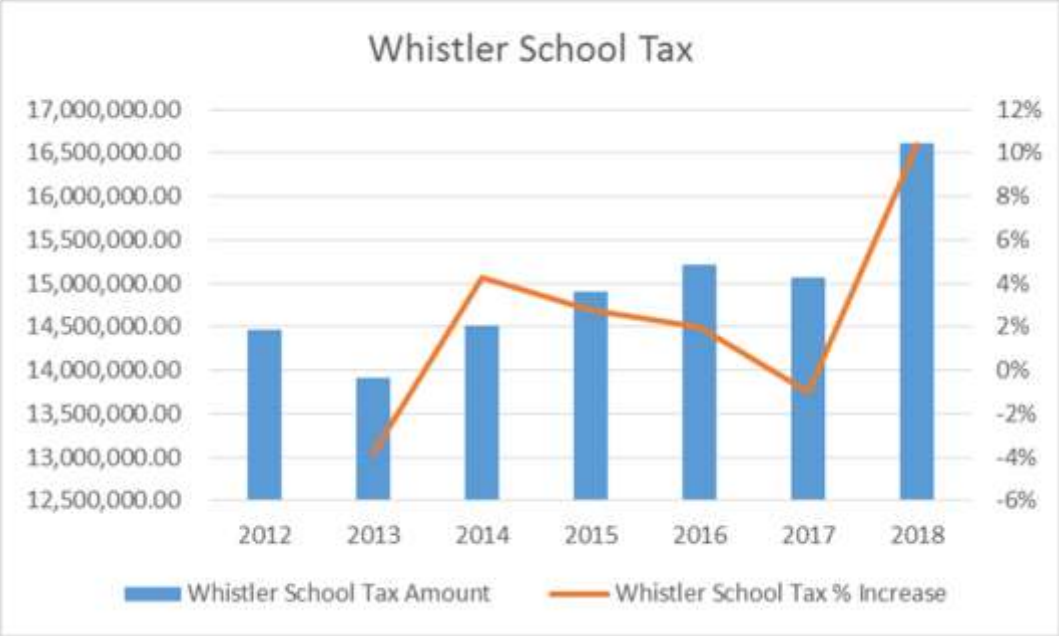
In addition to increases in school taxes the RMOW also saw large increases in regional district, regional hospital, BC Assessment and Municipal Finance Authority taxes; however these make up a relatively small portion of a resident's tax bill. The chart below shows the change in property taxes

for a property valued at $1,162,000 in 2017 that experienced average property appreciation of 21 per cent in 2018. The total tax payable has increased by 4.53 per cent, but the municipal portion of this increase is only 1.41 per cent (Utilities and General Municipal Taxes).

Whistler Example

	2018 Rate	Calc.	2017 Rate	Calc.	$ Change	% Change
Single Family						
Average Assessed Value		1,406,020		1,162,000	244,020.00	21.00%
Utilities		1,153.01		1,134.62	18.39	1.62%
General Municipal Taxes	1.7680	2,485.84	2.0920	2,430.90	54.94	2.26%
Regional District	0.0437	61.44	0.0442	51.36	10.08	19.63%
School Taxes	1.147	1,612.70	1.2695	1,475.16	137.55	9.32%
Hospital	0.0359	50.48	0.0371	43.11	7.37	17.09%
BC Assessment	0.0403	56.66	0.0432	50.20	6.46	12.88%
MFA	0.0002	0.28	0.0002	0.23	0.05	21.00%
Total Tax Payable	**3.0351**	**5,420.42**	**3.4862**	**5,185.58**	**234.84**	**4.53%**

The following graph shows the residential portion of school tax over the past seven years; it has been relatively stable until 2018 where there is a large increase. The orange bar shows the per cent increase or decrease annually.



The province of BC indicates on their website that the school tax rates decrease so that the average provincial revenue per home only increases by BC's CPI rate of inflation. BC's CPI rate of

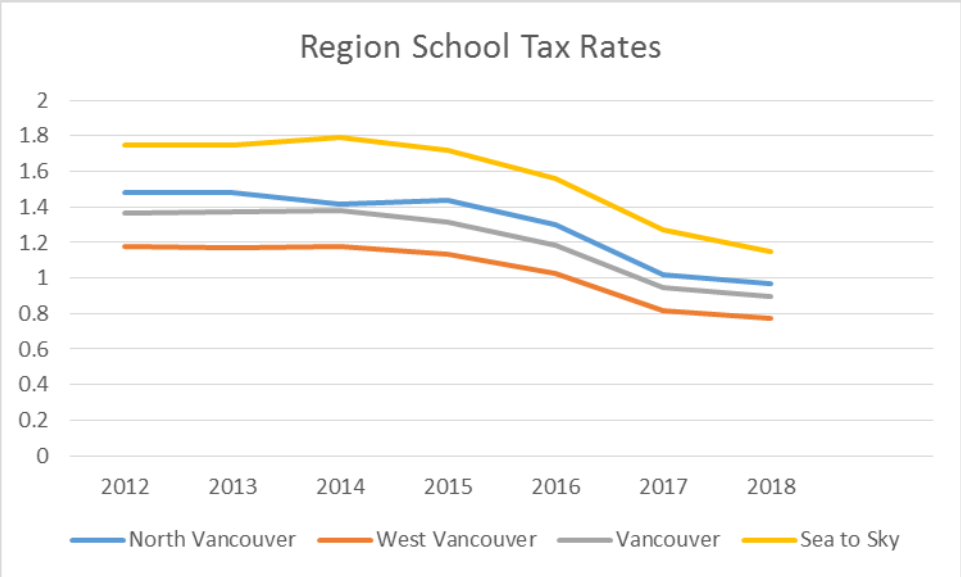
inflation for 2017 was 2.4 per cent; the school tax rate increase to Whistler residents is 4.5 times the rate of inflation.

Discussion with Ministry of Finance – Property Taxation Branch

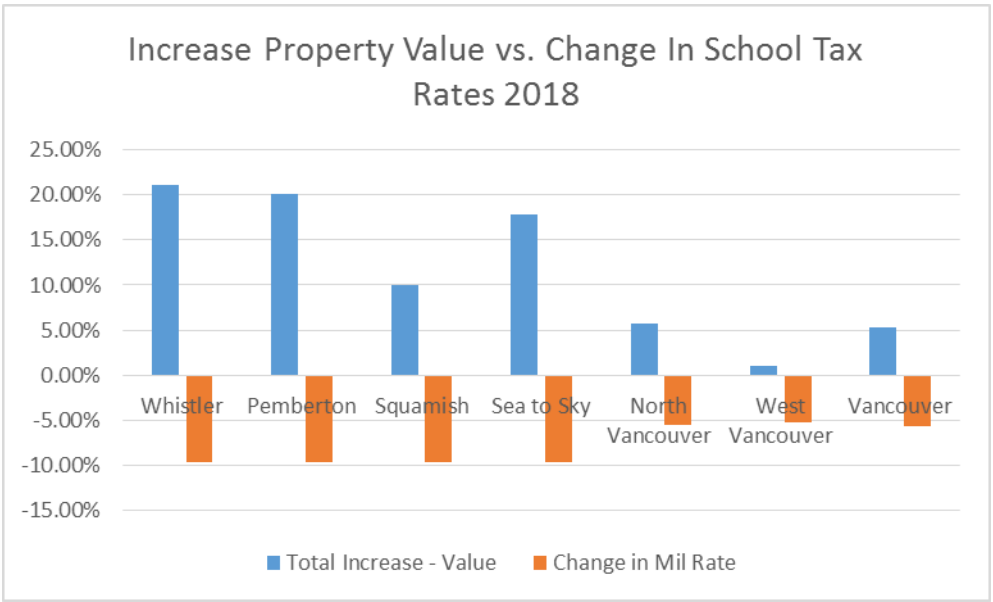
Management at the RMOW discussed the issue with an analyst from the property taxation branch. The province has indicated that there is an overall tax increase however it is not distributed evenly across the province. In the past decade, average property values have increased faster in Metro Vancouver than in other parts of the province, as a result the school tax burden was high in Metro Vancouver. In 2018 other areas of BC are now showing faster property appreciation than Metro Vancouver, as a result there has been a shift of the tax burden to school districts outside of Metro Vancouver. The shift will be uneven depending on changes in average assessments; some will experience larger shifts and some smaller shifts. There are also tax shifts within school districts; if a community has experienced faster growth in average assessments over the past year than its school district as a whole, there will be a shift in tax burden to the faster growing community.

The province has acknowledged that municipalities outside Metro Vancouver that had higher than average property appreciation in 2018 will have higher than average school tax increases. The chart below shows property appreciation for Whistler, Pemberton and Squamish (and the three communities totalled to represent the Sea to Sky school district) as well North Vancouver, West Vancouver and Vancouver. Property appreciation was higher in Whistler than all other comparable properties.

The following chart represents the residential school tax rates for the past seven years. It is not evident that Metro Vancouver has a higher tax burden than the Sea to Sky school district.



The following chart compares increases in residential property values for the Sea to Sky Region, Vancouver, West Vancouver and North Vancouver to changes in the residential school tax rate. The lower mainland had modest property appreciation; as a result their school tax rate dropped proportionally greater than did the Sea to Sky's. West Vancouver properties will experience the largest drop in school taxes this year as they have relatively low property appreciation combined with a fairly significant drop in the school tax rate. Whistler on the other hand had the highest property appreciation without a corresponding drop in the school tax rate.



Increase in School Tax Rate for High Value Properties

Starting in 2019, the province is introducing an additional school tax that applies to most high-valued residential properties in the province, including:

- Detached homes
- Stratified condominium or townhouse units
- Most vacant land

The additional school tax does not apply to non-stratified rental buildings with four or more housing units. For mixed-use properties, only the residential portion of the property's assessed value above $3 million will be taxable. The additional tax rate is:

- 0.2 per cent on the residential portion assessed between $3 million and $4 million
- 0.4 per cent on the residential portion assessed over $4 million

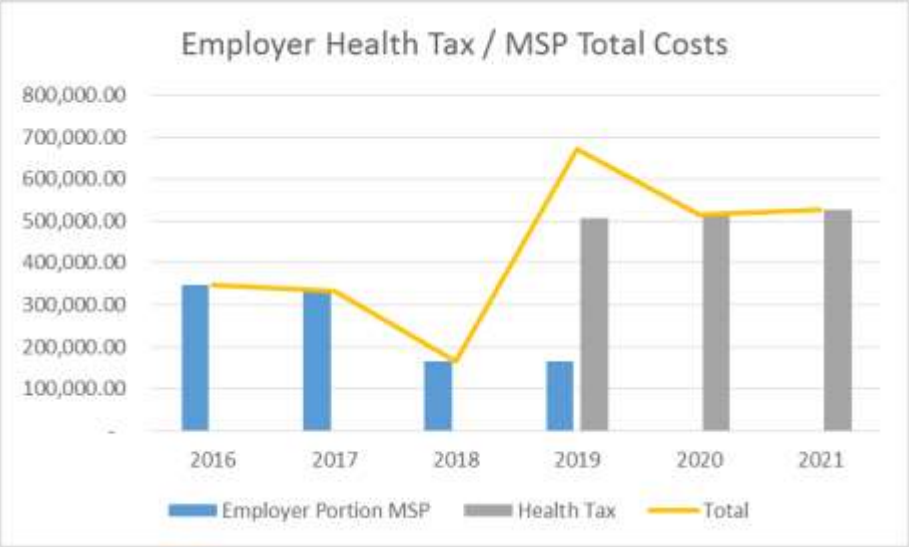
Based on 2018 property values this will impact 712 class 1 residential properties in Whistler (excluding split class properties) and result in an additional $3.45 million in school taxes collected in 2019.

Employer Health Tax

The British Columbia government has proposed an Employer Health Tax ("EHT") in their first budget; this announcement is accompanied by the proposed elimination of the Medical Services Plan Premiums ("MSPP") effective January 1, 2020. MSPPs are levied on individuals while the proposed EHT will be levied on a businesses' payroll. The proposed EHT is to come into effect on January 1, 2019.

The EHT will be a tax imposed on employers based on the size of their payroll. Small businesses with an annual BC payroll of $500,000 or less will be exempt from this levy. The tax rate will start at 0.98 per cent for annual payrolls in excess of $500,000 and will gradually increase to 1.95 per cent for B.C. payrolls in excess of $1,500,000 per year. The RMOW annual payroll is approximately $25 million annually, as a result the RMOW will be subject to the 1.95 per cent EHT.

The implementation of the EHT will result in increased costs for the RMOW of approximately $506K in 2019. In 2020 MSP will be eliminated, this will reduce costs by approximately $167K or a .41per cent property tax reduction. School boards will also be subject to the EHT in 2019; there is a possibility that this will be funded by increased school taxes billed to municipalities.



OTHER POLICY CONSIDERATIONS

There are no other policy considerations.

BUDGET CONSIDERATIONS

School tax and the additional school taxes on high value properties are billed directly from the province and passed on to the property owner. The RMOW does not need to increase the budget to accommodate these two items. The EHT is an additional cost and the RMOW will be required to budget for it starting in 2019.

COMMUNITY ENGAGEMENT AND CONSULTATION

Financial information continues to be reported publicly on a regular basis.

SUMMARY

Recent changes by the provincial government to the allocation of school tax and the introduction of the increase in school tax rates for high value properties is resulting in increased property taxation for owners of residential properties. The introduction of an EHT in 2019 will result in increased costs for large employers (including the RMOW) in 2019 and beyond.

Respectfully submitted,

Maureen Peatfield
ACTING DIRECTOR OF FINANCE
for
Kerry Ing
ACTING GENERAL MANAGER OF CORPORATE AND COMMUNITY SERVICES

WHISTLER

REPORT | ADMINISTRATIVE REPORT TO COUNCIL

PRESENTED:	July 10, 2018	**REPORT:**	18-090
FROM:	Resort Experience	**FILE:**	LLR128
SUBJECT:	WHISTLER BLACKCOMB TEMPORARY USE AREA EVENTS DURING 2018 CRANKWORX		

COMMENT/RECOMMENDATION FROM THE CHIEF ADMINISTRATIVE OFFICER

That the recommendation of the General Manager of Resort Experience be endorsed.

RECOMMENDATION

That Council approve a Temporary Use Area (TUA) liquor licensed event for more than 500 people to be held at the Whistler Mountain Bike Park Boneyard on Thursday, August 16, 2018;
and further,

That Council approve a Temporary Use Area (TUA) liquor licensed event for more than 500 people to be held at the Whistler Mountain Bike Park Boneyard on Saturday, August 18, 2018, or, alternatively, on Sunday, August 19, 2018 in the event of inclement weather.

REFERENCES

Appendices: "A" – Letter from Whistler Blackcomb dated June 14, 2018
"B" – Location of TUA events for Crankworx 2018

PURPOSE OF REPORT

The purpose of this Report is to provide a recommendation for Council's consideration regarding an application from Whistler Blackcomb for approval of two Temporary Use Area (TUA) licensed events to be held in the Whistler Mountain Bike Park Boneyard during the 2018 Crankworx Whistler mountain bike festival. Municipal policy requires Council approval for any urban TUA licensed event for 500 or more people.

DISCUSSION

Background

In 2014 the provincial Liquor Control and Licensing Branch (LCLB) issued a policy directive which allows liquor license holders who operate ski hills or golf courses to apply for a Temporary Use Area endorsement to extend their licensed activities to designated outdoor areas on their property on up to 26 days per calendar year. TUA events must be outdoors, operate no later than 10:00 p.m. and limitations may be imposed on the type of events, hours of operation, etc.

In 2015 Council approved a TUA endorsement to Dusty's Bar and BBQ liquor primary license to permit TUA events at six locations on Whistler Mountain. These include two "urban" locations, World Cup Plaza at Whistler Creek and the Boneyard the bottom of the Bike Park above Skier's Plaza in Whistler Village, which are in proximity to residences, businesses and visitor accommodations. Because of the potential for noise and disturbances from larger events at those locations to have negative impacts on the community, Council Policy G-17 *Municipal Liquor*

Licensing Policy requires that urban TUA licensed events for more than 500 people be approved by Council.

Proposed Large TUA Events during Crankworx

Whistler Blackcomb has applied to the Municipality and the LCLB for the following two urban TUA events for 500 or more people during the August 10-19, 2018 Crankworx Whistler festival. The applicant letter of Appendix "A" describes the rationale for the events and measures to mitigate against negative impacts. The plan of Appendix "B" shows the location and features of the area to be licensed. Event details are:

1. Pump Track Challenge event:
    - Date and Time: Thursday, August 16 from 6:30 to 10:00 p.m.
    - Location: Whistler Mountain Boneyard near the bottom of the Bike Park (The 2017 pump track event was held in the Blackcomb Mountain Tube Park, now being used as a staging area for lift construction.)
    - Number of patrons: Up to 1,000 patrons, the same as the 2017 pump track TUA event (the service area would be adequate for more than 3,000 people, but attendance will be limited to 1,000 people)
    - Event type and access: Sporting event, open to the public and free of charge
    - Liquor service: TUA endorsement to Dusty's liquor primary licence No. 072033
    - Minors: Minors will be permitted, if accompanied by a parent or guardian. Wrist bands will be issued at entry to those of legal drinking age. A wrist band will be required to purchase or possess liquor.
    - Food service: There will be food service provided by Bearfoot Bistro.
    - Security: Area will be defined by interlocking steel fencing. 12 security guards will manage capacity, check of ID and monitor for intoxication and overconsumption. A Security Plan is required by the LCLB and will be shared with RCMP and the RMOW.
    - Toilets: Four portable toilets just outside the entry/exit of the TUA area

2. Red Bull Joyride slopestyle event:
    - Date and Time: Saturday, August 18 from 3:00 to 7:30 p.m. (In the event of inclement weather, the event will be postponed to Sunday, August 19 from 9:30 a.m. to 1:30 p.m.)
    - Location: Whistler Mountain Boneyard near the bottom of the Bike Park. The licensed area will have the same perimeter boundary, toilets, food service, etc. as will be used for the August 16 pump track event.
    - Number of patrons: Up to 1,500 patrons, 500 more people than the 2017 event. (The service area would be adequate for more than 5,000 people, but attendance will be limited to 1,500 people.)
    - Event type and access: Ticketed sporting event for the public; VIPs and sponsors will be hosted by Crankworx
    - Liquor service: TUA endorsement to Dusty's liquor primary licence No. 072033
    - Minors: Minors will be permitted, if accompanied by a parent or guardian. Wrist bands will be issued at entry to those of legal drinking age. Wrist band will be required to purchase or possess liquor.
    - Food service: There will be food service provided by Bearfoot Bistro.
    - Security: Area will be defined by interlocking steel fencing. 12 security guards will manage capacity, check of ID and monitor for intoxication and overconsumption. A Security Plan is required by LCLB and will be shared with RCMP and the RMOW.
    - Toilets: Four portable toilets just outside the entry/exit of the TUA area

Mitigation of Potential Negative Impacts

Large events with liquor service have the potential to be a problem for the community. Some of the key issues and proposed mitigation measures are discussed below:

Noise during the events and at dispersal:

- Both events are sporting events where the only amplified sound is announcers and some background music. There is no entertainment music associated with the event, as there would be with a concert.
- Similar TUA licensed events for up to 1,000 patrons were held during Crankworx 2017, with no noise issues reported.
- Patrons dispersing from the TUA licensed area will only be a portion of the spectators dispersing from these very popular Crankworx events.
- The Thursday pump track event ends at 10:00 p.m., while the Saturday Joyride event ends at 7:30 p.m., so late night noise is not an issue. (The alternate Sunday Joyride event would end at 1:30 p.m.)

Transportation following the events

- For the pump track and Joyride events the TUA licensed area in the Boneyard is 200 m away from the Gondola Transit Exchange and 250 m from Skier's Plaza. TUA patrons will find their way home or to services in Whistler Village in the same manner as the other spectators at these popular events.
- Transit will be free for the Saturday (or Sunday) Joyride event, facilitating the use of transit by attendees.

Access to liquor by minors and over-service

- Minors will be admitted to both TUA licensed venues, if accompanied by a parent or guardian.
- Wrist bands, required to purchase or possess liquor, will be issued only to those of legal drinking age who can present appropriate identification.
- Service staff must have Serving It Right certification.
- The events will operate under Dusty's liquor primary licence, which would be put at risk if there are contraventions of provincial liquor regulations.

Event security

- Each event will have security fencing and security guards (see details above).
- As part of the LCLB approval process for any TUA event for more than 500 people, the licensee must submit a security plan, which will be shared with the RCMP and the RMOW.

WHISTLER 2020 ANALYSIS

W2020 Strategy	TOWARD Descriptions of success that resolution moves us toward	Comments
Economic	Whistler holds competitive advantage in the destination resort marketplace as a result of its vibrancy and unique character, products and services	Crankworx is a major contributor to the resort economy, with more than $14 million of direct visitor spending during the 2015 festival. The liquor service at the high profile events will be an amenity to spectators.

Visitor Experience	Community members and organizations work collectively to ensure exceptional experiences that exceed visitor expectations	The Crankworx events provides an opportunity for the food and beverage sector, local government and enforcement agencies to work together to enable memorable visitor experiences while maintaining order and respecting the rights of other residents and visitors.
Recreation & Leisure	Recreation and leisure is a core contributor to the Whistler economy	The pump track and Joyride events are highlights of the festival and attract large numbers of spectators. The liquor service in part of the spectator area will provide added value for some spectators.

W2020 Strategy	AWAY FROM Descriptions of success that resolution moves away from	Mitigation Strategies and Comments
Built Environment	Visitors and residents can readily immerse themselves in nature, free from noise and light pollution	The high profile Crankworx events attract very large crowds. The liquor service area should not be a significant source of additional noise. The TUA events all end no later than 10:00 p.m. and should not contribute to late night noise in the Village
Health & Social	Community members eat healthy food, exercise and engage in leisure and other stress relieving activities that assist in preventing illness and they avoid the abusive use of substances that evidence indicates have negative effects on physical and mental health	Any extended opportunity for the sale of alcohol has the potential for over-service. Security for the event will be provided by a combination of Whistler Blackcomb staff and private security. The events will operate under Dusty's liquor primary licence, which could be at risk if there are contraventions of provincial liquor regulations.

OTHER POLICY CONSIDERATIONS

Council Policy G-17 *Municipal Liquor Licensing Policy* includes a requirement that Council approve urban TUA events for more than 500 people. In accordance with Policy G-17, an application for an urban TUA event for more than 500 people is referred to individual members of the municipal Liquor Licence Advisory Committee (LLAC) for their comment, but the committee as a whole does not consider the application and there is no formal recommendation from the committee.

BUDGET CONSIDERATIONS

There are no budget considerations. The municipal application fee for a large urban TUA event is structured to cover staff costs for processing the application.

COMMUNITY ENGAGEMENT AND CONSULTATION

The details of the proposed TUA event were referred by e-mail to LLAC members for comment. There were comments of support received from LLAC members and no concerns were expressed. The Whistler Detachment of the RCMP, Whistler Fire Rescue Service and the municipal Bylaw departments have been consulted during the planning of the event.

SUMMARY

This report presents the details of proposed Temporary Use Area events to be held at urban TUA venues during Crankworx. Whistler Blackcomb has addressed the issues experienced at a similar,

events in previous years and has proposed measures to manage the potential negative impacts of the larger capacity 2018 events. Staff recommends that Council approve the two urban TUA events for more than 500 people.

Respectfully submitted,

Frank Savage
PLANNER
for
Jan Jansen
GENERAL MANAGER OF RESORT EXPERIENCE

June 14, 2018

Frank Savage
Resort Experience
RMOW

Re: Crankworx TUA Activations

Dear Frank,

Whistler Blackcomb will be applying for two large TUA activations during the Crankworx Mountain Bike Festival.

Both TUA activations are located on Whistler Mountain TUA #5 (Boneyard at the bottom of the bike park)

The first activation will be in support of the Pump Track Challenge. This event was held last year in the Blackcomb Tube Park but has been relocated due to the site being used as a staging area for the Blackcomb Gondola construction.

This event will take place on Thursday August 16th from 8:00 p.m. to 10:00 p.m. We are requesting to license the area from 6:30 p.m. to 10: 00 p.m. to accommodate ease of flow for entry and hospitality opportunities.

Last year's Pump Track Challenge event at the Tube Park was licensed for 1000 people. We are applying for the same amount this year. This area would be open to public.

The designated space inside of Whistler Mountain TUA #5 for the pump track is 2398 sq. M net when accounting for the pump track inside the licensed area. This would allow for a capacity of 3996 based on the formula of 0.6 Sq. M / person.

The Slopestyle event is the second event and will take place on Saturday August 18th from 4:30 pm to 7:30 pm. We are requesting the TUA area to be licensed from 3:00 pm to 7:30 pm. In the event of inclement weather we would like the permission to move this TUA approval to Sunday August 19th from 9:30 am to 1:30 pm. All of the logistics and conditions below would apply.

The exact same event was held last year for a 1000 person capacity which will expand to a 1500 person capacity this year. The TUA net area is 3348 Sq. M which allows for an occupancy load of 5,580 people based upon the formula of 0.6 Sq. M / person. The net area does increase by 950 sq. M as the pump track will not be in use and the patrons may use the area that was previously blocked off for the pump track event.

The Slopestyle event will be a combination of public who will be purchasing tickets to the event as well as event sponsor's and VIP's who will be hosted by Crankworx Events and Management.

Whistler Mountain Resort Limited Partnership
Blackcomb Skiing Enterprises Limited Partnership
4545 Blackcomb Way, Whistler, BC, Canada, V0N 1B4
Phone 604.932.3141 Fax 604.938.7527
whistlerblackcomb.com

WHISTLER

For both TUA activations, the following conditions will apply in order to meet the requirements of the liquor license;

The area will defined by interlocking steel fence and 4 ft high event fencing scrim.

There will be 4 portable toilets adjacent to the TUA area which is an increase of 25% from last year.

There will be food service within the TUA area provided by the Barefoot Bistro.

There will be 12 security guards managing the capacity, checking for ID and monitoring for intoxication and overconsumption. There will be one main entry exit point as well as two emergency exit only points managed by licensed door staff.

Minors would be allowed inside the licensed area, provided they were accompanied by a parent or guardian. All guests who have met the minimum age requirement of 19+ yrs would have a visible wrist band on. This would allow us to identify minors easily and prevent them from consuming alcohol.

If there are any questions, comments or concerns related to this application, please let me know.

Regards,

Mike Varrin

Sr. Manager F&B

Whistler Blackcomb


APPENDIX B
45m
PUMP TRACK FOOTPRINT
(space will not be accessible by public)
30m
42m
Boundary of licensed
area for both TUA events
Entry/Exit
Toilets x 4

WHISTLER

REPORT | ADMINISTRATIVE REPORT TO COUNCIL

PRESENTED:	July 10, 2018	**REPORT:**	18-091
FROM:	Infrastructure Services	**FILE:**	E14201
SUBJECT:	TWENTY-ONE MILE CREEK WATERSHED SOURCE WATER PROTECTION PLAN		

COMMENT/RECOMMENDATION FROM THE CHIEF ADMINISTRATIVE OFFICER

That the recommendation of the General Manager of Infrastructure Services be endorsed.

RECOMMENDATION

That Council endorses the Twenty-One Mile Creek Watershed Source Water Protection Plan attached as Appendix A to Administrative Report 18-091, and the continuation of the development of an annual work plan by the Technical Advisory Committee (TAC).

REFERENCES

Appendix “A” – 21 Mile Creek Source Water Protection Plan

Appendix “B” – 21 Mile Creek Source Water Assessment

Appendix “C” – Vancouver Coastal Health Association (VCHA) 2017 Evaluation Report

PURPOSE OF REPORT

The purpose of this report is to request endorsement from Council for the Twenty-One Mile Creek Watershed Source Water Protection Plan (“SWPP” or “the Plan) and for the continuation of the funding towards and development of an annual work plan that is being developed by the Technical Advisory Committee (TAC) for the ongoing protection of the Twenty-One Mile Creek Watershed.

The following is from the 2017 Evaluation Report from VCHA provided on March 21, 2018:

“Thank you for the extensive work on developing a Source Water Protection Plan (SWPP) for the 21 Mile Creek supply source. From a VCH perspective it appears that the current level of public education and access into the watershed seems reasonable, however it must be understood that the 21 Mile Creek supply is an unfiltered surface water source. The advanced disinfection processes (comprising UV followed by chlorination) complies with the pathogen reduction requirements of the BC Surface Water Treatment Objectives - but may not protect against spills or other contamination events. Accordingly, we recommend the SWPP be reviewed at a high level within the RMOW to develop a common understanding. We are pleased to note the close interdepartmental relationship that exists within the RMOW which will continue to be important for issues such as trail maintenance activities and waste removal (which should be scheduled when the intake is in by-pass mode)”.

DISCUSSION

Requirement for a SWPP

The SWPP is required as a condition of Resort Municipality of Whistler's (RMOW's) permit to operate the Twenty-One Mile Creek water supply, as issued by VCHA. The requirement was issued in part to facilitate maintaining the "filtration exemption" on the Twenty-One Mile Creek water source. Without the exemption, a filtration facility would be required to satisfy the multi-barrier approach for source water protection.

The RMOW has a license to draw approximately 4,978,000 cubic metres of water per year from Twenty-One Mile Creek as provided in waterworks license C128670/PD43526. There are no other licenses for withdrawals from Twenty-One Mile Creek. The authorized works associated with the RMOW's license include an intake pond on the creek, a coarse screened intake and diversion structure, ultraviolet (UV) treatment and chlorine disinfection, and a distribution system. The RMOW has no infrastructure upstream of the Twenty-One Mile Creek intake[1].

The Twenty-One Mile Creek Watershed has provided between 38-53% of RMOW's water supply (over the last five years).

Description of Land Use

The Twenty-One Mile Creek Watershed, located between Sproatt and Rainbow Mountains, is an approximately 2,700 hectare area (not taking into consideration the topography, ie plan view) that falls under the stewardship of the Ministry of Forests, Lands and Natural Resource Operations (MFLNRO). Under the Sea to Sky Land Resource Management Plan (S2SLRMP), the Twenty-One Mile Creek Watershed falls within a Wildland Zone (WL #23). The Rainbow Lake Hiking Trail has been in existence for approximately thirty (30) years and is considered a day hike (to Rainbow Lake and back). Approximately 40 percent of the land is within the RMOW's boundary.

What is the SWPP?

The SWPP provides the framework for the implementation of actions that will lead to enhanced protection for the availability and quality of, the Twenty-One Mile Creek surface water source. The key components of the Plan are intended to:

- Ensure that exposure to unacceptable concentrations of contaminants in the source water are minimized, to implement procedures and policies that will support the long-term sustainability of the surface water resource, and to maintain public confidence in Whistler's drinking water quality;
- Determine risk mitigating actions for identified risks and ongoing monitoring within the watershed;
- Ensure that the SWPP is a "living" document, evolving to reflect policy changes, input from stakeholders, new information regarding surface water conditions or contamination events, and new or planned activities within the watershed.

[1] 21 Mile Creek Source Water Assessment, Urban Systems, May 2015

SWPP Development Timeline

In May 2015 Urban Systems completed the Twenty-One Mile Creek Source Water Assessment ("the Assessment"). The purpose of the Assessment was to provide a summary of the formal assessment process and findings, including the identified hazards, risks, and preliminary risk management concepts for reducing risks to water quality in the Twenty-One Mile Creek Watershed at the source level[2].

On July 24, 2015 the VCHA provided a letter to the RMOW that outlined in general terms the major areas of consideration for protection of the water supply. These areas were considered during the development of the SWPP.

The first version of the SWWP was finalized in September 2015 by stakeholders who are also members of the Technical Advisory Committee (TAC). The TAC is comprised of the following stakeholders:

- Vancouver Coastal Health
  - Drinking Water
- Ministry of Forests, Lands and Natural Resource Operations
  - Recreation Sites and Trails
- Resort Municipality of Whistler
  - Environmental Stewardship
  - Parks Planning
  - Park and Village Operations
  - Utilities

The TAC meets up to twice annually to provide input to the RMOW for the ongoing implementation and the annual review and amendments to the work plan.

SWPP 2015, 2016 and 2017 Works Completed

In the original version of the SWPP dated September 2015, work plans for 2015 and 2016 were drafted. The tables are extracted from the SWPP and the status of each action updated for this report (please see below).
The SWPP was finalized after the 2015 summer season ended. A number of trail upgrades were completed in 2015 and are not summarized in these tables.
A work plan for 2019 will be developed at the end of 2018.

Table 3.1: 2015 General Work Plan Actions for Twenty One Mile Creek Watershed

Type	Addresses Hazard #	Type of Action	Status
Presentation	All	Provide SWPP presentation to RMOW Council. Len Clarkson to attend.	July 10, 2018 complete
Assessment	1.8 Intrinsic Climate Change	RMOW has completed a climate change study as part of the Community Energy and Climate Action Plan (CECAP).	Completed in July 2016 (see 2016 work plan for next steps).

[2] 21 Mile Creek Source Water Assessment, Urban Systems, May 2015

Assessment	1.12 Anthropogenic Outhouses	Implement a formal bio-waste strategy for Twenty-One Mile Creek Watershed with preliminary suggestions including: • Install an outhouse below the water intake and indicate the preference for Day Hikers to use this facility; • Make a decision on whether to keep or abandon the middle outhouse; • Relocate the outhouse at Rainbow Lake to either outside the watershed or well away from water (at least 300m); Investigate best technologies for any new and existing outhouses in order to provide facilities that users will want to use. This may include retrofitting existing outhouses.	RMOW Parks Operations teams converted each of the outhouses to fly out waste removal in 2017. No formal bio-waste strategy was created prior to this, direct action was taken instead.
Presentation	1.11 Anthropogenic Trails/Trail Usage	RMOW Utilities Group (UG) member to attend the Trails Planning Working Group (TPWG) meetings where the Sproatt/Rainbow Trails are being discussed. TPWG to schedule a presentation from the RMOW UG for an overview of the SWPP to provide education for trail planning discussions. UG to periodically provide a refresher presentation as needed if the members of the TPWG change substantially.	Completed in 2015. Representatives from the RMOW Parks Planning and Operations teams, and MFLNRO are also members of the TPWG and continue to regularly attend the meetings.
Documentation	All	The mapping that is currently available for the watershed requires enhancement to show existing and proposed trails, roads, tenures, the watershed boundary, provincial and municipal jurisdictions and camping facilities.	Not completed (no timeline set yet – will be discussed by TAC and TPWG).
Documentation	All	Include the actions completed from the SWPP and trail usage data in the annual Water Quality Report.	Not completed (will be included for 2019 reporting).
Documentation	1.17 Anthropogenic High User Demands	Continue with execution of Annual Water Conservation & Supply Plan	Ongoing annually.
Documentation	All	Add update of SWPP to Five-year Capital Plan Water budget, to occur every five years.	Not completed (included in 2018 work plan).
Documentation	All	Meet to review Work Plan for 2016 between September and October 15, 2015.	Meeting was not held in 2015, but actions were still taken.

Table 3.2: 2015 Work Plan actions that mitigate Hazards to source Water Availability

Type	Addresses Hazard #	Type of Action	Status
Assessment	1.2 Intrinsic Slope Failure	For Slumping Area 1 (Photo #18 in Assessment) Urban Systems to conduct site analysis and determine what slope remediation techniques are feasible.	Assessment completed February 2016. No further actions have been taken (will be included for 2020 work plan).
Assessment	1.2 Intrinsic Slope Failure	For Slumping Area 2 (Photo #19 in Assessment), Urban Systems to conduct site analysis and determine what slope remediation techniques are feasible	Assessment completed February 2016. No further actions have been taken (will be included for 2020 work plan).
Assessment	1.2 Intrinsic Slope Failure	For Slumping Area 3 (Photo #20 in Assessment), Urban Systems to conduct site analysis and determine what slope remediation techniques are feasible.	Assessment completed February 2016. No further actions have been taken (will be included for 2020 work plan).

Table 3.3: 2015 Work Plan actions that mitigate Hazards to source Water Quality

Type	Addresses Hazard #	Type of Action	Status
Construction	1.11 Anthropogenic Trails/Trail Usage	Update and add more signs (signage to provincial standard): • Update sign at entry to watershed above intake suggested text “You Are Entering a Drinking Water Watershed. Rainbow Lake Trail is for Day Use Hiking Only. Please Help Protect Whistler’s Drinking Water Supply”. • Update signs at trail junctions that lead to the Watershed - suggested text “You Are Entering a Drinking Water Watershed. Rainbow Lake Trail is for Day Use Hiking Only. Please Help Protect Whistler’s Drinking Water Supply”. • Add modular graphics based signs that reinforce approved trail use (hiking, taking pictures and picnic) include number of km to approved camping facilities.	Completed in 2015 (temporary signage). Permanent signage installed in 2016 at all recommended locations.

		• Add modular graphics based signs indicating the trail usages that not permitted (swimming, campfires, dogs, bikes). • As part of the completion of the Trail remediation around Rainbow Lake, add a recommended number of educational signs.	
Monitoring	1.11 Anthropogenic Trails/Trail Usage	While discussions are in progress on how to best monitor trail use, RMOW to have staff hike into watershed once a month to observe usage, take photographs of trail, inspect outhouses, and look for evidence of campfires. The metrics to be collected are listed in Section 6.1. Frequency of watershed hike will increase as staff resources are available. Hike should take place on a Friday and/or weekend days.	Ongoing annually. Summer Trail Ranger program was introduced in 2016 and is continuing.
Monitoring	1.11 Anthropogenic Trails/Trail Usage	Conduct ongoing maintenance and monitoring of present monitoring stations (counters) to ensure data completeness and quality level that enables adequate trail use assessment.	Ongoing annually.

Table 3.4: 2016 General Work Plan Actions for Twenty One Mile Creek Watershed

Type	Addresses Hazard #	Description for Action	Status
Assessment	1.8 Intrinsic Climate Change	Review the contents of the study specifically as they pertain to watershed management. Identify any gaps in the study.	Not completed (will be included for 2019 work plan).
Assessment	All	Hike to Rainbow, Gin and Tonic Lakes to observe Rainbow Trail and riparian conditions at the Lakes.	Ongoing annually.
Documentation	All	Include the actions completed from the SWPP and trail usage data in the annual Water Quality Report.	Not completed (will be included for 2019 reporting).
Documentation	1.17 Anthropogenic	Continue with execution of Annual Water Conservation & Supply Plan	Ongoing annually.

	High User Demands		
Documentation	All	Meet to review Work Plan for 2017 between September and October 15, 2016.	Not completed (actions were still taken). Next meeting to occur end of 2018.

Table 3.5: 2016 Work Plan actions that mitigate Hazards to source Water Availability

Type	Addresses Hazard #	Description for Action	Status
Assessment	1.1 Intrinsic Snowmelt and Rainfall	Feasibility study to determine if there is adequate access/site suitability to install a turbidity monitoring station upstream of slumping area.	Not completed (will be included for 2019 work plan).
Assessment	1.7a and 1.7b Intrinsic Wildfire	Re-evaluate wildfire risk in 21 Mile watershed by applying a different weighting to 21 Mile Creek watershed and re-running model.	Not completed (will be included in 2019 work plan).
Monitoring	1.1 Intrinsic Snowmelt and Rainfall	Install turbidity monitoring station upstream of slumping areas pending outcome of feasibility study.	TBD
Construction	1.2 Intrinsic Slope Failure	For Slumping Area 1 (Photo #18 in Assessment) develop and execute a slope remediation plan.	Assessment completed February 2016. Remediation may not be possible. No further actions have been taken (include for 2020 work plan).
Construction	1.2 Intrinsic Slope Failure	For Slumping Area 2 (Photo #19 in Assessment) develop and execute a slope remediation plan.	Assessment completed February 2016. Remediation may not be possible. No further actions have been taken (include for 2020 work plan).
Construction	1.2 Intrinsic Slope Failure	For Slumping Area 3 (Photo #20 in Assessment) develop and execute a slope remediation plan.	Assessment completed February 2016. Remediation may not be possible. No further actions have been taken (include for 2020 work plan).

Table 3.6: 2016 Work Plan actions that mitigate Hazards to source Water Quality

Type	Addresses Hazard #	Description for Action	Status
Assessment & Monitoring	1.11 Anthropogenic	Add monitoring stations (multi use counters) that enable adequate trail use assessment. Add monitoring	On work plan for 2018 and 2019.

	Trails/Trail Usage	stations (multi use counters) that enable adequate trail use assessment.	
Assessment & Construction	1.14 Anthropogenic Outhouses	RMOW to work with VCHA and MFLNRO regarding the Bio-waste Strategy. Submit recommendations to VCHA for review prior to any works taking place.	Works have been completed. VCHA requires that 21 Mile Creeks intake is offline during waste removal. Confirm operating plan with RMOW departments in 2018.
Assessment	1.9 Anthropogenic Roads	Identify if there are any existing legal constraints for improvement or extension of the existing roadways.	Not completed (no timeline determined). Will be discussed by TAC.
Assessment	1.9 Anthropogenic Roads	Confirm whether future slumping control or fuel thinning activities will require improvement or extension of existing roads.	Not completed (no timeline determined). Will be discussed by TAC
Assessment	1.11 Anthropogenic Trails/Trail Usage	RMOW to work with MFLNRO to establish a means of trail use monitoring and enforcement. Preliminary suggestions include: • Boots on the ground • Surveillance (cameras)	Summer Trail Ranger program was introduced in 2016 and is continuing.

Summary of Approach with Respect to Recreation

While there are a number of other hazards identified in the SWPP, the most complex component of the SWPP has been and will continue to be developing risk management strategies for recreation and its potential impacts to source water quality. The risk management strategy as detailed in the Plan is best summarized as allowing recreation in the watershed, but to mitigate its impact such that the risk remains within the zone of "acceptable risk to the health of the water supply".

WHISTLER 2020 ANALYSIS

W2020 Strategy	TOWARD Descriptions of success that resolution moves us toward	Comments
Natural Areas Strategy	The Plan seeks to protect the ecosystem integrity if the Twenty-One Mile Creek watershed to promote a safe and sustainable water source for use by the community.	The ecosystem of Twenty-One Mile Creek is vital to the integrity of the water source. For example, preventing the risk of a wildfire (which would negatively affect the quality of the water source) or by implementing erosion reduction measure to prevent extreme runoff from rain that would increase the sediment load in the water.
Partnership Strategy	The RMOW worked with stakeholders and local provincial health authorities in forming the Plan by creating the TAC and will continue to work with stakeholders through the committee.	The TAC is represented by the RMOW, Vancouver Coastal Health Authority (VCHA) and the Ministry of Forest Lands & Natural Resources Operations (MFLNRO). The TAC consists of a working group that review metrics and Work Plan action items, establish future

		Work Plan action items and in general manage the active components of the SWPP and an executive subcommittee that reviews and approves the recommendations.
Recreation & Leisure Strategy	The Plan works to maintain a balance of source water protection and recreation availability based on anticipated risks from activities and human traffic in and around the watershed.	The Plan addresses human activities in and around the watershed by evaluating and implementing risk mitigating actions associated with these activities. The bio-hazard approach deals with implementing the best approaches regarding outhouse locations and retrofits.
Water Strategy	The Plan is concerned with providing a dependable supply of high quality water for the community through watershed management strategies. The Plan supports a multi barrier approach to water source protection.	The RMOW provides high quality potable drinking water to the community. Through the Plans actionable strategies, the Plan seeks to protect the Twenty-One Mile Watershed to allow it to continue to provide the Community with a high quality source of raw water into the foreseeable future.

W2020 **Strategy**	**AWAY FROM** **Descriptions of success that resolution moves away from**	**Mitigation Strategies and Comments**
Recreation & Leisure	The Plan restricts residents and visitors ability to enjoy certain activities due to the sensitive nature of the watershed and the risk associated with the activities.	Motorized vehicles are banned, and trails are limited but well maintained to reduce pollution and erosion. Hiking and backcountry skiing are the only permitted activities. Overnight camping is discouraged except for emergency purposes and campfires are considered an immediate concern to the source water quality. Domestic animals are not permitted in the watershed.

OTHER POLICY CONSIDERATIONS

Not at this time.

BUDGET CONSIDERATIONS

The budget for 2018 for the SWPP plan is $20,000. This amount is the minimum amount intended to be budgeted annually going forward. The RMOW intends to seek grant funding for wildfire mitigation measures.

COMMUNITY ENGAGEMENT AND CONSULTATION

The SWPP was first developed in 2015 by stakeholders who are also members of the TAC. The TAC meets up to twice annually to provide input to the RMOW for the ongoing implementation and the annual review and amendments to the work plan.

SUMMARY

In addition to the SWPP being a requirement for the Permit to Operate the drinking water source, the SWPP is meant to strategically minimize the impact to the source water quality from various potentially harmful natural and anthropogenic sources within and adjacent to the watershed. The SWPP uses a risk based matrix to assess and implement actions to avoid impacts on source water availability and quality.

Respectfully submitted,

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for
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GENERAL MANAGER INFRASTRUCTURE SERVICES

Twenty-One Mile Creek Watershed: Source Water Protection Plan

Resort Municipality of Whistler

WHISTLER

Issued: September 1, 2015

TABLE OF CONTENTS

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2. SOURCE WATER PROTECTION PLAN (SWPP) EXECUTIVE SUMMARY

2.1 Overview

This Source Water Protection Plan ("SWPP" or "the Plan") provides the framework for the implementation of actions that will lead to enhanced protection for the availability and quality of, the Twenty-One Mile Creek surface water source used by our Resort Community for drinking water supply. Twenty-One Mile Creek watershed represents between 45-55% of RMOW's water supply. The primary objectives of this plan are to ensure that exposure to unacceptable concentrations of contaminants in the source water are minimized, to implement procedures and policies that will support the long-term sustainability of the surface water resource, and to maintain public confidence in Whistler's drinking water quality. This SWWP is required as a condition of Resort Municipality of Whistler's (RMOW's) permit to operate the Twenty-One Mile Creek water supply, as issued by the Vancouver Coastal Health Authority (VCHA)

On July 24, 2015 VCHA provided a letter to RMOW that outlined in general terms the Drinking Water Officer's understanding of the Twenty-One Mile Creek watershed, its land use, its infrastructure and suggested the major areas of consideration that should be given to protect the water supply. These areas of consideration have been addressed in this Plan, and the letter is included as Appendix D. Protection of the Twenty-One Mile Creek surface water supply resource will be achieved by continually identifying and minimizing contamination risks within the watershed. The potential for future contamination will be minimized by implementing one or more risk mitigation actions to address identified hazards. These actions may include amendments to our community planning processes, raising public awareness and fostering community support regarding the need for stewardship of this surface water resource, preparation of contingency plans to ensure appropriate response to any potential contamination events, specific actions to address identified risks, and ongoing monitoring within the watershed. Any unforeseen or emergency event (for example extreme flooding, aircraft crash) that occurs outside of the considerations of the SWPP results in referral to the RMOW Water System Emergency Response Plan.

This Plan is intended to be a "living" document, evolving to reflect policy changes, input from stakeholders, new information regarding surface water conditions or contamination events, and new or planned activities within the watershed. To facilitate stakeholder involvement, the Twenty-One Mile Creek Technical Advisory Committee (TAC) was formed to guide the development and implement the risk mitigation actions documented in the SWPP. The TAC will provide input to the RMOW for the ongoing implementation and the annual review and amendments to this Plan. The proposed timeline and process for review and revision of the SWPP is outlined in Section 8.0.

In January of 2015 Urban Systems completed the Twenty-One Mile Creek Source Water Assessment ("Assessment") report. The purpose of the report was to provide a summary of the

formal Assessment process and findings, including the identified hazards, risks, and preliminary risk management concepts for reducing risks to water quality in the Twenty-One Mile Creek Watershed at the source level.

The Assessment is the foundation document on which the Twenty-One Mile Creek SWPP is based and for now (until such a time as components of that text are fully incorporated into this document) is referenced frequently and should be referred to for additional detail on certain subject matter (see Section 5.0).

2.2 Twenty-One Mile Creek Watershed Land Use

The Twenty-One Mile Creek Watershed area falls under the stewardship of the Ministry of Forests, Lands and Natural Resource Operations (MFLNRO). Under the Sea to Sky Land Resource Management Plan (S2SLRMP), the Twenty-One Mile Creek Watershed falls within a Wildland Zone (WL #23). Appendix 7 of the S2SLRMP specifies direction for uses within this zone which includes recreation and refers to Section 4.6.2 for specific direction with respect to Water.

The Rainbow Lake Hiking Trail has been in existence for approximately thirty (30) years and is considered a day hike (to Rainbow Lake and back); although some overnight camping is known to occur.

"Overnight camping is discouraged, except for emergency purposes. New formal campsites will not be developed and signage will be used to inform hikers of appropriate camping locations outside of the watershed. Existing camping areas along the Rainbow-Madeley trail will be retained and may be improved to reduce environmental impact from campers. Future recreational development will focus on minimizing the potential for water contamination, such as upgraded toilet facilities, trail maintenance to reduce erosion, and public outreach on appropriate sanitary practices."[1] See Appendix C Hazard 1.13b for more details.

"No public motorized access in Twenty-One Mile watershed. Horse and pack animals are not permitted within the Twenty-One Mile and Nineteen Mile Valleys."[2] See Appendix C Hazard 1.12 for more details.

"No permanent commercial recreation facilities are to be constructed in Twenty-One Mile Valley. The existing tenure for a heliski operation in Twenty-One Mile and Nineteen Mile Valleys is recognized and will continue as the only motorized recreation tenure in the area, with no further expansion of the existing helicopter tenure, and no new motorized recreation tenures. The use of helicopters in and over this area is discouraged during the summer hiking months (June 1 to October 31). There will be no further expansion of motorized access in the area, in order to maintain the zone for quiet enjoyment by the public. Public motorized vehicle access

[1] Sea to Sky Land and Resource Management Plan April 2008
[2] Sea to Sky Land and Resource Management Plan April 2008

is only permitted to Madeley Lake along the existing Callaghan FSR 04, and to access existing utilities infrastructure (e.g. waterworks, repeaters)." [3] In addition to maintaining the zone for quiet enjoyment of the public, not expanding the area to motorized recreation is in line with the water quality goals in Section 4.6.2 of the S2SLRMP "Meet or exceed existing community and/or local government standards" and with the general wish by the RMOW community to maintain a natural environment. See Appendix C Hazard 1.13b for more details.

Snowmobilers are not allowed to enter the watershed; however, this has been known to occur. MFLNRO has already approached Canadian Wilderness Adventures and local snowmobile clubs to inform users of the prohibition of snowmobiles in the watershed. See Appendix C Hazard 1.15 for more details.

"The exploration and development of minerals, aggregates, dimension stone, oil and gas and geothermal resources is permitted within this Zone, subject to recognition and accommodation of First Nations environmental, social and cultural values. Advanced exploration and mining activities will seek to minimize cumulative impacts and mitigate or reduce disturbance to First Nation cultural values and sites by maximizing the use of existing infrastructure."[4]

2.3 Twenty-One Mile Creek Watershed Contaminant Sources

"For the purpose of the SWPP a hazard is defined as the source of potential physical, biological or chemical contaminants or threats, which present risks to Twenty-One Mile Creek at the intake.

A hazard is something that has the potential to cause harm to a receptor, but may not (the receptor being Twenty-One Mile Creek). Risk is the product of the likelihood of a hazard occurring and the potential consequences to elements at risk (the receptor). Risk is a function of likelihood, exposure, the value of the receptor, and the sensitivity of the receptor to the hazard."[5]

"A contaminant source inventory was completed as part of the Assessment and involved identifying and describing contaminant sources identified through literature review and field investigation. Because the emphasis of the assessment was on public health, particular attention was paid to hazards that may introduce contaminants that may have acute effects on health."[6]

"The intrinsic (Natural) hazard identification summary (Section 3.4) identified historical, current and potential future natural hazards within the assessment area. These natural hazards may introduce contaminants to the drinking water source. Additionally, land use and human activity

[3] Sea to Sky Land and Resource Management Plan April 2008
[4] Sea to Sky Land and Resource Management Plan April 2008
[5] Twenty-One Mile Creek Source Water Assessment RMOW, Urban Systems 2015 See Section Executive Summary.
[6] Twenty-One Mile Creek Source Water Assessment RMOW, Urban Systems 2015 See Section 4.1.

(anthropogenic hazards) may introduce contaminants. Ultimately, these contaminants may present risk to the drinking water source due to their potential consequences of exposure."[7]

For the Twenty-One Mile Creek Source both intrinsic and anthropogenic hazards pose a risk to the water supply availability and the water supply quality, however relatively speaking, the intrinsic risks pose a greater threat to the availability, and the anthropogenic risks pose a greater threat to the quality, of the source water supply.

2.4 Risk to Availability of Source Water Supply

There are two main source water indicators; turbidity and ultraviolet transmittance, the levels of which impact the availability of this source water supply to RMOW. Increased turbidity of the source water results from landslides and trail run off. The water supply treatment system is not operated under high turbidity conditions (automatic shutdown occurs at Nephelometric Turbidity Unit (NTU) >1). If episodes of high turbidity increase RMOW's ability to supply water under normal, maximum day demand or fire flow condition could be jeopardized.

The major existing hazard in the watershed that threatens water supply due to their potential to result in high turbidity events, are the large naturally existing sloughing areas (sedimentation)[8]. The Work Plan in Section 3.0 describes action items for each of the sloughing areas, which are to be assessed in fall of 2015 in terms of how they can be engineered so as to mitigate slope failure.

The risk of major turbidity events effecting supply would greatly increase if there was a catastrophic wildfire with the potential to cause additional slope failures throughout the Twenty One Mile Creek Watershed. Wildfires could either be started by lightning or by humans. The Work Plan in Section 3.0 describes action items for mitigating wildfire hazard on an ongoing basis.

Trail run off is much less of a concern for supply effecting turbidity events, especially where concerted effort has been made to design Rainbow Trail to divert rainfall run off and stabilize the trail to meet the demands of foot traffic. MFLNRO and RMOW invested significant funds in 2012, 2013 and 2014 to stabilize sections of the Rainbow Trail. Notably numerous small wooden bridges were installed to cross smaller water courses, the three large bridges were repaired/replaced and a 700m section of trail was relocated out of a marshy area. One area of focus for future trail maintenance will be around Rainbow Lake, where the muddy trail crosses water courses running directly into Rainbow Lake. The Work Plan in Section 3.0 contains action items for the Rainbow Lake Riparian area which is to be assessed in terms of how the trail can

[7] Twenty-One Mile Creek Source Water Assessment RMOW, Urban Systems 2015 See Section 4.1.
[8] Twenty-One Mile Creek Source Water Assessment RMOW, Urban Systems 2015 See Section 3.2.5.

best be designed to reduce water turbidity caused by foot traffic, protect the sensitive Riparian area and discourage swimming in the Lake.

Other identified turbidity hazards are summarized as actions in the 2015/2016 Work Plan in Section 3.0 or in the detailed tables of Appendix B and C.

2.5 Risk to Quality of Source Water Supply

Pathogens which include bacteria, fungi, parasites and viruses occur naturally or are introduced into the watershed by humans and wildlife. Ultraviolet light deactivates protozoan and disinfection is designed to deactivate 99.9% of the protozoan present. The water supply treatment system is not operated under low Ultra Violet Transmittance (UVT) conditions (automatic shutdown occurs at < 85% UVT). Subsequent to UV disinfection, chlorine is used to deactivate viruses, and treatment is designed to deactivate 99.99% of viruses. These two (2) treatment barriers meet the minimum requirements under the Canadian Water Drinking Guidelines for Surface Water Treatment. If the number of pathogens known to cause illness in human's increases, RMOW's ability to supply safe drinking water could be jeopardized, since treatment of the raw water source is not 100%.

It is important to note that the water treatment system does not include filtration, a treatment exemption that relies on RMOW maintaining a raw water source low in pathogens. To invest in this additional level of treatment would result in a capital project of $20 - $50M.

The major existing hazard in the watershed for causes of pathogenic events is the condition and location of the three (3) outhouses. The Work Plan in Section 3.0 contains action items for the outhouses, which are to be assessed in terms of how they can be engineered or relocated to reduce their risk.

The use of the Rainbow Trail is the next biggest concern for pathogenic contamination, only because as trail usage increases so does the chance of contamination of the water supply by humans or dogs. The Work Plan action items in Section 3.0 seek to minimize the risk posed by trail usage in the watershed utilizing various approaches including education, signage, monitoring and enforcement of permitted usage type.

The non-pathogenic Hazards in the watershed that pose a risk to source water quality are motorized vehicles. Motorized recreational/ commercial activity in the watershed is not permitted (with the exception of heli-skiing as detailed in Appendix C, Table 1, Hazard 1.16) and is not considered high risk. However if a motorized vehicle was to overturn in a creek, fuel could be carried to the intake, and from which there would be no treatment protection.

2.6 Thought Model for Discussing Acceptable Risk

The thought model that that been used to frame the discussion to date and will be referred to going forward is one of operating in a zone of "acceptable risk". Figure 2.6.1illustrates this concept.

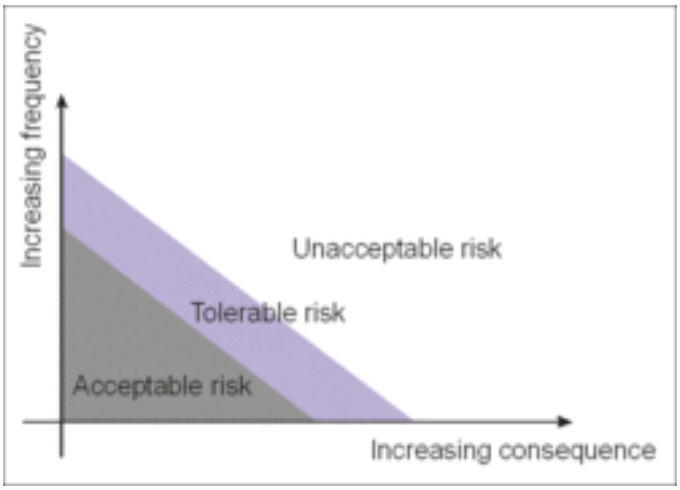

Figure 2.6.1: Defining Acceptable Risk

While there are a number of other Hazards identified in the SWPP, the most complex component of the SWPP has been developing risk management strategies for recreation and its potential impacts to source water quality and this conversation has been used to illustrate how this thought model is applied.

When discussing the types of recreation to occur in the watershed the goal is to allow recreation, but to mitigate its impact such that the risk remains within the "acceptable risk to the health and water supply" zones. In terms of water supply, an increase in the frequency of turbidity events would eventually result in the consequence of no supply. In terms of health, an increase in the presence of pathogens would eventually result in the consequence of illness.

Based on this thought model RMOW's intent is to strategically minimize the impact to source water quality from the expected growth of the trail use within, and from the trails immediately adjacent to, the watershed. The intent is to avoid the acceleration of trail usage within the watershed beyond the ability of MFLNRO and RMOW to manage the impact of an increased number of trail users on source water availability and quality. Discussion on how best to manage recreational use such that is does not have an adverse impact on raw source water quality will continue to be a focus of discussions by the TAC and the RMOW community.

At the time of Version 1 of the SWPP's release it is recognized that there are some immediate concerns for source water quality resulting from recreational use of the watershed.

- Outhouses – See Hazard 1.14;
- Rainbow Trail condition, specifically the riparian zone of Rainbow Lake – See Hazard 1.11;

- Camping/campfires at Rainbow Lake – See Hazard 1.13a and 1.13b.

RMOW commits to developing plans (where more understanding for the present Hazard condition is needed), and taking action to implement the risk management strategies for these specific Hazards as a high priority as outlined in the Work Plan in Section 3.0.

3. WORK PLAN FOR ACTION ITEMS IN 2015/2016

A Work Plan of action items has been created for 2015 and 2016. By the end of 2016 a number of the actions in this Work Plan would have been completed or will be in progress and that will present an opportunity to prepare the Work Plan for 2017 and 2018.

The Work Plan describes a list of actions that RMOW commits to taking in 2015 and 2016. There are four categories for the types of actions that can be taken, assessment, documentation, construction and monitoring. These categories are provided only to give general sense of the type and phase of the work (assessment usually preceding some form of construction). The actions are grouped in terms of their ability to:

- Maintain and improve water availability and
- Maintain and improve water quality.

The actions are ordered according to approximate order of schedule throughout the year. Additional detail for each of the actions can be found in Table 1 in both Appendix B and C.

Table 3.1: 2015 General Work Plan Actions for Twenty One Mile Creek Watershed

Type	Task	Addresses Hazard #	Responsible	Type of Action
Presentation	Complete	All	*Joe Paul* *Michael Day*	Provide SWPP presentation to RMOW Council. Len Clarkson to attend.
Assessment	Complete	1.8 Intrinsic Climate Change	*Ted Battison*	RMOW is presently working on a climate change study called the Community Energy and Climate Adaptation Plan.
Assessment	Prepare RFP	1.12 Anthropogenic Outhouses	*Alistair McCrone* *Michael Day* *Dave Patterson*	Implement a formal Bio-waste Strategy for Twenty One Mile Creek Watershed with preliminary suggestions including: • Install an outhouse below the water intake and indicate the preference for Day Hikers to use this facility; • Make a decision on whether to keep or abandon the middle outhouse; • Relocate the outhouse at Rainbow Lake to either outside the watershed or well away from water (at least 300m); Investigate best technologies for any new and the existing outhouses in order to provide facilities that users will want to use. This may include retrofitting existing outhouses.
Presentation	Complete	1.11 Anthropogenic Trails/Trail Usage	*Dave Patterson* to invite *Michael Day*	RMOW Utilities Group member to attend the Trails Planning Working Group (TPWG) meetings where the Sproatt/Rainbow Trails are being discussed. TPWG to schedule a presentation from the RMOW UG for an overview of the SWPP to provide education for trail planning discussions. UG to periodically provide a refresher presentation as needed if the members of the TPWG change substantially.
Documentation	Complete	All	*Alistair McCrone* *Michael Day* *Martin Pardoe*	The mapping that is currently available for the watershed requires enhancement to show existing and proposed trails, roads, tenures, the watershed boundary, provincial and municipal jurisdictions and camping facilities.
Documentation	Complete	All	*Michael Day*	Include the actions completed from the SWPP and trail usage data in the annual Water Quality Report.
Documentation	Complete	1.17	*Michael Day*	Continue with execution of Annual Water

		Anthropogenic High User Demands		Conservation & Supply Plan
Documentation	Complete	All	*Michael Day*	Add quinquennial update of SWPP to Five year Capital Plan Water budget.
Documentation	Complete	All	*TAC Working Group*	Meet to review Work Plan for 2016 between September and October 15, 2015.

Table 3.2: 2015 Work Plan actions that mitigate Hazards to source Water Availability

Type	Task	Addresses Hazard #	Responsible	Type of Action
Assessment	Schedule onsite visit	1.2 Intrinsic Slope Failure	*Michael Day*	For Slumping Area 1 (Photo #18 in Assessment) Urban Systems to conduct site analysis and determine what slope remediation techniques are feasible.
Assessment	Schedule onsite visit	1.2 Intrinsic Slope Failure	*Michael Day*	For Slumping Area 2 (Photo #19 in Assessment), Urban Systems to conduct site analysis and determine what slope remediation techniques are feasible
Assessment	Schedule onsite visit	1.2 Intrinsic Slope Failure	*Michael Day*	For Slumping Area 3 (Photo #20 in Assessment), Urban Systems to conduct site analysis and determine what slope remediation techniques are feasible.

Table 3.3: 2015 Work Plan actions that mitigate Hazards to source Water Quality

Type	Task	Addresses Hazard #	Responsible	Type of Action
Construction	Complete	1.11 Anthropogenic Trails/Trail Usage	*Alistair McCrone* *Michael Day* *Martin Pardoe* *Jan Jansen* *Dave Patterson*	Update and add more signs (signage to provincial standard): • Update sign at entry to watershed above intake suggested text "You Are Entering a Drinking Water Watershed. Rainbow Lake Trail is for Day Use Hiking Only. Please Help Protect Whistler's Drinking Water Supply". • Update signs at trail junctions that lead to the Watershed - suggested text "You Are Entering a Drinking Water Watershed. Rainbow Lake Trail is for Day Use Hiking Only. Please Help Protect Whistler's Drinking

				Water Supply". • Add modular graphics based signs that reinforce approved trail use (hiking, taking pictures and picnic) include number of km to approved camping facilities. • Add modular graphics based signs indicating the trail usages that not permitted (swimming, campfires, dogs, bikes). • As part of the completion of the Trail remediation around Rainbow Lake, add a recommended number of educational signs.
Monitoring	Complete	1.11 Anthropogenic Trails/Trail Usage	*RMOW Utilities Group* *Michael Day*	While discussions are in progress on how to best monitor trail use, RMOW to have staff hike into watershed once a month to observe usage, take photographs of trail, inspect outhouses, and look for evidence of campfires. The metrics to be collected are listed in Section 6.1. Frequency of watershed hike will increase as staff resources are available. Hike should take place on a Friday and/or weekend days.
Monitoring	Complete	1.11 Anthropogenic Trails/Trail Usage	*Dave Patterson*	Conduct ongoing maintenance and monitoring of present monitoring stations (counters) to ensure a data completeness and quality level that enables adequate trail use assessment. Data to be provided to Michael Day RMOW Utilities Group.

Table 3.4: 2016 General Work Plan Actions for Twenty One Mile Creek Watershed

Type	Task	Addresses Hazard #	Responsible	Description for Action
Assessment	Prepare Memo	1.8 Intrinsic Climate Change	*Michael Day*	Review the contents of the study specifically as they pertain to watershed management. Identify any gaps in the study.
Assessment	Update Annual Work Plan	All	*Michael Day*	Hike to Rainbow, Gin and Tonic Lakes to observe Rainbow Trail and riparian conditions at the Lakes.
Documentation	Complete	All	*Michael Day*	Include the actions completed from the SWPP and trail usage data in the annual Water Quality Report.
Documentation	Complete	1.17 Anthropogenic High User Demands	*Michael Day*	Continue with execution of Annual Water Conservation & Supply Plan
Documentation	Complete	All	*TAC Working Group*	Meet to review Work Plan for 2017 between September and October 15, 2016.

Table 3.5: 2016 Work Plan actions that mitigate Hazards to source Water Availability

Type	Task	Addresses Hazard #	Responsible	Description for Action
Assessment	Prepare RFP	1.1 Intrinsic Snowmelt and Rainfall	*Michael Day*	Feasibility study to determine if there is adequate access/ site suitability to install a turbidity monitoring station upstream of slumping area.
Assessment	PO to Consultant	1.7a and 1.7b Intrinsic Wildfire	*Heather Beresford*	Re-evaluate wildfire risk in 21 Mile watershed by applying a different weighting to 21 Mile Creek watershed and re-running model.
Monitoring	Prepare RFP	1.1 Intrinsic Snowmelt and Rainfall	*Michael Day*	Install turbidity monitoring station upstream of slumping areas pending outcome of feasibility study.
Construction	Prepare RFP	1.2 Intrinsic Slope Failure	*Michael Day*	For Slumping Area 1 (Photo #18 in Assessment) develop and execute a slope remediation plan.
Construction	Prepare RFP	1.2 Intrinsic Slope Failure	*Michael Day*	For Slumping Area 2 (Photo #19 in Assessment) develop and execute a slope remediation plan.
Construction	Prepare RFP	1.2 Intrinsic Slope Failure	*Michael Day*	For Slumping Area 3 (Photo #20 in Assessment) develop and execute a slope remediation plan.

Table 3.6: 2016 Work Plan actions that mitigate Hazards to source Water Quality

Type	Task	Addresses Hazard #	Responsible	Description for Action
Assessment & Monitoring	Complete	1.11 Anthropogenic Trails/Trail Usage	*Alistair McCrone* *Michael Day* *Dave Patterson*	Add monitoring stations (multi use counters) that enable adequate trail use assessment. Data to be provided to Michael Day. Add monitoring stations (multi use counters) that enable adequate trail use assessment. Data to be provided to Michael Day.
Assessment & Construction	Complete	1.14 Anthropogenic Outhouses	*Alistair McCrone* *Michael Day* *Len Clarkson*	RMOW to work with VCHA and MFLNRO regarding the Bio-waste Strategy. Submit recommendations to VCHA for review prior to any works taking place.
Assessment	Complete	1.9 Anthropogenic Roads	*Jeff Ertel*	Identify if there are any existing legal constraints for improvement or extension of the existing roadways.
Assessment	Complete	1.9 Anthropogenic Roads	*Michael Day*	Confirm whether future slumping control or fuel thinning activities will require improvement or extension of existing roads.
Assessment	Schedule a number of meetings to discuss	1.11 Anthropogenic Trails/Trail Usage	*McCrone* *Michael Day* *Jan Jansen*	RMOW to work with MFLNRO to establish a means of trail use monitoring and enforcement. Preliminary suggestions include: • Boots on the ground • Surveillance (cameras)

4. TWENTY-ONE MILE CREEK SOURCE WATER ASSESSMENT REFERENCE DOCUMENT

In January of 2015 Urban Systems completed the Twenty-One Mile Creek Source Water Assessment ("Assessment"). The purpose of the Assessment was to provide a summary of the formal Assessment process and findings, including the identified hazards, risks, and preliminary risk management concepts for reducing risks to water quality in the Twenty-One Mile Creek Watershed at the source level.

The Assessment is the foundation document on which the Twenty-One Mile Creek Source Water Protection Plan is based and for now (until components of that text are subsequently fully incorporated into this document) is referenced frequently and should be referred to for additional detail on certain subject matter. The following paragraphs are copied from Section 1 of the Assessment.

4.1 Purpose of Source Water Assessment

"The Drinking Water Protection Act, established in BC in 2003, enables a Ministry of Health (MoH) drinking water officer to request a Source-to-Tap Assessment of drinking water supply systems across the province. These assessments are to be undertaken by the water supplier at the request of a drinking water officer. Surface water sources (lakes and streams) are open to the atmosphere, making these sources particularly vulnerable to contamination from anthropogenic activities and from natural sources in the watershed, such as: wildlife, landslides, fires or extreme runoff from heavy rain (BC Provincial Health Officer, 2001).

As a condition of RMOW's drinking water operating permit issued by Vancouver Coastal Health, RMOW is required to develop this Source Protection Plan for the Twenty-One Mile Creek supply with reference to the MoH's Comprehensive Source-to-Tap Assessment Guideline (2010), herein referred to as "the Guideline". Therefore, RMOW initiated a water source assessment (herein referred to as "the assessment") as defined under Part 3 of the Drinking Water Protection Act, so as to inform the development of the Source Protection Plan. As stated in the Drinking Water Protection Act, the intent of the assessment was to:

- identify and evaluate the hazards to drinking water quality and quantity;
- characterize the risks; and

- propose risk management strategies."[9]

"Twenty-One Mile Creek watershed was assessed in the late summer of 2014 according to selected modules of the Guideline, as discussed in Section 2."[10]

4.2 Overview of RMOW's Drinking Water Source

"Community watersheds in the province of British Columbia (BC) supply many local communities with their drinking water. These watersheds also have a variety of other uses including: forestry, mining, agriculture, urban development, and recreation, and are known as multi-use watersheds (BC Provincial Health Officer, 2001).

For the Resort Municipality of Whistler (RMOW), the primary source of drinking water is Twenty-One Mile Creek (which is supplemented by groundwater). RMOW has used Twenty-One Mile Creek as a drinking water source since 1985. In addition to providing the community with drinking water, the Twenty-One Mile Creek watershed is an important recreational resource in the area and multiple organizations are seeking to expand access to, and recreation within, this multi-use watershed."[11]

An overview of the disinfection system for Twenty-One Mile Creek is summarized in Section 5.5 of the Assessment.

4.3 Drinking Water Source Protection

The key to ensuring clean, safe, and secure drinking water is to implement multiple barriers throughout the drinking water system. The multi-barrier approach aims to reduce the risk of drinking water contamination, and to increase the feasibility and effectiveness of remedial controls or preventative options (Canadian Council of Ministers of the Environment (CCME), 2004). [Edit Michael Day] In plain language, for Whistler, this means keeping the source water clean so Whistler's disinfection systems can do their job. Source water protection is an important component of the multi- barrier approach to ensuring safe drinking water. The Action Plan for Safe Drinking Water in BC recognizes "source protection as a critical part of drinking water protection."

4.4 Hazard and Risk

"As this assessment ultimately focuses on risks to drinking water quality and quantity, and concludes with preliminary risk management strategies, it is important to differentiate hazard from risk:

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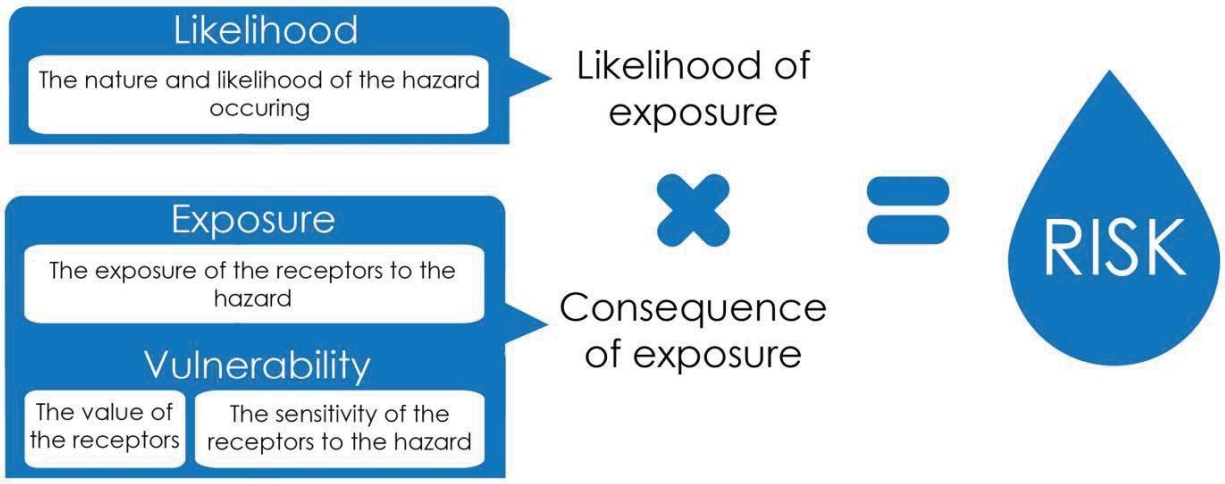
[9] Twenty-One Mile Creek Source Water Assessment RMOW, Urban Systems 2015 See Section 1.3.
[10] Twenty-One Mile Creek Source Water Assessment RMOW, Urban Systems 2015 See Section 1.3
[11] Twenty-One Mile Creek Source Water Assessment RMOW, Urban Systems 2015 See Section 1.1

Hazard: “a source of potential harm to the functioning of any aspect of the drinking water system or to human health” (Canadian Council of Ministers of the Environment, 2004).

Risk: the product of the likelihood of a hazard occurring and the potential consequences to elements at risk (the receptor). Risk is a function of likelihood, exposure, the value of the receptor, and the sensitivity of the receptor to the hazard, as illustrated below.

For this assessment, a hazard can be considered the source of potential physical, biological or chemical contaminants or threats, which present risks to Twenty-One Mile Creek (the receptor) at the intake based on their potential consequences to this source”[12].



[12] Twenty-One Mile Creek Source Water Assessment RMOW, Urban Systems 2015 See Section 1.4.

5. SUMMARY OF HAZARDS TO DRINKING WATER QUALITY AND QUANTITY

A summary of hazards to drinking water quality and quality were outlined in Twenty-One Mile Creek Source Water Assessment prepared for the RMOW by Urban Systems in Section 4.5 of the Assessment. The following paragraph is an excerpt from that Section.

"Based on the literature review of available resources and the findings of the field investigation, existing and potential source hazards (and associated contaminants of concern) were identified. Intrinsic hazards were identified in Module 1, and anthropogenic hazards were identified in Module 2 during the contaminant source inventory.

The Hazard Identification Summary in (Table 4.3) provides the following:

- Types of hazards within the assessment area;
- Physical, biological and chemical contaminants associated with the hazards;
- Potential effects of hazards at the source level;
- Measures in place to prevent introduction of contaminants to the source water; and
- Existing preventative measures and associated barriers at the source level."[13]

The hazards have each been given a Risk Rating that represents a product of the Consequence of Risk and Likelihood of Risk.

The scoring of these components is described in Sections 6.5, 6.6 and 6.7 of the Assessment.

It is important to note that the Risk Ratings are merely relative for the Hazards present in the watershed. While the Risk Ratings do not provide any means of quantitatively determining the risk to the health of the population, there are quantitative measures that are critical to informing the qualitative analysis.

5.1 Quantitative Measures

The proposed list of quantitative measures is outlined below. How the metrics are to be collected is also provided.

Hazard #	Hazard Description	Metric	How is Metric Collected
1.1	Snowmelt and rainfall	Take photo	Hike Survey (See Appendix E. &

[13] Twenty-One Mile Creek Source Water Assessment RMOW, Urban Systems 2015 See Section 4.5.

			Work Plan 2015/2016)
1.2	Slope Failure	To be developed as part of slope stabilization projects.	See Table 1 Appendix B.
1.3	Debris Flood	Take photo if observed	Hike Survey (See Section 3.0 Table 3.3 & Appendix E.)
1.4	Rockfall	Take photo if observed	Hike Survey (See Section 3.0 Table 3.3 & Appendix E.)
1.5	Wildlife	Count all	Hike Survey (See Section 3.0 Table 3.3 & Appendix E.)
1.6	Mountain Pine Beatle	Take photo if observed	Hike Survey (See Section 3.0 Table 3.3 & Appendix E.)
1.7	Wildfire	Overall monitoring and Annual Status update	
1.8	Climate Change	Metric not established	
1.9	Roads	Metric not established	
1.10	Forestry	Overall monitoring and Annual Status update	
1.11	Non-motorized Trail Use (NMTU)	Count hikers (include observers)	Hike Survey (See Section 3.0 Table 3.3 & Appendix E.)
1.11	NMTU	Trail Count	Trail Counters (See Table 3.3 Section 3.0.)
1.11	NMTU	Count MTB	Hike Survey (See Section 3.0 Table 3.3 & Appendix E.)
1.11	NMTU	Take photo(s) of any trail erosion	Hike Survey (See Section 3.0 Table 3.3 & Appendix E.)
1.12	Domestic Pets	Count Dogs	Hike Survey (See Section 3.0 Table 3.3 & Appendix E.)
1.13a/b	Campfire/Camping	Count/ Take photo	Hike Survey (See Section 3.0 Table 3.3 & Appendix E.)
1.14	Outhouses	Inspect from bottom to top	Hike Survey (See Section 3.0 Table 3.3 & Appendix E.)
1.15	Snowmobiling	Count (remains of)	Hike Survey (See Section 3.0 Table 3.3 & Appendix E.)
1.16	Heli-skiing	Count (summer fly overs)	Hike Survey (See Section 3.0 Table 3.3 & Appendix E.)
1.17	High User Demands	Percentage Maximum Day Demand can that be provided by sources other than 21-Mile Creek.	RMOW Water Conservation & Supply Plan

An example of a template for collecting the “Hike Survey” field observations is attached in Appendix E.

5.2 Strategies to Address Intrinsic (Natural) Risks

The intrinsic risks to the watershed are summarized in Table 1 Appendix B. This table also summarizes the risk management strategies, proposed schedule and cost to address the intrinsic risks.

5.3 Strategies to Address Anthropogenic (Land Use and Human Activity) Risks

The anthropogenic risks to the watershed are summarized in Table 1 Appendix C. This table also summarizes the risk management strategies, proposed schedule and cost to address the anthropogenic risks.

6. ROLE OF THE TECHNICAL ADVISORY COMMITTEE, (TAC)

6.1 Participating Organizations

The TAC Executive Subcommittee and Working Group for the Twenty-One Mile Creek SWPP shall have, at minimum, representation from the following organizations:

- Resort Municipality of Whistler (RMOW);
- Ministry of Forest Lands & Natural Resources Operations (MFLNRO);
- Vancouver Coastal Health Authority (VCHA).

6.2 TAC Executive Subcommittee

For the TAC Executive Subcommittee representative positions from within the organizations listed in 6.1, and current (2015) holders of those positions are indicated:

RMOW

- Jan Jansen – General Manager Resort Experience - jjansen@whistler.ca
- Joe Paul – General Manager Infrastructure Services– jpaul@whistler.ca

MFLNRO

- Alistair McCrone - Recreation Officer - alistair.mccrone@gov.bc.ca

VCHA

- Len Clarkson - Water Specialist and Drinking Water Officer - len.clarkson@vch.ca

The TAC Executive Subcommittee shall review and approve recommendations from the TAC Working Group on an as needed basis. Decision making at the Executive Subcommittee level shall result from consensus. TAC Executive Subcommittee meeting minutes shall be recorded.

6.3 TAC Working Group

For the TAC Working Group representative positions from within the organizations listed in 6.1, and current (2015) holders of those positions are indicated:

RMOW

- Michael Day - Utilities Group Manager - mday@whistler.ca

- Martin Pardoe – Manager Resort Parks Planning – mpardoe@whistler.ca
- Heather Beresford - Manager Environmental Stewardship - hberesford@whistler.ca
- Dave Patterson – Manager of Resort Operations - dpatterson@whistler.ca

The TAC Working Group shall convene to review metrics and Work Plan action times, establish future Work Plan action items and in general manage the active components of the SWPP. TAC Working Group meeting minutes shall be recorded. Decision making at the Working Group Subcommittee level shall result from consensus. If consensus cannot be reached a recommendation with dissenting options shall be documented and be provided to the Executive Subcommittee for review and approval.

7. PERIODIC REVIEW OF THE SOURCE WATER PROTECTION PLAN

7.1 SWPP Review and Revision

It is intended that this Plan be reviewed and revised to adequately manage the risks that will result from changing conditions (increases or decreases in the trends or impacts of new and existing Hazards) within and immediately adjacent to the watershed. Throughout the 2015-2016 periods, following adoption of the SWPP by RMOW Council, review and updates are to be on-going.

The SWPP risk management strategies, hazard assessments and Work Plan are intended to be reviewed annually, at minimum, by the TAC Working Group. The risk management strategies may also be reviewed at any time, by a member of the TAC Working Group convening a meeting to discuss specific Hazards. Once every five (5) years a major review of the SWPP shall be conducted.

The Work Plan in Section 3.0 lists those activities that RMOW will complete in 2015 and 2016 and on an annual basis for the foreseeable future namely:

- Hike to Rainbow, Gin and Tonic Lakes to observe Rainbow Trail and riparian conditions at the Lakes in the month of September preceding the annual TAC meeting. Executive and TAC Working Group members to be invited.
- Conduct ongoing maintenance and monitoring of present monitoring stations (counters) to ensure data completeness and a quality level that enables adequate trail use assessment.
- Include the actions completed from the SWPP and trail usage data in the annual Water Quality Report.
- Update all quantitative measures listed in Section 6.1 and adjust qualitative hazard assessments and annual Work Plan as needed.

RMOW also commits to the following every five (5) years:

- Comprehensive review of the SWPP, hazard assessments and condition of the watershed coordinated by an external consultant to assess the metrics collected per Section 6.1. Cost estimated at $25,000.

7.2 SWPP Annual Work Plan

The consultation, reviews and approvals needed to update the SWPP annual Work Plan for will include the following steps:

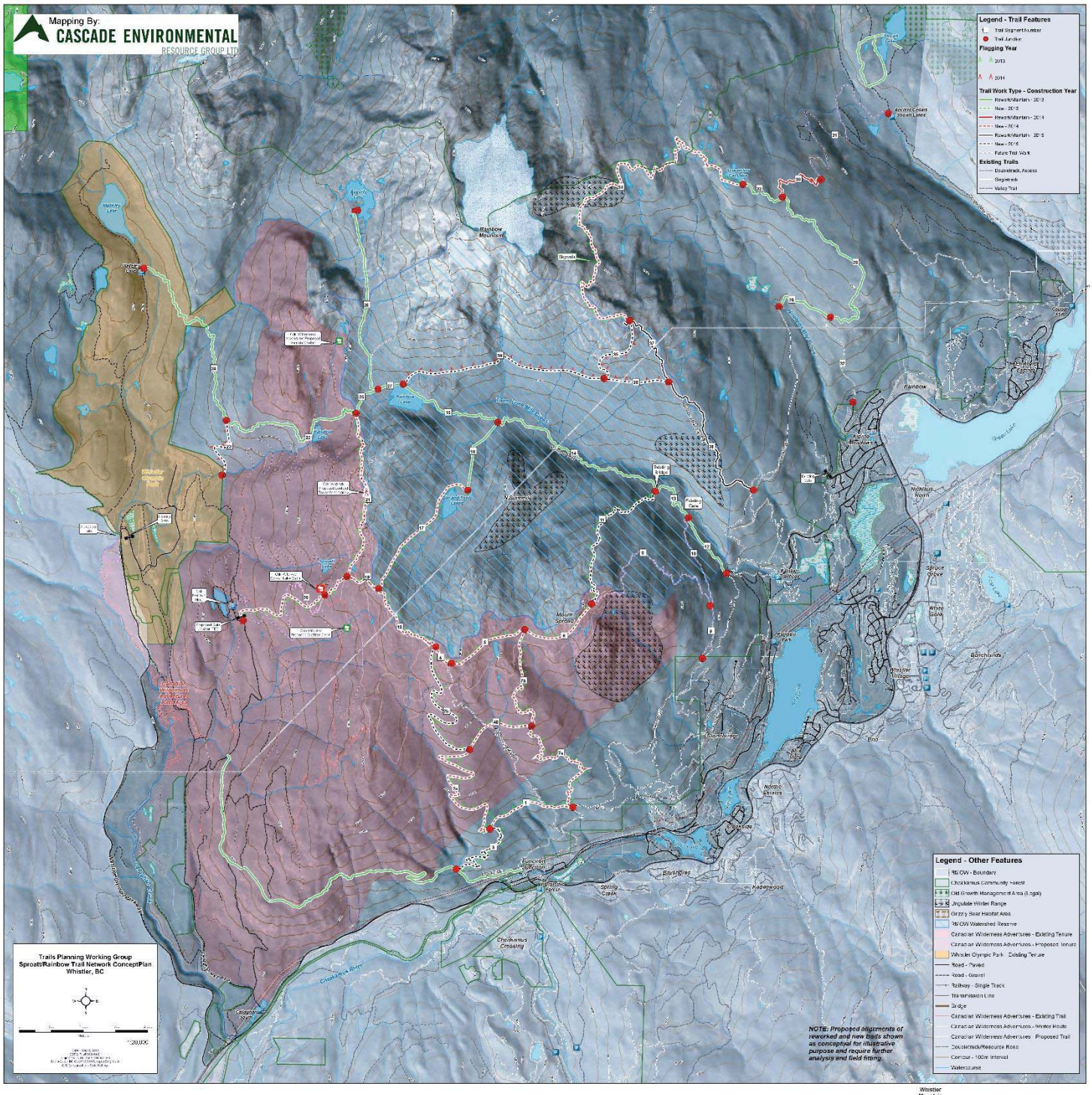
1. A TAC Working Group meeting attended by all members;
2. Review and approval of Work Plan by TAC members;
3. Completion of a Section 57 application to MFLNRO as needed per that process;
4. Review and approval of Work Plan by TAC Executive Subcommittee.

7.3 SWPP Revisions

The consultation, reviews and approvals needed to revise the SWPP will include the following steps:

1. A TAC Working Group meeting attended by all members;
2. Review and approval of SWPP Revision by TAC Working Group members;
3. Completion of a Section 57 application to MFLNRO as needed per that process;
4. Review and approval of SWPP Revision by TAC Executive Subcommittee;
5. Review and approval of SWPP Revision by RMOW Council.

8. Appendix A. Watershed Maps


Mapping By:
CASCADE ENVIRONMENTAL
RESOURCE GROUP LTD
Legend - Trail Features
Trail Segment Number
Trail Marker
Flagging Year
2013
2014
Trail Work Type - Construction Year
Rework/Maintain - 2013
New - 2013
Rework/Maintain - 2014
New - 2014
Rework/Maintain - 2015
New - 2015
Future Trail Work
Existing Trails
Doubletrack, Access
Singletrack
Valley Trail
Trails Planning Working Group
Sproatt/Rainbow Trail Network ConceptPlan
Whistler, BC
1:20,000
Legend - Other Features
RMOW - Boundary
Chaskanus Community Forest
Old Growth Management Area (Legal)
Jinglable Winter Range
Grizzly Bear Habitat Area
RMOW Watershed Reserve
Canadian Wilderness Adventures - Existing Tenure
Canadian Wilderness Adventures - Proposed Tenure
Whistler Olympic Park - Existing Tenure
Road - Paved
Road - Gravel
Railway - Single Track
Transmission Line
Bridge
Canadian Wilderness Adventures - Existing Trail
Canadian Wilderness Adventures - Winter Route
Canadian Wilderness Adventures - Proposed Trail
Doubletrack/Resource Road
Contour - 100m Interval
Watercourse
NOTE: Proposed alignments of reworked and new trails shown as conceptual for illustrative purpose and require further analysis and field fitting.
Rainbow Mountain
Rainbow
Alpine Meadows
Nicklaus North
Spruce Grove
White Gold
Benchlands
Emerald Estates
Nordic Estates
Blueberry
Alpine Meadows
Whistler Mountain

9. Appendix B. Detail Pertaining to Intrinsic Risks

Table 1: Risk management strategies to address intrinsic risks.

Hazard 1.1		Risk – Very High	Consequence - 3	Likelihood - A
Snowmelt and rainfall (peak flows)] **Contaminant(s)** Sedimentation, turbidity, coloration	*Comments:* • The risk to water quality will increase as natural sediment loads increase with increasing peak flows. See Hazard 1.8. *Risk Management Strategy:* Monitor the turbidity of the water upstream of the slumping areas to observe water quality trends over time.			
	Specific Action Items	**Responsible**	**Proposed Schedule**	**Estimated Cost**
	Feasibility study to determine if there is adequate access/ site suitability to install a turbidity monitoring station upstream of slumping area.	RMOW Utilities Group *Michael Day*	Prepare RFP for services to be tendered in 2016.	$5,000
	Install turbidity monitoring station upstream of slumping areas pending outcome of feasibility study.	RMOW Utilities Group *Michael Day*	Prepare RFP for services to be tendered in 2016. Installation to occur in 2017.	$15,000 - $100,000
Hazard 1.2		**Risk – High**	**Consequence - 3**	**Likelihood - C**
Slope Failure **Contaminant(s)** Sedimentation, turbidity, coloration	*Comments:* • The risk to water quality from slope failures will continue to increase with increasing peak flows, see Hazards 1.1 and 1.8. *Risk Management Strategy:* Investigate how slopes can be engineered to improve stability.			
	Specific Action Items	**Responsible**	**Proposed Schedule**	**Estimated Cost**

	For Slumping Area 1 (Photo #18 in Assessment) Urban Systems to conduct site analysis and determine what slope remediation techniques are feasible.	RMOW Utilities Group *Michael Day*	September 2015	$2,500 (in conjunction with other slumping areas)
	For Slumping Area 1 (Photo #18 in Assessment) develop and execute a slope remediation plan.	RMOW Utilities Group *Michael Day*	Prepare RFP for services to be tendered and constructed at a date TBD.	$100,000
	For Slumping Area 2 (Photo #19 in Assessment), Urban Systems to conduct site analysis and determine what slope remediation techniques are feasible	RMOW Utilities Group *Michael Day*	September 2015	$2,500 (in conjunction with other slumping areas)
	For Slumping Area 2 (Photo #19 in Assessment) develop and execute a slope remediation plan.	RMOW Utilities Group *Michael Day*	Prepare RFP for services to be tendered and constructed at a date TBD.	$100,000
	For Slumping Area 3 (Photo #20 in Assessment), Urban Systems to conduct site analysis and determine what slope remediation techniques are feasible.	RMOW Utilities Group *Michael Day*	September 2015	$2,500 (in conjunction with other slumping areas)
	For Slumping Area 3 (Photo #20 in Assessment) develop and execute a slope remediation plan.	RMOW Utilities Group *Michael Day*	Prepare RFP for services to be tendered and constructed at a date TBD.	$100,000

Hazard 1.3	t	Risk – High	Consequence - 4	Likelihood - E
Debris Flood **Contaminant(s)** Sedimentation, turbidity, coloration	*Comments:* • Debris flows are related to Hazard 1.1, 1.2 and 1.8. *Risk Management Strategy:* See RMS for Hazards 1.1, 1.2 and 1.8.			
	Specific Action Items	**Responsible**	**Proposed Schedule**	**Estimated Cost**
	None at this time.			
Hazard 1.4		**Risk – Low**	**Consequence - 1**	**Likelihood - E**
Rock fall **Contaminant(s)** Sedimentation, turbidity, coloration	*Comments:* A rock fall is unlikely to impact water quality for a long period should it occur. *Risk Management Strategy:* None at this time.			
	Specific Action Items	**Responsible**	**Proposed Schedule**	**Estimated Cost**
	None at this time.	-	-	-
Hazard 1.5		**Risk – Very High**	**Consequence - 3**	**Likelihood - A**
Wildlife **Contaminant(s)** Bacteria Protozoa	*Comments:* • The risk to water quality from wildlife is exceptionally difficult to mitigate in this watershed. Increased recreational demands in the watershed may result in a reduction in wildlife population with corresponding pathogen load reduction. • See Section 3.2.7 of Assessment for further background. *Risk Management Strategy:* None at this time.			
	Specific Action Items	**Responsible**	**Proposed**	**Estimated Cost**

			Schedule	
	None at this time.			
Hazard 1.6		**Risk – Low**	**Consequence - 1**	**Likelihood - E**
Mountain Pine Beetle (MPB) **Contaminant(s)** Sedimentation, turbidity, coloration	*Comments:* • The MPB was present in Twenty-One Mile Creek watershed however the extent of mature lodge pole pine leading stands are limited to an area in the mid-to-lower elevations of the watershed (iMapBC 2.0). Overall the beetle has had a negligible impact on the visual quality and hydrology of the watershed. • As the climate changes, the risks of other invasive species may increase and have an impact on the forest health. • See Section 3.2.9 of Assessment for further background. *Risk Management Strategy:* See Hazard 1.17.			
	Specific Action Items	**Responsible**	**Proposed Schedule**	**Estimated Cost**
	None at this time.			
Hazard 1.7a		**Risk – Low**	**Consequence - 1**	**Likelihood - C**
Small Wildfire **Contaminant(s)** Sedimentation, turbidity, coloration, organic content	*Comments:* • The risk to water quality from a small wildfire is considered to be low. • Fuel thinning activities have been outcomes of the recent wildfire studies which include the 21 Mile Creek watershed in the study area. • See Section 3.2.10 of Assessment for further background. *Risk Management Strategy:* Follow recommendations from Wildfire Studies.			
	Specific Action Items	**Responsible**	**Proposed Schedule**	**Estimated Cost**

	Re-evaluate wildfire risk in 21 Mile watershed by applying a different weighting to 21 Mile Creek watershed and re-running model.	RMOW Resort Experience *Heather Beresford*	2016	Internal
Hazard 1.7b		**Risk – Very High**	**Consequence - 5**	**Likelihood - C**
Catastrophic Wildfire **Contaminant(s)** Sedimentation, turbidity, coloration, organic content	*Comments:* • The risk to water quality/availability from wildfire is considered to be low, but if a catastrophic wildfire occurred in the watershed this risk increases to very high • Both the RMOW Community Wildfire Protection Plan and the landscape level plan identify the critical infrastructure in the watershed. However the 21 Mile Creek watershed but did not receive a higher weighting in the model due to its status as a municipal water supply source. • See Section 3.2.10 of Assessment for further background. *Risk Management Strategy:* It is not necessarily possible to prevent a catastrophic wildfire from occurring. Manage the areas around the critical infrastructure such that if a catastrophic wildfire were to occur those assets would be less likely to be affected. Also see RMS for Hazard 1.18			
	Specific Action Items	**Responsible**	**Proposed Schedule**	**Estimated Cost**
	Run the model and apply a different weighting to the consequences of a fire in 21 Mile watershed.	RMOW Resort Experience *Heather Beresford*	2016	
	Prepare a wildfire management plan for the 21 Mile watershed which may include fuel thinning.	RMOW Resort Experience *Heather Beresford*	2017	Internal $20,000-$30,000
Hazard 1.8		**Risk – Moderate**	**Consequence - 2**	**Likelihood - C**
Climate Change	*Comments:* • If there is an increased variability in annual snowpack or there is a long-term decline in annual			

<table>
<tr><td>Contaminant(s)
Impacts to water quantity, quality, wildfire risk</td><td colspan="4">average snowpack there may be reduced runoff; but due to the present robust supply the risk to water quantity is moderate. In the near future, 10 years, there may be a shift in peak flow timing and quantity per Hazard 1.1.

Risk Management Strategy:
Conduct a climate change study so that RMOW is in a state of preparedness with respect to any potential short and long term impact on water supply from Twenty-One Mile Creek Watershed.

<table><tr><th>Specific Action Items</th><th>Responsible</th><th>Proposed Schedule</th><th>Estimated Cost</th></tr><tr><td>RMOW is presently working on a climate change study called the Community Energy and Climate Adaptation Plan.</td><td>RMOW CAO Office
Ted Battiston</td><td>End of 2015</td><td>Internal</td></tr><tr><td>Review the contents of the study specifically as they pertain to watershed management. Identify any gaps in the study.</td><td>RMOW Utilities Group
Michael Day</td><td>January 2016</td><td>Internal</td></tr></table></td></tr>
</table>

10. Appendix C. Detail Pertaining to Anthropogenic Risks

Table 1: Risk management strategies to address anthropogenic risks.

Hazard 1.9		Risk – Low	Consequence - 1	Likelihood - E
Roads **Contaminant(s)** Sedimentation, turbidity, coloration	*Comments:* • It is assumed that there will always be some sediment transport from overland flow and potential slumping from existing roads. • See Section 4.3.1 of Assessment for further background. *Risk Management Strategy:* Control and limit any additional access road construction with a goal of no additional construction.			
	Specific Action Items	**Responsible**	**Proposed Schedule**	**Estimated Cost**
	Identify if there are any existing legal constraints for improvement or extension of the existing roadways.	RMOW Development Services *Jeff Ertel*	January 2016	Internal
	Confirm whether future slumping control or fuel thinning activities will require improvement or extension of existing roads.	RMOW Utilities Group *Michael Day*	January 2016	Internal
Hazard 1.10		**Risk – Low**	**Consequence - 1**	**Likelihood - E**
Forestry **Contaminant(s)** Sedimentation, turbidity, coloration, herbicide	*Comments:* There is no planned forestry in the future (excepting activities captured under Hazard 1.7), so this risk to water quality will remain low. See Section 4.3.2 of Assessment for further background. *Risk Management Strategy:* None at this time. The Whistler Community forest has publically committed to not logging in this watershed.			
	Specific Action Items	**Responsible**	**Proposed Schedule**	**Estimated Cost**
	None at this time.			

Hazard 1.11		Risk – Low	Consequence - 2	Likelihood - D
Trails/ Non-motorized Trail Use **Contaminant(s)** Sedimentation, turbidity, coloration Bacteria Protozoa	*Comments:* • The risk to water quality from recreational trail use will increase as use of the primary trail (Rainbow Trail) increases, and as approved trail development outside the watershed boundary continues with resulting increased demand from recreationalists. • The intent is to strategically manage the impact as use of the trail grows. The intent to avoid acceleration of trail usage within the watershed beyond the ability of MFLNRO and RMOW to manage the impact of an increased number of trail users on source water quality. • See Section 4.3.3 of Assessment for further background. *Risk Management Strategy:* • Maintain existing trail use type within the watershed (hiking). • Increase signage and education with respect to watershed stewardship with trail users through local clubs (for example ACC, WORCA). • Due to the apparent level of highly inappropriate trail use at Rainbow Lake (examples swimming, camping, campfire) RMOW to consult with MFLNRO on how to best implement monitoring and enforcement of trail usage in order to manage the impact from trails adjacent to the watershed, specifically those trails that ease access to the watershed. • Additional monitoring data for frequency and user type is to be collected to better understand the number and type of users on trails in and adjacent to the watershed and in order to review usage trends in the future. • Develop the trail network as detailed under the approval granted for the Section 57 application to MFLNRO - Recreation Sites and Trails BC Authorization Letter June 3, 2014. • Any additional trail building for trails in or adjacent to the Watershed to occur under the approval process provided in Section 7.0.			
	Specific Action Items	**Responsible**	**Proposed Schedule**	**Estimated Cost**
General Approach	Provide SWPP presentation to Council. Len Clarkson to be in attendance.	RMOW Utilities Group	2015	

		Michael Day RMOW Infrastructure Services *Joe Paul* VCHA *Len Clarkson*		
	RMOW Utilities Group member to attend the Trails Planning Working Group (TPWG) meetings where the Sproatt/Rainbow Trails are being discussed. TPWG to schedule a presentation from the RMOW Utilities Group regarding source water quality guidelines to provide education for future trail planning discussions.	RMOW Parks Operations *Dave Patterson* To invite RMOW Utilities Group *Michael Day*	Next meeting in 2015	
	The mapping that is currently available for the watershed requires enhancement to show existing and proposed trails, roads, tenures, the watershed boundary, provincial and municipal jurisdictions and camping facilities.	MFLNRO *Alistair McCrone* RMOW Utilities Group *Michael Day* RMOW Parks Planning *Martin Pardoe*	Fall 2015	
	For the Trails being developed the trail network as detailed in the under the approval granted for the Section 57 application to MFLNRO - Recreation Sites and Trails BC Authorization Letter June 3, 2014 SWPP TAC to assist with the development of the Trail Management Objectives for submission to MFLNRO.	RMOW Utilities Group Michael Day RMOW Parks Operations Dave Patterson	2016	

	Various websites have conflicting information about Rainbow Trail usage, and some do not mention that the Rainbow Trail or Rainbow Lake is in a watershed. Suggestion is to have summer student research web material and work with website owners to update material.	RMOW Utilities Group *Michael Day*	Summer 2017	
	Include the actions completed from the SWPP and trail usage data in the annual Water Quality Report.	RMOW Utilities Group *Michael Day*	Annually	
	Consider new multi-use (biking/hiking) trails in the future if it is within the ability of MFLNRO and RMOW to manage the impacts on source water quality. Any additional trails proposed to be built would occur under the approval process provided in Section 7.0. (130509_SproattTrailPlan_AllYears_Rev6).	RMOW UG *Michael Day* RMOW Resort Experience *Jan Jansen*	TBD	
Rainbow Trail and trails within 21 Mile Creek Watershed Sproatt/Rainbow Trails (specifically trails adjacent to watershed)	**Specific Action Items**	**Responsible**	**Proposed Schedule**	**Estimated Cost**
	Update and add more signs (signage to provincial standard): • Update sign at entry to watershed above intake suggested text -"You Are Entering a Drinking Water Watershed. Rainbow Lake Trail is for Day Use Hiking Only. Please Help Protect Whistler's Drinking Water Supply". • Update signs at trail junctions that lead to the Watershed - suggested text "You Are Entering a Drinking Water Watershed. Rainbow Lake Trail is for Day	MFLNRO *Alistair McCrone* RMOW Utilities Group *Michael Day* RMOW Parks Operations *Dave Patterson* RMOW Parks Planning *Martin Pardoe*	Immediately	

	Use Hiking Only. Please Help Protect Whistler's Drinking Water Supply". • Add modular graphics based signs that reinforce approved trail use (hiking, taking pictures and picnic) include number of km to approved camping facilities. • Add modular graphics based signs indicating the trail usages that not permitted (swimming, campfires, dogs, bikes). • As part of the completion of the Trail remediation around Rainbow Lake, add a recommended number of educational signs.			
	Conduct ongoing maintenance and monitoring of present monitoring stations (counters) to ensure a data completeness and quality level that enables adequate trail use assessment. Data to be provided to Michael Day RMOW Utilities Group.	RMOW Parks Operations *Dave Patterson*	Ongoing	
	While discussions are in progress on how to best monitor trail use, RMOW to have staff hike into watershed once a month to observe usage, take photographs of trail, inspect outhouses, and look for evidence of campfires. Frequency of watershed hike will increase as staff resources are available. Hike should take place on a Friday and/or weekend days.	RMOW Utilities Group *Michael Day*	2015	
	RMOW to work with MFLNRO to establish a means of trail use monitoring and	MFLNRO *Alistair McCrone*	2016	

	enforcement. Preliminary suggestions include: • Boots on the ground • Surveillance (cameras)	RMOW Utilities Group *Michael Day* RMOW Resort Experience Jan Jansen		
	Add monitoring stations (multi use counters) that enable adequate trail use assessment. Data to be provided to Michael Day RMOW Utilities Group.	MFLNRO *Alistair McCrone* RMOW Utilities Group *Michael Day* RMOW Parks Operations *Dave Patterson*	Spring 2016	
	Add barriers to prevent trail users from accessing the water at the three (3) bridge crossings.	MFLNRO *Alistair McCrone*	2017	
Rainbow Trail at Rainbow Lake Riparian Zones at Rainbow, Gin, and Tonic Lakes	**Specific Action Items**	**Responsible**	**Proposed Schedule**	**Estimated Cost**
	RMOW to conduct site analysis and execute a Rainbow Lake Riparian Zone Remediation Plan. RMOW to determine what trail remediation techniques are feasible with the preliminary suggestion of moving the trail away from the riparian zone and installing a boardwalk with ropes to create a visual barrier.	MFLNRO *Alistair McCrone* RMOW Utilities Group *Michael Day* RMOW Parks Operations *Dave Patterson*	2015/2016/2017	
	Hike to Rainbow, Gin and Tonic Lakes to observe Rainbow Trail and riparian conditions at the Lakes.	RMOW Utilities Group *Michael Day* RMOW Parks	Annually, starting Spring 2016	

		Operations *Dave Patterson* MFLNRO *Alistair McCrone*		
Hazard 1.12		**Risk – Low**	**Consequence - 1**	**Likelihood - E**
Domestic Animals (specifically dogs but also horses) **Contaminant(s)** Sedimentation, turbidity, coloration Bacteria Protozoa	*Comments:* • Domestic animals are not permitted entry to the watershed. The risk to water quality from domestic animals will only increase due to the use of the primary trail (Rainbow Trail) increasing and as trail development just outside the watershed boundary continues and due to increased demand from recreationalists. • The intent is to strategically manage the impact from the organic growth of trail use. The intent is to avoid acceleration of trail usage within the watershed beyond the ability of MLFNRO and RMOW to manage the impact of increased usage on source water quality. • See Section 4.3.3 of Assessment for further background. *Risk Management Strategy:* • Horse and pack animals are not permitted within the Twenty-One Mile Creek Valley[14] • Maintain existing trail use in the watershed to the existing user type (hiking, no dogs) • Additional monitoring data for frequency and non-approved user type is to be collected to better understand the number and type of user in the watershed and in order to review usage trends. • RMOW to increase signage and education. • RMOW to consult with MFLNRO on how to best implement monitoring and enforcement of trail usage.			
	Specific Action Items	**Responsible**	**Proposed Schedule**	**Estimated Cost**
	Per Hazard 1.11 add additional signs on Rainbow Trail reinforcing approved trail usage.	*Alistair McCrone* *RMOW Utilities Group*	Immediately	

[14] Sea to Sky Land and Resource Management Plan April 2008

		Michael Day *RMOW Parks Operations* *Dave Patterson* *RMOW Parks Planning* *Martin Pardoe*		
	Add monitoring stations (multi use counters) that enable adequate trail use assessment. Data to be provided to Michael Day RMOW UG.	MFLNRO *Alistair McCrone* RMOW Utilities Group *Michael Day* RMOW Parks Operations *Dave Patterson*	September 2016 for plan completion. May 2017 for additional counter implementation.	
	RMOW to work with MFLNRO to establish a means of trail use monitoring and enforcement.	*Alistair McCrone* RMOW Utilities Group *Michael Day*		
Hazard 1.13a		**Risk –High**	**Consequence - 3**	**Likelihood - C**
Campfire **Contaminant(s)** Sedimentation, turbidity, coloration Total organic compound	*Comments:* • Despite prohibition of campfires in the watershed, three (3) extinguished, well-constructed, campfires were found at Rainbow Lake on June 12, 2015. • The risk of campfires increases if there are more recreationalists without alternate approved campsite choices. • The risk to water quality from campfire use is its potential to result in Hazard 1.7a and 1.7b. • See Section 4.3.3 of Assessment for further background. *Risk Management Strategy:*			

<table>
<tr><td></td><td colspan="4">

MFLNRO encouraging camping at Hanging Lake through improved facilities.
Overnight camping is discouraged, except for emergency purposes. New formal campsites will not be developed and signage will be used to inform hikers of appropriate camping locations outside of the watershed. Existing camping areas along the Rainbow-Madeley trail will be retained and may be improved to reduce environmental impact from campers. Future recreational development will focus on minimizing the potential for water contamination, such as upgraded toilet facilities, trail maintenance to reduce erosion, and public outreach on appropriate sanitary practices.[15]
RMOW to consult with MFLNRO on how to best implement monitoring and enforcement of campfire prohibition.

<table>
<tr><th>Specific Action Items</th><th>Responsible</th><th>Proposed Schedule</th><th>Estimated Cost</th></tr>
<tr><td>Per Hazard 1.11 RMOW to work with MFLNRO to establish a means of trail use monitoring and enforcement.</td><td>MFLNRO
Alistair McCrone
RMOW Utilities Group
Michael Day
RMOW Parks Operations
Dave Patterson</td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>Hazard 1.13b</td><td></td><td>Risk – Low</td><td>Consequence - 1</td><td>Likelihood - C</td></tr>
<tr><td>Camping

Contaminant(s)
Sedimentation, turbidity, coloration
Total organic compound</td><td colspan="4">Comments:

The concern is primarily camping at Rainbow Lake which naturally has flat sheltered areas next to a water source, making it a desirable camping area.
The risk of campfires increases if there are more recreationalists without alternate approved campsite choices. See Hazard 1.7a and 1.7b.
The risk to water quality from camping is its potential to result in contamination of the water source from such activities as washing dishes/clothing and defecating near water courses due to lack of proximity of outhouses.

</td></tr>
</table>

[15] Sea to Sky Land and Resource Management Plan April 2008

<table>
<tr><td>Protozoa, bacteria</td><td colspan="4">Risk Management Strategy:
• MFLNRO encouraging camping at Hanging Lake through improved facilities.
• Overnight camping is to be discouraged, except for emergency purposes. New formal campsites are to be developed exclusively outside of the watershed, and signage will be used to inform hikers of appropriate camping locations outside of the watershed. Existing camping areas along the Rainbow-Madeley trail will be retained and may be improved to reduce environmental impact from campers. Future recreational development will focus on minimizing the potential for water contamination, such as upgraded toilet facilities, trail maintenance to reduce erosion, and public outreach on appropriate sanitary practices.[16]
• RMOW to consult with MFLNRO on how to best implement monitoring and enforcement of camping prohibition.</td></tr>
<tr><td></td><td>Specific Action Items</td><td>Responsible</td><td>Proposed Schedule</td><td>Estimated Cost</td></tr>
<tr><td></td><td>Per Hazard 1.11 RMOW to work with MFLNRO to establish a means of monitoring trail use and enforcement.</td><td>MFLNRO
Alistair McCrone
RMOW UG
Michael Day
RMOW Parks Operations
Dave Patterson</td><td></td><td></td></tr>
<tr><td>Hazard 1.14</td><td></td><td>Risk – Low</td><td>Consequence - 1</td><td>Likelihood - E</td></tr>
<tr><td>Outhouses

Contaminant(s)
Bacteria
Protozoa</td><td colspan="4">Comments:
• The risk to water quality from the outhouses presently located in the watershed is a concern for VCHA.
• The concern of having outhouses in the watershed is that they pose a large single point contamination risk.
• The concern of having poorly maintained outhouses is that they will not be used and the concern of</td></tr>
</table>

[16] Sea to Sky Land and Resource Management Plan April 2008

not having any outhouses is that trail users could choose poor locations on/off the trail to defecate.

- RMOW will develop and implement a Bio-waste Strategy to address the concerns with outhouses.
- See Section 4.3.3 of Assessment for further background.

Risk Management Strategy:

- To review the present outhouse locations and technologies and develop a Bio-waste Strategy.

Specific Action Items	Responsible	Proposed Schedule	Estimated Cost
Implement a formal Bio-waste Strategy for Twenty One Mile Creek Watershed with preliminary suggestions including: • Install an outhouse below the water intake and indicate the preference for Day Hikers to use this facility; • Make a decision on whether to keep or abandon the middle outhouse; • Relocate the outhouse at Rainbow Lake to either outside the watershed or well away from water (at least 300m); • Investigate best technologies for any new and the existing outhouses in order to provide facilities that users will want to use. This may include retrofitting existing outhouses.	MFLNRO *Alistair McCrone* RMOW Utilities Group *Michael Day*	2015/2016	-
RMOW to work with VCHA and MFLNRO regarding the Bio-waste Strategy. Submit recommendations to VCHA for review prior to any works taking place.	MFLNRO *Alistair McCrone* RMOW Utilities Group *Michael Day* RMOW Parks Operations	2015/2016	

		Dave Patterson VCHA *Len Clarkson*		
Hazard 1.15		**Risk - Moderate**	**Consequence - 2**	**Likelihood - C**
Snowmobiling **Contaminant(s)** Petroleum products	*Comments:* • If a snowmobile overturned in a creek, the risk to water quality would be from spilled oil that could reach the water supply intake. • Snowmobilers are not allowed to enter the watershed; however this does not prevent users from doing so. • See Section 4.3.3 of Assessment for further background. *Risk Management Strategy:* • MFLNRO has already approached Canadian Wilderness Adventures and local snowmobile clubs to inform users of the prohibition of snowmobiles in the watershed. • "There will be no further expansion of motorized access in the area, in order to maintain the zone for quiet enjoyment by the public."[17] In addition to maintaining the zone for quiet enjoyment of the public, not expanding the area to motorized recreation is in line with the water quality goals in Section 4.6.2 of the S2SLRMP "Meet or exceed existing community and/or local government standards" and with the general wish by the RMOW community to maintain a natural environment.			
	Specific Action Items	**Responsible**	**Proposed Schedule**	**Estimated Cost**
	If there is an accident which results in leakage of fuel into the watershed, RMOW shall initiate the RMOW Water System Emergency Response Plan.	RMOW Utilities Group *Michael Day*	In an emergency	Internal
Hazard 1.16		**Risk – Moderate**	**Consequence - 2**	**Likelihood - C**
Heli-recreation	*Comments:* • If a helicopter crashed in a creek, the risk to water quality would be from spilled oil that could reach			

[17] Sea to Sky Land and Resource Management Plan April 2008

<table>
<tr><td rowspan="3">Contaminant(s)
Petroleum products</td><td colspan="4">the intake.
• See Section 4.3.3 of Assessment for further background.

Risk Management Strategy:
“The existing tenure for a heli-ski operation in Twenty-One Mile and is recognized and will continue as the only motorized recreation tenure in the area, with no further expansion of the existing helicopter tenure, and no new motorized recreation tenures. The use of helicopters in and over this area is discouraged during the summer hiking months (June 1 to October 31).”[18]</td></tr>
<tr><td>Specific Action Items</td><td>Responsible</td><td>Proposed Schedule</td><td>Estimated Cost</td></tr>
<tr><td>If there is an accident which results in leakage of fuel into the watershed, RMOW shall initiate the RMOW Water System Emergency Response Plan.</td><td>RMOW Utilities Group
Michael Day</td><td>In an emergency</td><td>Internal</td></tr>
<tr><td>Hazard 1.17</td><td></td><td>Risk – Low</td><td>Consequence - 2</td><td>Likelihood - E</td></tr>
<tr><td rowspan="3">High User Demands

Contaminant(s)
Impact to water availability</td><td colspan="4">Comments:
• The risk to water availability will increase as water use increases.
• See Section 3.3.4 of Assessment for further background.

Risk Management Strategy:
RMOW already has various water use reduction plans in place, as outlined below.</td></tr>
<tr><td>Specific Action Items</td><td>Responsible</td><td>Proposed Schedule</td><td>Estimated Cost</td></tr>
<tr><td>Continue with execution of Annual Water Conservation & Supply Plan</td><td>RMOW Utilities Group
Michael Day</td><td>Ongoing Annually</td><td>$100,000</td></tr>
</table>

[18] Sea to Sky Land and Resource Management Plan April 2008

11. Appendix D. Letter from VCHA July 24, 2015

Vancouver CoastalHealth
Promoting wellness. Ensuring care.

Squamish Community Health
1140 Hunter Place, Box 220
Squamish, BC Canada V8B 0A2
Tel: 604-892-2293
Fax: 604-892-2327
Toll Free: 1-877-892-2231

Health Protection

July 24, 2015

To Michael Day – RMOW Manager of Utilities

Re – Public Health Perspective –RMOW 21 Mile Creek Source Water Protection Plan

VCH regulates and permits the RMOW Community Water System under the jurisdiction of the DWPA/R. We embrace the multiple barrier approach to drinking water protection in a comprehensive source to tap approach. In this regard all water systems are encouraged to develop source water protection plans as best practice. With regard to the 21 Mile Creek source specifically, the requirement for a SWPP was incorporated as a condition of the RMOW Permit to Operate. This was agreed at the time of upgrading infrastructure to provide enhanced disinfection without filtration, based on bypassing intake water that exceeds 1 ntu of turbidity. In addition to turbidity, reductions to the UV transmissivity (UVT) can also inhibit performance of your disinfection process, also resulting in intake shutdown (typically when it drops below 80%).

From a water quantity perspective, without the benefit of filtration, the 21 Mile Creek source should be considered intermittent. Accordingly we have two concerns:

1. In the event of extreme water system flows, ie a large diameter water main break or extensive firefighting, the RMOW distribution system could become depressurized if this source were off line. This could result in activation of any cross connections and possibly back flow of contaminated water into the distribution grid, and secondly,
2. To maintain adequate fire flow levels in an emergency it may be necessary to override the 1 NTU maximum limit to maintain minimum reservoir levels.

From a water quality perspective we have the following comments:

1. The existing treatment processes in place for the 21 Mile Creek source meet our treatment expectations; however pathogen loading from fecal sources should be minimized wherever possible. Outhouses should be located below the intake or outside of the drainage. If it is deemed that an outhouse is required within the watershed, extreme care should be used in its design, location; maintenance and monitoring. Domestic pets should be excluded from the watershed.
2. Organic materials in the watershed such peat deposits present as source for organic carbon which can reduce UVT if it becomes mobilized. Attempts to stabilize these materials should be made if possible. Deciduous trees such as alder can also present a significant source of organic carbon from leaf decay. Consideration should be given to conversion to conifer species preferentially.

3. Inorganic sedimentary deposits may be found in unstable slope conditions – which are fairly typical in coastal watersheds. A survey of the surficial geology should identify these units and consideration should be given to stabilizing these slopes wherever practical, particularly if they contain finer lacustrine deposits due to their contribution to turbidity if mobilized.
4. Risks from human recreation are difficult to quantify however it seems reasonable to expect that as increased exposure will lead to increased risk. In this regard it seems most appropriate to vet these decisions through the community at large to determine what would be acceptable and reasonable. Additional control measures such as trail access permits could be implemented should you wish to limit volume of public access. Ideally we would enlist these recreational users to be champions in protecting the water resource

In view of the strategic importance of the 21 Mile Creek water supply source, an annual work plan of watershed surveillance and restoration activities should be followed to minimize contamination risks.

Yours sincerely,

Len Clarkson
Water Specialist and Drinking Water Officer
Vancouver Coastal Health
phone 604-815-6841
www.vch.ca

Appendix E. Template for Hike Survey Observation

Rainbow Trail Hiking Notes

Date of Hike	
Hiker(s)	
Weather	
Start of Hike	
End of Hike	
Cars in parking lot beginning of hike	
Cars in parking lot end of hike	

Observations on Day of Hike

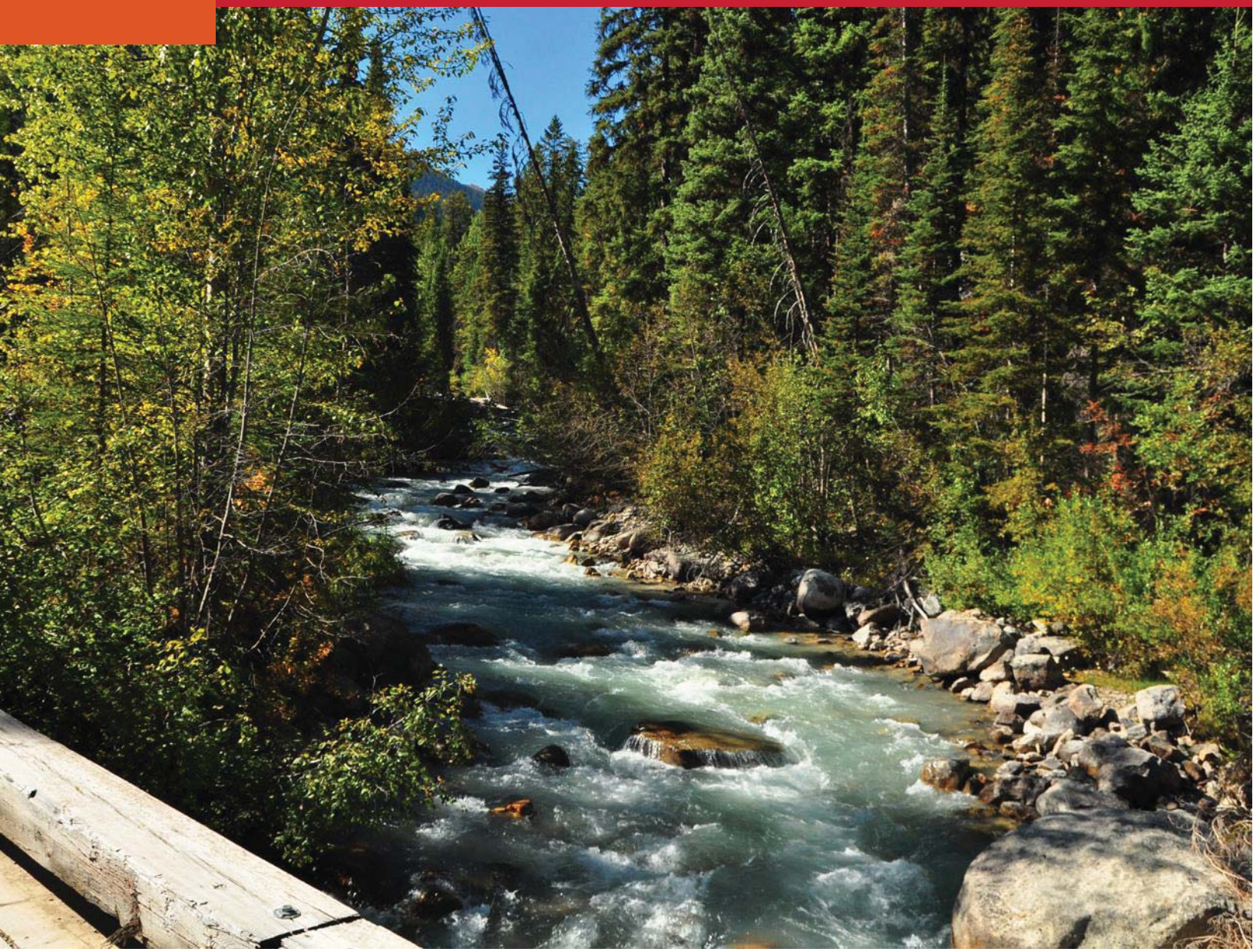
Hazard #	Hazard Description	Metric	Photo Location or Count	Photo Number
1.1	Snowmelt and rainfall	Take photo		
1.1	Snowmelt and rainfall	Take photo		
1.1	Snowmelt and rainfall	Take photo		
1.1	Snowmelt and rainfall	Take photo		
1.2	Slope Failure	Take photo if observed		
1.3	Debris Flood	Take photo if observed		
1.4	Rockfall	Take photo if observed		
1.5	Wildlife	Count all		
1.6	Mountain Pine Beatle	Take photo if observed		
1.7	Wildfire			
1.8	Climate Change			
1.9	Roads			
1.10	Forestry			
1.11	Non-motorized Trail Use (NMTU)	Count hikers (include observers)		
1.11	NMTU	Count MTB		
1.11	NMTU	Take photo(s) of any trail erosion		
1.12	Domestic Pets	Count Dogs		
1.13a/b	Campfire/Camping	Count/ Take photo		
1.14	Outhouses	Inspect from bottom to top		
1.15	Snowmobiling	Count (remains of)		
1.16	Heli-skiing	Count (summer fly overs)		
1.17	High User Demands			

REPORT

Appendix B

Twenty-One Mile Creek Source Water Assessment

Resort Municipality of Whistler



D. Dobson, S. Lapp, B. Dawney. June 2015

Reference: 1636.0009.01

May 13, 2015 File: 1636.0009.01

Resort Municipality of Whistler
4325 Blackcomb Way
Whistler, BC
V0N 1B4

Attention: Michael Day,

RE: Final Twenty-One Mile Creek Source Water Assessment

Urban Systems is pleased to submit the final Twenty-One Mile Creek Source Water Assessment.

Please feel free to contact any of the undersigned should you wish to discuss any aspect of this report.

Sincerely,

URBAN SYSTEMS LTD.

Don Dobson, P.Eng.
Project Manager

Table of Contents

Appendices

Acronyms

Canadian Council of Ministers of the Environment	CCME
Megaliters	ML
Forest Stewardship Plan	FSP
Ministry of Forests, Lands, and Natural Resource Operations	MFLNRO
Petroleum Hydrocarbons	PHC
Resort Municipality of Whistler	RMOW
Total maximum daily load	TMDL
Trihalomethanes	THM
Vancouver Coastal Health Authority	VCH

Executive Summary

Introduction

Twenty-One Mile Creek serves as a significant source of drinking water for the Resort Municipality of Whistler (RMOW). Currently, RMOW protects the quality of water delivered to the community through compliance with regulations and guidelines set out in the *Water Act* (to be replaced by the *Water Sustainability Act*) and the *Drinking Water Protection Act*. However, a multi-barrier approach provides the best level of protection, including:

- Source Protection
- Treatment
- Water system maintenance
- Water quality monitoring
- Operator training
- Emergency response training

As shown in this list, *source protection* is a primary component of the multi-barrier approach. This is because both natural characteristics and anthropogenic uses of a watershed may introduce risks to the drinking water source, and managing these risks at the source level will better protect the source and may provide opportunities for cost savings at the treatment level.

As a condition of RMOW's drinking water operating permit issued by Vancouver Coastal Health, RMOW must develop a Source Protection Plan for the Twenty-One Mile Creek supply with reference to the *Comprehensive Source to Tap Assessment Guideline* (the Guideline). Therefore, RMOW initiated a water source assessment (the assessment) as defined under Part 3 of the *Drinking Water Protection Act* in order to develop a Source Protection Plan. As stated in the *Drinking Water Protection Act*, the intent of the source assessment is to:

- identify and evaluate the hazards to drinking water quality and quantity;
- characterize the risks; and
- propose risk management strategies.

The scope of the current assessment does not include developing the Source Water Protection Plan, which would assess the preliminary risk management strategies against defined criteria, identify the most effective strategy, and outline an implementation plan. This will be conducted under a separate exercise.

The purpose of this document is to provide a summary of the assessment process and findings, including the identified hazards, risks, and preliminary risk management strategies that seek to reduce risk at the source level.

Methodology

Modules 1, 2, part of 5, and 7 of the Guideline served as the foundation and framework for identifying hazards and risks to the Twenty-One Mile Creek source water quality and quantity. Building on these modules, preliminary risk management strategies were then identified as part of Module 8. This last exercise was conducted in collaboration with the project's Technical Advisory Committee (TAC), which is comprised of RMOW staff (representing utilities, parks, and environment); and the provincial government through the Ministry of Forests, Lands and Natural Resource Operations (MFLNRO).

Currently, drinking water from Twenty-One Mile Creek is disinfected through chlorination and ultraviolet (UV) radiation; however, in accordance with the Guideline, the assessment was conducted based on the assumption that the only treatment barrier that RMOW would have would be chlorination.

Hazards versus Risk

A *hazard* is something that has the potential to cause harm to a receptor, but may not (in the case of this assessment, the receptor is Twenty-One Mile Creek). Conversely, risk is the product of the *likelihood* of a hazard occurring and the potential *consequences* to elements at risk (the receptor). Risk is a function of likelihood, exposure, the value of the receptor, and the sensitivity of the receptor to the hazard, as illustrated below.

For this source assessment, a hazard can be considered the source of potential physical, biological or chemical contaminants or threats, which present risks to Twenty-One Mile Creek at the intake.

In accordance with the Guideline, the natural characteristics of the watershed were first assessed in order to identify natural hazards that may introduce contaminants or threats to Twenty-One Mile Creek. The anthropogenic uses of the watershed were then inventoried and again, potential contaminants and threats associated with those uses were identified. This resulted in a hazard and contaminant source inventory that was translated into a *qualitative* assessment of risk based on the likelihood and consequence of that contaminant/threat being exposed to the drinking water intake.

Summary of Findings

Risks were assessed based on the current state and use of the Twenty-One Mile Creek watershed and over a 10-year horizon. Some of these risks may increase over the long term as a result of such factors as climate change and anthropogenic uses; what is important is that measures are taken to address the highest risks to water quality and quantity and to prevent other risks from increasing over time.

For key intrinsic and anthropogenic risks, a set of preliminary risk management strategies were developed, as summarized in Tables 1 and 2, respectively.

In addition to the strategies identified in these tables, RMOW should consider the following:

- Monitor pollutant and sediment loading at intake and upstream of slumping to better inform future responses and to support potential filtration deferral
- Monitor hydrometric data from Twenty-One Mile Creek at the location of the original (decommissioned) station
- Review UVT and flow data to confirm that adequate dosing is maintained, and conduct additional water quality testing to determine why UVT is low at times when turbidity is also low.
- Continue TAC discussions once the Assessment is complete
    - Consider aligning with new provisions in the *Water Sustainability Act* for delegated authority for decision-making around water resources
- Remain apprised of, and participate in, development of regulations as part of the *Water Sustainability Act*, particularly regarding environmental flow needs, which may have implications for Twenty-One Mile Creek.

Table 1: Preliminary risk management strategies to address intrinsic risks.

Hazard (source)	Contaminant	Preliminary Risk Management Strategy	Comments
Natural snowmelt and rainfall (peak flows)	Sedimentation, turbidity, coloration	• Monitor water quality upstream of slumping to compare to quality at intake • Install a second intake further upstream of the slumping • Install an off-stream reservoir (storage) • Install an off-stream settling basin •	• These responses do not address the *source* of sedimentation but may provide an additional drinking water protection barrier
Slope instability **Debris flows**	Sedimentation, turbidity, coloration	• Slope stabilization	
Wildfire	Sedimentation, turbidity, coloration, organic content	• Fuel thinning activities have been outcomes of the recent wildfire studies: consider expanding to 21 Mile Creek watershed • Update the wildfire protection plan to account for the 21 Mile Creek watershed's natural infrastructure/assets	• Potential to fund (at least in part) through the utilities budget
Wildlife	Bacteria, protozoa	• Monitor fecal coliforms, including RNA or genomic analysis to identify source, to develop a baseline and better characterize the actual risks	• This response does not address the *source* of faecal coliforms, but may better inform future responses
Climate change	Impacts to water quantity, quality, wildfire risk	• Conduct a climate change impact and response study that considers both natural and built assets and infrastructure, and anticipates potential (future) permitting constraints under the new *Water Sustainability Act;* e.g., environmental flow needs • Address water demands through greater water conservation efforts	• This response does not address the *source* of the impacts, but may better inform future responses

Table 2: Preliminary risk management strategies to address anthropogenic risks.

Hazard (source)	Contaminant	Preliminary Risk Management Strategy	Comments
Non-motorized trail use **Domestic pets**	Sedimentation, turbidity, coloration Bacteria, protozoa	• Expand MFLNRO's approach to monitoring/reporting snowmobile use to trail use and presence of dogs in the watershed • Engage trail users in identifying responses to risks: • Increase education efforts with trail users • Seek input on enhanced signage to inform users of drinking water source (Community Watershed)	• It will be important to engage the users of trails in identifying the most effective risk management strategies
Snowmobiling	Petroleum products	• Continue MFLNRO's approach to monitoring and reporting snowmobile use	
Heli-skiing	Petroleum products	• Do not permit flying directly over Rainbow Lake, Gin and Tonic Lakes, or Twenty-One Mile Creek • Inform heli-skiing operators of the hazards posed by helicopters to the drinking water source	
High user demands	Impacts water availability	• Implement water use restrictions through bylaw • Implement water conservation measures • Inform users of importance of conservation	

1.0 Background and Purpose

1.1 Overview of RMOW's Drinking Water Source

Community watersheds in the province of British Columbia (BC) supply many local communities with their drinking water. These watersheds also have a variety of other uses including: forestry, mining, agriculture, urban development, and recreation, and are known as multi-use watersheds (BC Provincial Health Officer, 2001).

For the Resort Municipality of Whistler (RMOW), the primary source of drinking water is Twenty-One Mile Creek (which is supplemented by groundwater). RMOW has used Twenty-One Mile Creek as a drinking water source since 1985. In addition to providing the community with drinking water, the Twenty-One Mile Creek watershed is an important recreational resource in the area and multiple organizations are seeking to expand access to, and recreation within, this multi-use watershed.

1.2 Drinking Water Source Protection

The key to ensuring clean, safe, and secure drinking water is to implement multiple barriers throughout the drinking water system. The multi-barrier approach aims to reduce the risk of drin king water contamination, and to increase the feasibility and effectiveness of remedial controls or preventative options (Canadian Council of Ministers of the Environment (CCME), 2004). Source water protection is an important component of the multi-barrier approach to ensuring safe drinking water. The Action Plan for Safe Drinking Water in BC recognizes "source protection as a critical part of drinking water protection."

1.3 Purpose of Source Water Assessment

The *Drinking Water Protection Act,* established in BC in 2003, enables a Ministry of Health (MoH) drinking water officer to request a Source-to-Tap Assessment of drinking water supply systems across the province. These assessments are to be undertaken by the water supplier at the request of a drinking water officer. Surface water sources (lakes and streams) are open to the atmosphere, making these sources particularly vulnerable to contamination from anthropogenic activities and from natural sources in the watershed, such as: wildlife, landslides, fires or extreme runoff from heavy rain (BC Provincial Health Officer, 2001).

As a condition of RMOW's drinking water operating permit issued by Vancouver Coastal Health, RMOW must develop a Source Protection Plan for the Twenty-One Mile Creek supply with reference to the MoH's *Comprehensive Source-to-Tap Assessment Guideline* (2010), herein referred to as "the Guideline". Therefore, RMOW initiated a water source assessment (herein referred to as "the assessment") as defined under Part 3 of the *Drinking Water Protection Act,* so as to inform the development of the Source Protection Plan. As stated in the *Drinking Water Protection Act*, the intent of the assessment is to:

- identify and evaluate the hazards to drinking water quality and quantity;
- characterize the risks; and
- propose risk management strategies.

The scope of this current assessment does not include developing the Source Water Protection Plan, which would evaluate the preliminary risk management strategies against defined criteria, identify the most effective strategy, and outline an implementation plan. This will be conducted under a separate exercise.

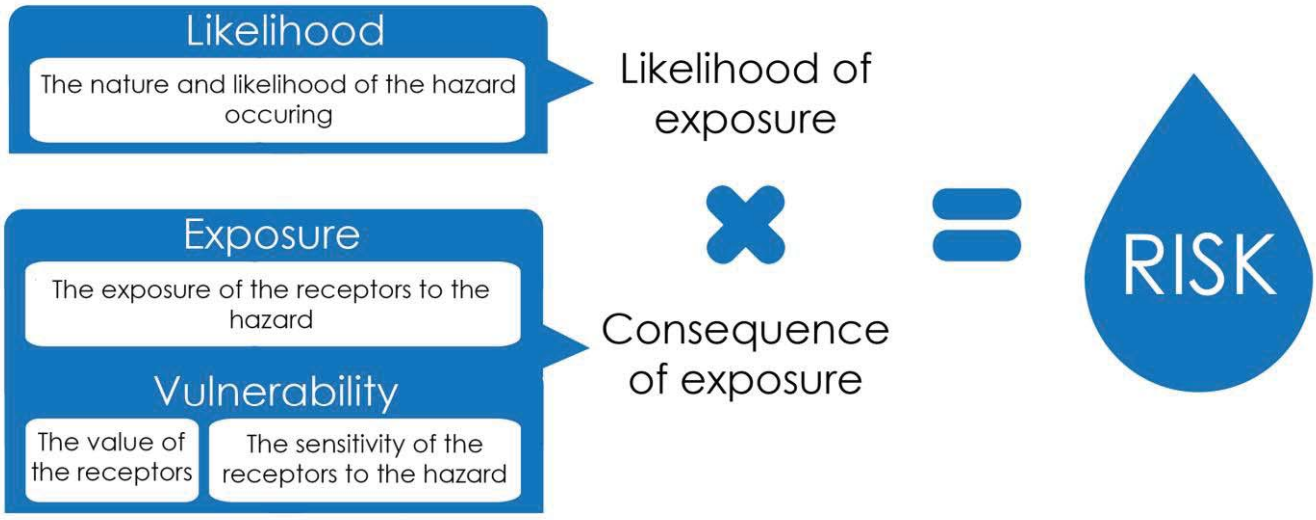
Twenty-One Mile Creek watershed was assessed in the late summer of 2014 according to selected modules of Guideline, as discussed in Section 2.0. This report summarizes the modules that were followed, the results of the assessment, and preliminary risk management strategies to protect this source.

1.4 Hazard and Risk

As this assessment ultimately focuses on risks to drinking water quality and quantity, and concludes with preliminary risk management strategies, it is important to differentiate hazard from risk:

Hazard: "a source of potential harm to the functioning of any aspect of the drinking water system or to human health" (Canadian Council of Ministers of the Environment, 2004).

Risk: the product of the *likelihood* of a hazard occurring and the potential *consequences* to elements at risk (the receptor). Risk is a function of likelihood, exposure, the value of the receptor, and the sensitivity of the receptor to the hazard, as illustrated below.



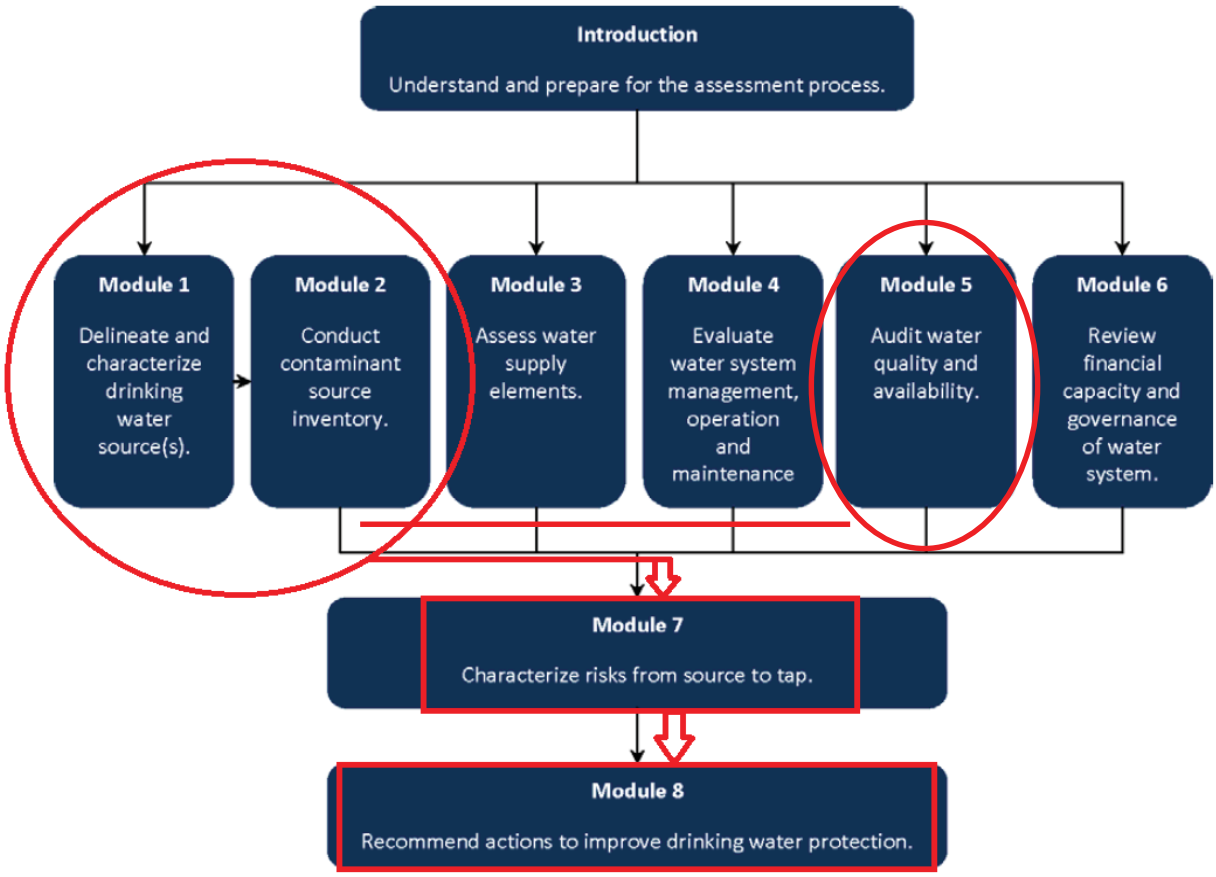
For this assessment, a hazard can be considered the source of potential physical, biological or chemical contaminants or threats, which present risks to Twenty-One Mile Creek (the receptor) at the intake based on their potential consequences to this source.

2.0 Introduction

2.1 Project Scope

As previously described, this source assessment was conducted to inform the development of a Source Protection Plan, which is required as a condition of the RMOW's operating permit. As per the drinking water officer's order, the assessment was to be conducted with reference to MoH's *Comprehensive Drinking Water Source-to-Tap Assessment Guideline*. In accordance with the scope of work developed by RMOW, this assessment was guided by Modules 1, 2, part of 5, and 7 and 8 of the Guideline (Figure 1.1). The five modules are summarized in the following sections.

Figure 1.1: Schematic of Comprehensive Drinking Water Source-to-Tap Assessment Guideline Process



Source: Adapted from the Comprehensive Drinking Water Source-to-Tap Assessment Guideline (BC Ministry of Health, 2010)

Module 1

- Delineate the contributing watershed.
- Define the assessment area in which to conduct the source characterization and potential contaminant source inventory.
- Characterize the watershed and water body.
- Evaluate the integrity and location of the intake.

Module 2

- Identify potential contaminant sources by reviewing:
    - existing sources of information.
    - historical and current land use.
- Conduct a contaminant source inventory of the watershed area upstream of the intake based on an office review of potential contaminants and reconnaissance field inspections.

Module 5

- Analyze raw and finished water quality trends.
- Verify if current treatment processes are adequate.
- Ascertain if the current water supply is sufficient to meet present and future water demands based on projected numbers.

Module 7

- Evaluate the public health protection barriers in place in the watershed.
- Provide a drinking water risk assessment based on the identified hazards and barriers.

Module 8

- Develop recommendations to improve drinking water safety and sustainability.

Source Assessment Report

This report summarizes the results of the modules and forms the basis for the Source Protection Plan, which will assess the preliminary risk management strategies against defined criteria, identify the most effective strategy, and outline an implementation plan. To be clear, the focus of the assessment is on hazards, risks, and risk management strategies at the *source* level, and not at the treatment level.

2.2 Methodology

Following the Guideline, the Twenty-One Mile Creek watershed assessment was carried out through a combination of literature review and field investigation activities, as summarized below.

Literature Review

Available resources that were reviewed as part of the Assessment are listed in Section 8.0, References. This report utilizes these previously published materials on Twenty-One Mile Creek watershed conditions and potential contaminants, but relies heavily on the results of the field assessments.

Field Investigation

A field investigation was conducted on August 20 and 21, 2014, both on the ground and aerially with a helicopter. Selected photographs illustrating field conditions and hazards are provided in Appendix B. The underlying methodology for the field investigation of this watershed was based upon the assessment components (i.e. peak flows and hydrological recovery, sediment source survey, reconnaissance level channel assessment procedure and a riparian assessment) that are outlined in the Watershed Assessment Procedure, Guidebook (1999). Assessment of the condition of stream channels was based on the Channel Assessment Procedure Field Guidebook (1996). Although the *Forest and Ranges Practices Act* has superseded the use of these guidebooks, these procedures are still considered relevant guidance for overview assessments of watersheds.

The contents of this report reflect the findings of both the literature review and the field investigation.

2.3 Licensed Stakeholders and Interested Parties

The provincial agencies and licensed stakeholders in the watershed with decision-making authority include:

- Vancouver Coastal Health
- Ministry of Forest, Lands and Natural Resource Operations (MFLNRO)
- Resort Municipality of Whistler
- Recreation Sites and Trails BC (RSTBC), which is a branch of MFLNRO

Parties with interests in the watershed include:

- Alpine Club of Canada (ACC)
- Whistler Off Road Cycling Association (WORCA)
- Outdoor Recreation Council
- Federation of Mountain Clubs of BC (FMCBC)
- Canadian Wilderness Adventures
- Local snowmobile clubs (Power Mountain Sled Club, Black Tusk Snowmobile Club, Sled Pemberton, etc.)
- Local heli-skiing companies (Whistler Heli-Skiing, Coast Range Heli-Skiing, etc.)

- Private snowmobile enthusiasts
- Private hiking enthusiasts

As indicated by the list of interested parties, their focus is primarily on the recreational use of the watershed.

2.4 Technical Advisory Committee

Section 19 of the *Drinking Water Protection Act* enables a drinking water officer to order a water supplier to prepare an assessment and Section 20 of the same act enables a drinking water officer to establish a technical advisory committee for the following purposes:

- Providing advice respecting directions to be given regarding the process, preparation, form, content, area of coverage and time for completing an assessment; and
- Reviewing the draft assessment before it is filed with the drinking water officer.

To fulfill these provisions, a technical advisory committee (TAC) was formed that included representatives from the Vancouver Coastal Health and MFLNRO provide input and offer review comments as the assessment was developed and the report was prepared.

The TAC for this assessment included the following participants:

- Resort Municipality of Whistler
  - Utilities
  - Environmental Stewardship
  - Parks Planning
  - Park and Village Operations
- Vancouver Coastal Health
  - Drinking Water
- Ministry of Forests, Lands and Natural Resource Operations
  - Recreation Sites and Trails BC

The TAC centered on representatives of organizations with decision-making authority for activities in, and protection of, the Twenty-One Mile Creek watershed.

2.5 Overview of RMOW's Water Sources and Infrastructure

RMOW operates two water systems: the community water system, supplied by surface and groundwater sources; and the Emerald Estates systems, supplied by groundwater sources. A summary of RMOW's water sources and service areas is provided in Table 2.1.

Table 2.1: Summary of RMOW's water sources and service areas.

Source	Name	Service Area	Primary Supply	Backup Supply
Surface Water	Twenty-One Mile Creek	Whistler Village Alpine Meadows Function Junction Rainbow Park	X	
	Blackcomb Creek*	-		X
Groundwater	Community Wells (4)	Whistler Village		X
	Alpine Wells (3)	Alpine Meadows		X
	Function Junction Wells (2)	Function Junction		X
	Cheakamus Crossing Well	Function Junction		X
	Twenty-One Mile Creek Well	Rainbow Park		X
	Emerald Wells (3)	Emerald Estates	X	

** Note: The Blackcomb Creek water supply was discontinued in 2012.*

The scope of this assessment is limited to the Twenty-One Mile Creek watershed, which is RMOW's primary water source and is designated as a Community Watershed (see Appendix A - Map). RMOW has a license to draw approximately 4,978 megaliters (ML) of water per year from Twenty-One Mile Creek as provided in waterworks license C128670/PD43526. There are no other licenses for withdrawals from Twenty-One Mile Creek. The authorized works associated with RMOW's license include an intake pond on the creek, a coarse screened intake and diversion structure, ultraviolet (UV) treatment and chlorine disinfection, and a distribution system. RMOW has no infrastructure upstream the Twenty-One Mile Creek intake.

As shown in Table 2.1, the only other significant source of drinking water for the community system is groundwater. Historically, Blackcomb Creek and Whistler Creek supplied water; however, these sources were not deemed to be reliable over the long term and RMOW has discontinued supply from these creeks for the community system. The increasing reliance on Twenty-One Mile Creek underscores the importance of protecting and sustaining the quality and quantity of this source.

3.0 Characterization of RMOW's Drinking Water Source (Module 1)

3.1 Section Overview

In accordance with the Guideline, the assessment began with delineating and characterizing the drinking water source area, and identifying natural biological, physical, and chemical hazards within this area.

This section references the following:

- map(s) showing:
    - watershed source area boundary,
    - important bio-geophysical information, and
    - the location of RMOW's Twenty-One Mile Creek intake, pipeline and associated works;
- delineation of the source and assessment area upstream of the intake;
- a description and characterization of the source area, including physical, biological and chemical hazards and vulnerabilities; and
- a summary of hazards in the Intrinsic Hazard Identification table.

3.2 Characterization of the Watershed

3.2.1 Overview of Watershed and Assessment Area

The Twenty-One Mile Creek watershed is a designated Community Watershed under the *Forest Practices Code of British Columbia* (designated June 15, 1995, CWS Code 119.007). The watershed area is approximately 28 square kilometers (km^2) and ranges in elevation from approximately 635 meters (m) at the confluence of Twenty-One Mile Creek with the River of Golden Dreams (originally Alta Creek), to 2,300 m at the peak of Rainbow Mountain. The intake is located at an elevation of 790 m. Access to the intake is via Alta Lake Road, past the cemetery, via a gated road. A map of the watershed is provided in Appendix A – Map. Signs approaching the intake indicate that it is a community watershed and RMOW's drinking water source.

The flow in Twenty-One Mile Creek is natural and glacier-fed: creek flow originates from Rainbow Lake, a sub-alpine lake located at an approximate elevation of 1,500 m and bordered by Rainbow Mountain and Mount Sproatt; as well as Gin and Tonic Lakes, which are glacial lakes located at an approximate elevation of 1,430 m.

The source water area is the portion of the watershed upstream of the water intake (located approximately 6 km downstream from Rainbow Lake) that supplies water to the water system (Appendix A); for this watershed, the source water area is approximately 27.5km^2. The assessed area for the Twenty-One Mile Creek source assessment includes the area defined as the contributing watershed upstream of the water intake as well as a 100 m radius intake protection zone surrounding the intake as recommended in the Guideline. Activities and conditions in this area determine the quality and quantity of water being supplied to the intake.

A summary of Twenty-One Mile Creek watershed details is provided in Table 3.1 below.

Table 3.1: Summary of Twenty-One Mile Creek watershed characteristics

Watershed Area	28.2 km^2
Watershed Code	119-467100-98100-53600
Mainstem Length	10.61 km
Mainstem Order	3
Headwaters	Rainbow Lake; Gin and Tonic Lakes
Maximum elevation	2,300 m
Intake elevation	790 m
Source water (residual) area	Approximately 27.5 km^2

At the time of the field investigation the watershed generally appeared to be in excellent condition. Areas of instability and slides connected to the creek channel a short distance upstream from the intake were observed during the helicopter fly over. Field measurements for channel width, stream depth, and slope, and observations on stream stability were made approximately 3.5 km upstream of the intake. At this location, in the vicinity of the intake, and in tributaries to Twenty-One Mile Creek, large woody debris was present. Overall the channel was in stable condition. Steep canyon walls made it challenging to easily access the creek, which helps protect the water quality from human or animal disturbances. Photographs 6 through 12 showing the main channel and tributaries are provided in Appendix B.

3.2.2 History of the Watershed

Twenty-one Mile Creek has been used as a drinking water source by RMOW since 1985 and became RMOW's primary community water supply in 1987. The following is a summary of the events in the watershed that has a history of flooding, instability and associated erosion and sedimentation issues upstream of the intake:

- In 1969, an unstable steep slope was observed at the water intake, upstream of Alta Lake Road
- In 1973, a very active lower channel was observed, as well as several small side slope failures
- In 1982, the onset of substantial re-vegetation from historic logging activities was observed as well as partial stabilization of the creek channel. One forest service road fill slope failure reaching to the channel was observed on the south side of the creek at an elevation of 870 m.
- Flooding in 1991 caused significant turbidity spikes and erosion upstream of the intake.

The Twenty-One Mile Creek watershed has no recent logging; however, stands from the lower to middle areas in the watershed were harvested from 1963-1965 (personal communications with MFLNRO). There are no current or historical mineral claims in the watershed. The primary competing interest in the watershed is recreation. Trails for non-motorized use currently provide access to and traverse areas throughout the watershed and heli-skiers are dropped off at the headwaters by Rainbow Lake for backcountry skiing. Several non-governmental organizations (Alpine Club of Canada, Whistler Off-Road Cycling Association, etc.) are seeking to expand the trail

network to and within the watershed. Additionally, the RMOW has indicated interest in expanding the non-motorized use of the watershed to promote tourism in the area. Recently, the watershed has experienced increased snowmobile traffic, although this is not permitted by RMOW.

Historically, Twenty-One Mile Creek discharged into Alta Lake, which then drained both north into Green Lake via the River of Golden Dreams (Alta Creek) and south into Nita and Alpha Lakes. In the early 1900's during the construction of the BC Rail line, the upper portion of the River of Golden Dreams was significantly altered and a permanent diversion of Twenty-One Mile Creek was constructed into the River of Golden Dreams approximately 1km downstream of its confluence at Alta Lake. This diversion did not affect areas upstream of the current intake.

3.2.3 Water Licences

RMOW holds one waterworks licence on Twenty-One Mile Creek, C128670/PD43526 as shown in Table 3.2. It is the only licence for withdrawal from this source.

Table 3.2: Resort Municipality of RMOW Water Licences

Licence Number	WR Map (Point Code)	Quantity*	Water District	Priority Date
C128670	92.J.016.1.3 E (PD43526)	4,977,979 m^3 / year (4,978 ML / year)	NW – KENT	1985/08/22

* cubic meters per year (m^3 / year)

* megalitres per year (ML / year)

RMOW has a license to draw approximately 4,978 ML of water per year from Twenty-One Mile Creek. Withdrawals have never exceeded the permit; water demands are discussed in greater detail in Section 5.3.

3.2.4 Climate and Climate Change

Climate can influence both the quantity and quality of the source water in the Twenty-One Mile Creek watershed. Whistler experiences cool, wet winters and warm, dry summers as a result of the predominantly north-easterly-flowing air masses off the Pacific Ocean. The slow melting snowpack helps keep soil moisture levels high during the summer. The heavy snowfall created the large glaciers that dominate and shape the Coastal Mountains, including Rainbow Glacier.

The Environment Canada Climate Normals (1981-2010) relevant to Twenty-One Mile Creek watershed are for the Whistler weather station (ID 1048898) situated at an elevation of 657.8 m. The average temperature in July is 16.4 ˚C, and average January temperature is -2.1 ˚C. Annual rainfall is recorded at 855.9 mm, snowfall is 419 cm, and total precipitation is 1,228 mm.

Along the south coastal region of BC, wildfires, flooding, and drought are all potential symptoms of climate change. Climate change projections have been developed for Coastal BC using the Regional Analysis Tool (Pacific Climate Impacts Consortium, 2014) for the 2050s (2040-2069 period). Projections for the region include: higher summer and winter temperatures, declining mountain snow packs due to a shift from snowfall to rain

during the winter, longer and drier summers, and sudden heavy rains. A snowmobile investigation report from August 2011, documented snow at Rainbow Lake; however, during the field investigation in August 2014, there was no snowpack at Rainbow Lake. Variations year-to-year are to be expected; it is the overall observed and anticipated trends that should be considered.

Changes in natural water systems due to climate change include: melting glaciers, lower summer stream flows (low flows), increased winter stream flows (peak flows), more frequent wildfires, and outbreaks of forest health issues. Higher temperatures will result in earlier snowmelt that may affect upland lake levels (Gin and Tonic and Rainbow Lakes). The magnitude of the combined effects of climate change, related decreased water availability, and increased demand are not known.

3.2.5 Geology, Geomorphology and Terrain

The Twenty-One Mile Creek watershed is located in the Coastal Mountain range. The watershed is oval shaped in a northwest to southeast direction with the headwaters in the northwest area. Twenty-One Mile Creek is a typical coastal mountain stream with a steep and generally impervious drainage basin, subject to intense, short lived floods.

The Twenty-One Mile Creek watershed is underlain by the middle Jurrasic granodiorite of the Coast Range Plutonic Complex. The lower portion of the watershed rock consists of intermediate felsic and mafic volcanic rocks, conglomerates, sandstones and shale. The watershed consists of a U-shaped glacial valley with steep valley side walls. The lower portion of Twenty-One Mile Creek channel process of channel down cutting has resulted in V-shaped valley side walls resulting in the occurrence of terrain instability and slumping connected to the creek. Areas of natural instability were observed during the aerial tour at several mid-elevation points upstream of the intake. These observations are illustrated in Photographs 18 - 20 in Appendix B. These areas of instability may potentially impact the quality of the water in the stream by increasing turbidity levels.

3.2.6 Vegetation

At high elevations in the watershed, subalpine meadows and forest openings begin to occur in the higher mountain Hemlock and Alpine Tundra biogeoclimatic zones. The lower elevation stands in the moist sub-maritime Coastal Western Hemlock biogeoclimatic zones, consisting of coniferous mixed forest with western hemlock, mountain hemlock, interior Engelmann spruce, Douglas fir and lodgepole pine.

3.2.7 Fish and Wildlife

The watershed contains a diversity of habitats for healthy populations of deer, marmots, black and grizzly bears, mountain goats, cougars, coyotes and wolves. A search using Habitat Wizard indicated that Rainbow Trout are located at higher elevations and throughout the entire length of the channel. Dolly varden are located at lower elevations and kokanee below the natural falls, which acts as a fish barrier. During the field investigation, fish were observed surfacing in Rainbow Lake.

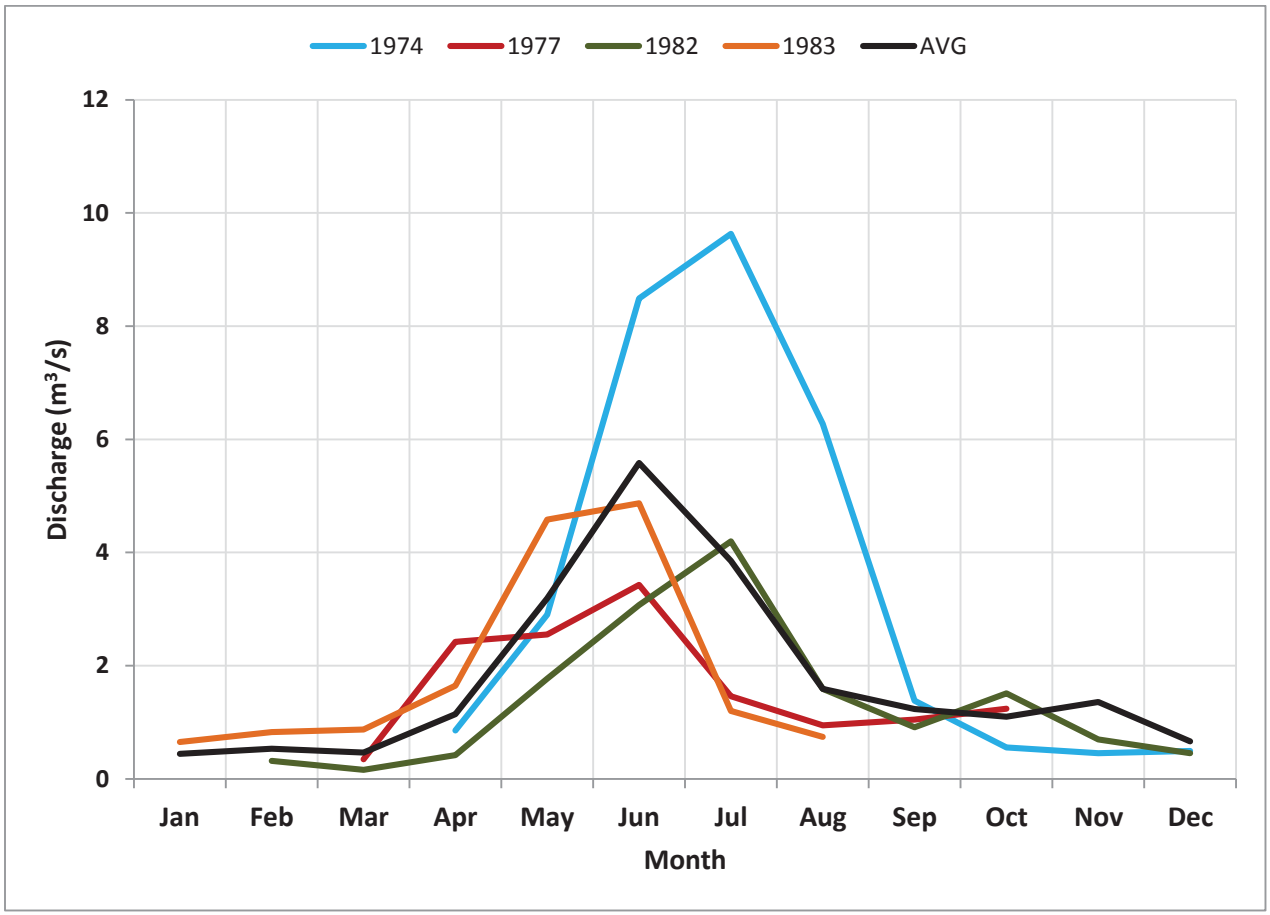
3.2.8 Hydrology

As previously discussed, Twenty-One Mile Creek is a third order, glacier-fed and snow-dominated hydrologic system with a drainage area of approximately 28.2 km^2, of which approximately 27.5 km^2 is residual (upstream of

the intake). The Gin and Tonic Creek sub-basin has an area of approximately 6 km^2 and is located on the southwest side of the creek. The confluence with the Twenty-One Mile Creek mainstem is approximately 4.5 km upstream of the intake.

From 1972 to 1985, a hydrometric station (08MG021) operated at 670 m along Twenty-One Mile Creek; however, the station is no longer active and no hydrometric data exist between 1985 and present day. Hydrometric data with such a short record is insufficient to effectively discuss long-term source resiliency. However, the small amount of data available does show that there are substantial variations in the occurrence of snowmelt-related peak flows demonstrated by peaks in May, June and July. Figure 3.1 illustrates the hydrographs for 1974, 1977, 1982, 1983 and the average for these years. Table 3.3 shows the measured mean monthly discharge in Twenty-One Mile Creek for the 1972-1985 period.

Figure 3.1: Monthly hydrographs for Twenty-One Mile Creek (1974, 1977, 1982, 1983 and average) based on station (08MG021).



To further evaluate the current hydrologic condition and typical runoff in the Twenty-One Mile Creek watershed, Fitzsimmons Creek was evaluated as it is the only other active hydrometric station (08MG026) in the region with 20 years of data (1993-2012). The area above Fitzsimmons Creek hydrometric station is three times larger than that of the Twenty-One Mile Creek hydrometric station. Fitzsimmons Creek is also located on the south side of the Whistler valley. Estimated mean monthly discharge of Twenty-One Mile Creek were adjusted using the unit area discharge from Fitzsimmons Creek for the 1993-2012 period (Table 3.4). The estimated flows reasonably capture the monthly discharge for all months except the peak flows from April through June as shown in Table 3.4 relative to Table 3.3.

Table 3.1: Measured mean monthly discharge (m^3/s) of Twenty-One Mile Creek (1972-1985).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Measured Twenty-One Mile Creek Mean Monthly Discharge (m^3/s)	0.44	0.53	0.47	1.15	3.19	5.58	2.85	1.59	1.24	1.10	1.36	0.67

Table 3.2: Estimated mean monthly discharge (m^3/s) of Twenty-One Mile Creek based on Fitzsimmons Creek (1993-2012).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Estimated Twenty-One Mile Creek Mean Monthly Discharge (m^3/s)	0.57	0.46	0.59	0.78	1.57	2.68	2.79	2.02	1.32	0.97	0.93	0.66

The annual peak flows typically occur between May and June in Twenty-One Mile Creek. Intense summer and fall rainstorms can also cause increased stream flows over a short period of time (hours to days). However, the magnitude of the rain-generated stream flow events are less than the annual snowmelt generated peak flow events.

3.2.9 Mountain Pine Beetle

Mountain pine beetle (MPB) infestations affect watershed hydrological processes through the loss of forest canopy and decreased evapotranspiration when the pine beetle kills the mature pine trees in a stand. This can alter the water balance by: increasing water yields as a result of decreased evapotranspiration and increased rain and snow reaching the ground; increased soil moisture and hillslope flow; changes in site level energy balances leading to earlier onset of spring snowmelt; more rapid streamflow response to storms; increased total stream flow, and; increased magnitude and frequency of peak flows (Winkler et al. 2008). Watershed elements potentially at risk from the hydrological effects of MBP include water quality, water quantity and fish populations and habitat.

The MPB was present in Twenty-One Mile Creek watershed however the extent of mature lodgepole pine leading stands are limited to an area in the mid-to-lower elevations of the watershed (iMapBC 2.0). Overall the beetle has had a negligible impact on the visual quality and hydrology of the watershed.

3.2.10 Wildfires

Wildfires destroy the forest cover and expose soils. The changes to the hydrology of the burned areas can include increased runoff, resulting in degraded water quality due to increased sediment loads and the release of nutrients (primarily phosphorus and nitrogen in the form of nitrate) and dissolved organic compounds. Based on available

information through iMAP BC and other reports, there is no documented history of wildfire in the Twenty-One Mile Creek watershed.

Although there is no documented history of wildfire within the watershed, due to the high fuel loads, wildfires are a concern. The potential for human caused fires increases with increased recreation use, in particular during the dry season when wildfire risk can be high. In watersheds affected by mountain pine beetle, there may be an increased risk of wildfires due to the production of fuel loads from tree mortality. However, as discussed in the previous section, MPB infestation in the Twenty-One Mile Creek watershed is limited.

Due to the success in suppressing wildfires that the province has experienced for the past 50 years, fuel loads in the forests including those in the Twenty-One Mile Creek watershed have been increasing and the hazard is now considered high. During the field investigation, fuel loads were identified primarily in the form of dead or dying and fallen trees.

The RMOW Community Wildfire Protection Plan (CWPP) as updated in 2012 (personal communications with Heather Beresford, RMOW) has identified areas for fuel management below the intake in Twenty-One Mile Creek watershed. The RMOW CWPP and the Landscape Scale Fire Behavior Modelling (Blackwell, 2013) reports determine the risk areas in residential and outlying areas and the need for fuel break work such as interface tree thinning, brush and tree limb removal and communications to inform the community.

3.3 Twenty-One Mile Creek Water Intake Characterization

The Twenty-One Mile Creek water intake is located on the main channel at 790 meters elevation, approximately 2 km upstream from the confluence with the River of Golden Dreams as shown on the Map (Appendix 1 - Map) (Photo 1 and 2) and within close proximity to the Rainbow Lake hiking trail. The intake works include a concrete weir and intake on the southwest bank of the creek with screens to prevent coarse particles from passing into the pipeline connecting the intake to the treatment and distribution system approximately 150 m away. The access to the intake is restricted by a security fence and gate as is the water treatment plant building nearby.

3.3.1 Infrastructure

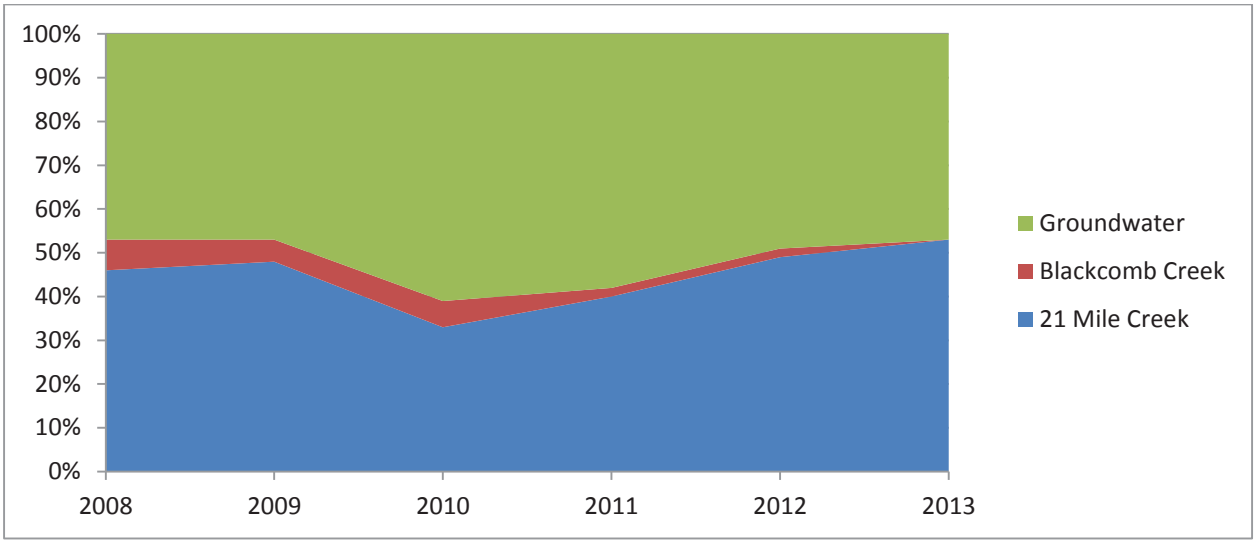
The authorized works associated with RMOW's drinking water license include an intake pond and weir, a screened intake pipeline, turbidity meter and automated shut-off valve, UV treatment and chlorine disinfection, and a distribution system. Specific details regarding the treatment and distribution are found in Section 5.5.

3.3.2 Backup Water Sources

During periods of acceptable water quality, Twenty-One Mile Creek remains the primary source of drinking water for the community system. However, during periods of turbidity (greater than 1 nephalometric turbidity unit (NTU)) the intake is closed and water is supplied by groundwater via a number of groundwater wells. The Emerald Estates neighbourhood is served solely by groundwater. Historically, Blackcomb Creek and Whistler Creek supplied relatively more water; however, these sources were not deemed to be reliable over the long term and RMOW has generally discontinued supply from these creeks. It is important to note that the current demand projections for the community system reveal that with Twenty-One Mile Creek offline, the maximum-daily demands cannot be satisfied by the existing groundwater supply wells.

A breakdown of RMOW's annual water system return and relative percentage of use from 2008 to 2013 is provided in Figure 3.2.

Figure 3.2 Annual water system return and relative percentage of use per source



As shown in Figure 3.2, Twenty-One Mile Creek has become an increasingly significant source of water for the community system, particularly over the past couple years. That being said, groundwater is an important supplemental source as noted in 2010 during drought conditions. Supply from Blackcomb Creek was discontinued in 2012. This demonstrates the importance of protecting and sustaining the water quality and supply of Twenty-One Mile Creek.

3.3.3 Vulnerability

The intake was designed without an off-stream configuration to divert water from the creek intake pond through an intake situated on the bank of the pond that is screened to the treatment plant via a pipeline (Photographs 1 and 2 - Appendix B). With this type of design the intake is less vulnerable to extreme events that produce high sediment loads as well as in-stream debris. Whistler has an in-line turbidity meter and automated valve that closes when the turbidity in the intake water exceeds 1 NTU. Overall the intake works are well designed and are considered to have low to moderate vulnerability to damage during high flow events.

The quality of Twenty-One Mile Creek is generally good, such that the only treatment it undergoes prior to distribution to the community is coarse screening and disinfection (through a combination of UV and chlorination). Historically, most issues regarding water quality have been with turbidity, which occurs during periods of high flows. During the field investigation, surface water appeared to have low turbidity in Twenty-One Mile Creek, Rainbow Lake, and tributaries.

An audit of the surface water quality is provided in Section 5.4 (part of Module 5 of the assessment).

3.3.4 Water Demands

RMOW experienced rapid population growth between 1988 and 1998, with an annual growth rate of 13 percent per year. Growth has since slowed to an average rate of 1.3 percent per year. In 2010, the resident population was 10,531 (BC Statistics). As a Resort Municipality, the number of people in the community on a given day is greater than the resident population or counts provided by Canada Census or BC Statistics estimates. In 2010, the estimated number of people in Whistler overnight averages 28,122 – almost 2.5 times greater than the permanent residents.

Currently there are no plans to increase the license withdrawal on Twenty-One Mile Creek or to implement filtration on Twenty-One Mile Creek to ensure the source can be used during periods when turbidity is greater than 1 NTU. It is recognized that if Twenty-One Mile Creek was offline during a maximum day demand event, the municipality would be unable to meet the demands (Water Supply Update, 2011). A detailed review of population projections, distribution and demand management is outside the scope of this assessment. Further details are provided in Section 5.3.

3.4 Intrinsic Hazard Identification Summary

Based on the literature review of available resources and the findings of the field investigation, the historical, current, and potential future intrinsic (natural) hazards that may exist in the watershed are summarized in Table 3.6.

Table 3.3: Intrinsic (natural) hazard identification summary

Hazard No.	Drinking Water Hazard	Possible Effects	Existing Preventative Measures (at the Source Level)	Associated Barrier (at the Source Level)
1.1	Natural snowmelt and rain events (peak flows)	Sediment and nutrient influx into watercourses Increase in turbidity and colour parameters Unless filtered, particulate matter can reduce disinfection effectiveness	Intake management in the form of gravel removal at the diversion structure	Intake pond (coarse sediments) Intake screens (coarse solids only) In-line turbidity meter and automated shut-off valve
1.2	Slope failure	Sediment and nutrient influx into watercourses Increase in turbidity and colour parameters Debris flood	Some slope stabilization upstream of intake Routine inspection and maintenance of upland roads and infrastructure, and slope inspections	Intake pond (coarse sediments) Intake screens (coarse solids only) In-line turbidity meter and automated shut-off valve

Hazard No.	Drinking Water Hazard	Possible Effects	Existing Preventative Measures (at the Source Level)	Associated Barrier (at the Source Level)
1.3	Debris flood	Sediment and nutrient influx into watercourses Increase in turbidity and colour parameters Damage to intake	None identified	Intake pond (coarse sediments) Intake screens (coarse solids only) In-line turbidity meter and automated shut-off valve
1.4	Rockfall	Increase sediment and turbidity	None identified	None identified
1.5	Wildlife	Introduction of pathogenic bacteria: *Escherichia coli (E. coli*) and protozoa (*Giardia lamblia* and *Cryptosporidium parbum*)	None identified	No source protection; treatment includes UV and chlorination
1.6	Mountain Pine Beetle	Increase in overland flows resulting in sediment and nutrient influx to watercourses Earlier onset of snowmelt Increase in flashiness following storm events Increase in wildfire potential Increase in turbidity and colour parameters	None identified	None identified
1.7	Wildfire	Formation of water repellant soils, leading to increased overland flows and erosion Nutrient loading in watercourses Changes in vegetation species composition Potential destabilization Increase in turbidity and colour parameters	The province issues bans on campfires when fire risk is greatest	None identified
1.8	Climate Change	Increase in annual temperature Increase in precipitation as rain Less snowpack (storage) Increase in agricultural demand and domestic outdoor water use Increase in evapotranspiration Wetter winters and drier summers	Water conservation	None identified

4.0 Contaminant Source Inventory (Module 2)

4.1 Section Overview

The intrinsic hazard identification summary (Section 3.4) identified historical, current and potential future natural hazards within the assessment area. These natural hazards may introduce contaminants to the drinking water source. Additionally, land use and human activity (anthropogenic hazards) may introduce contaminants. Ultimately, these contaminants may present risk to the drinking water source due to their potential consequences of exposure.

A contaminant source inventory involves identifying and describing contaminant sources identified through the literature review and field investigation. Because the emphasis of the assessment is on public health, particular attention is paid to hazards that may introduce contaminants that may have acute effects on health. This section provides the following information:

- Potential contaminant sources identified in Module 1 (intrinsic hazards);
- Anthropogenic hazards and associated contaminant sources;
- A contaminant source inventory summary based on both intrinsic and anthropogenic hazards; and
- A hazard identification summary based on both intrinsic and anthropogenic hazards.

4.2 Natural Contaminant Sources

Section 3.0 (Module 1) characterized the intrinsic processes and associated hazards in the Twenty-One Mile Creek watershed. The primary contaminants associated with these processes include:

- **Physical:** Sediment and dissolved organic content loading (as a result of peak flows and slope instability);
- **Chemical:** Nutrient loading (as a result of wildfire); and
- **Biological:** Pathogen loading (as a result of wildlife activity).

4.3 Anthropogenic Contaminant Sources

4.3.1 Access Roads

Ground disturbance from roads and skid trails can lead to soil compaction, reduced infiltration, shallow groundwater interception in road cuts, and redirection of intercepted water to streams. These processes can increase the “flashiness” of watershed response to rain and snowmelt, and contribute to elevated peak flows. In turn, this flashiness may result in erosion and increase sediment loading.

A private road (accessible by vehicle by RMOW staff only) provides access to the intake and to the Rainbow Mountain hiking trail a few hundred meters upstream of the intake. No historical issues associated with this access road were found during the literature review. The access road was in good condition at the time of the field

investigation and no signs of erosion or instability were noted. Access road conditions are illustrated in Photograph 3 in Appendix B. Previous forestry activity (Section 4.3.2) that resulted in logging roads have since grown with alder and other shrubs and are no longer accessible for recreation use.

4.3.2 Forest Development

Loss of forest cover changes the watershed hydrology. Forest development activities can impact channel stability and riparian function through the removal of vegetation which plays a role in stream bank and channel stability. Forest practices generally improved with the introduction of the Forest Practices Code (FPC) in 1994 and the *Forest and Range Practices Act* in 2003, but sediment delivery to streams remains an issue at some stream crossings in the province.

As previously described, the Twenty-One Mile Creek watershed is not currently logged; however, forest from the lower to middle areas in the watershed were harvested from 1963-1965. In five main blocks, approximately 190 hectares was logged within the watershed. This may have negatively impacted the quality of Twenty-One Mile Creek at the time of logging and for a number of years post-harvest. The harvested blocks were all replanted from 1965 to 1974, so all openings are now considered to be at the Free to Grow stage.

Twenty-One Mile Creek watershed is part of the Cheakamus Community Forest (CCF) (Appendix C), established in 2009 to oversee the management and operation of the forest under a 24-year tenure with the MFLNRO. The majority of the watershed is classed with forests aged over 250 years, other than a few areas aged 80- 250 years with the recent logging being classed less than 79 years (Cheakamus Community Forest, 2014). The Sea to Sky Land and Resource Management Plan (LRMP) Wildlands Zone covers most of the watershed upstream of the drinking water intake and clearly states that no commercial harvesting will occur in the zone. The area below the Wildlands down to the CCF boundary is identified as an Interface Forest Development Unit in the CCF's Forest Stewardship Plan (FSP). The FSP is the legal binding document that guides operations and balances a wide range of economic, social and environmental values. Currently, the CCF has an allowable annual cut of 20,000 cubic meters.

Evidence of historical logging was shown in the areas of regeneration that were observed during the field investigation, as shown by variable tree colour and size in the area of known historical logging. As the watershed has not been logged in several decades, there was no evidence of adverse impacts of logging on water quality or quantity during the field investigation and it is not anticipated that the historical logging presents hazards or contaminants to this drinking water source.

4.3.3 Recreational Activities

Overview

As previously discussed, in addition to providing community drinking water, the watershed has also been a source of recreation in the area. Heli-skiers are often dropped off at the headwaters by Rainbow Lake for backcountry skiing in the winter and a variety of trails for non-motorized use currently provides access to and traverses areas throughout the watershed. A number of non-governmental organizations, including the Alpine Club of Canada, Canadian Wilderness Adventures, and the Whistler Off-Road Cycling Association, are interested in expanding

their trail networks to the watershed, as is the RMOW. The watershed is also a popular destination for snowmobile enthusiasts, although this activity is not permitted by RMOW.

Recreational uses are the primary anthropogenic threat to the Twenty-One Mile Creek watershed's continued use as the community's drinking water supply. Currently the MFLNRO holds three Section 17 – Reserves, which means it is conditionally withdrawn from disposition and any Crown land within this area will not be available for disposition for activities not deemed compatible with the terms of the withdrawal. These particular areas are set aside for commercial recreational interests (personal communications with MFLNRO). Recreational use in the watershed can result in the introduction of the following contaminants:

- Sediment loading from maintenance and new trail construction;
- Sediment loading from erosion as a result of increased trail use;
- Pathogens, including fecal coliforms, from humans and domestic pets;
- Chemicals such as petroleum hydrocarbons (PHCs) from snowmobiles and helicopters; and
- Nutrient loading from wildfires triggered by campfires.

Generally, with continued expansion of trail networks throughout the watershed, there will be increased opportunities for access into this sensitive area and increased potential for the introduction of contaminants into Twenty-One Mile Creek. These anthropogenic hazards are discussed in greater detail in the following sections.

Trail Use

RMOW currently has plans to expand the trail network within the watershed and to connect external trails to the watershed. As illustrated in RMOW's 2013 Sproatt/Rainbow Trail Network Concept Plan (Appendix C), the plans for trail construction and maintenance in and around the Twenty-One Mile Creek watershed from 2013 to 2015 include the following:

- Re-working and maintenance on Rainbow Trail (2013);
- Construction of a new trail connecting Rainbow Trail with another new trail network to Mount Sproatt (2015);
- Construction of a new trail on the south side of Rainbow Mountain, connecting the Rainbow Heli-drop Trail to Rainbow Lake (2015);
- Construction of a new trail to connect Gin and Tonic Lakes to a new external trail network along the ridge between the Twenty-One Mile Creek and Callaghan watersheds (2014); and
- Other future construction of new trails in the southeast part of the watershed, to connect Rainbow Trail with the Flank Trail and Mount Sproatt (year to be determined).

Due to its access to Rainbow Lake and its access to Hanging Lake, Madeley Lake and Beverly Lake (where camping is permitted), the Rainbow Trail is a popular choice for both day hikers and backcountry campers. At the time of the field investigation (mid-week), approximately five other hikers were observed on Rainbow Trail. RMOW maintains a trail counter database to monitor the number of hikers along Rainbow Trail. Data from 2012 and 2014 is provided in Table 4.1. It is assumed that most hikers do a return trip hike, therefore the trail counter data should be divided by two to accurately account for the actual number of users.

Table 4.1: Trail counter data for Rainbow Trail (2012)

Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
n/d*	n/d	161	221	462	1,298	1,586	1,285	736	n/d	n/d	n/d	5,749
n/d	n/d	n/d	n/d	369	940	1,279	1,677	n/d	n/d	n/d	n/d	n/d

* No data (n/d) available

Based on available data, it is unknown how usage of Rainbow Trail is trending and to what extent the construction of new trails connecting to Rainbow Trail will have an impact on the watershed. However, it is known that trail construction may result in increased runoff and associated sedimentation issues, which may in turn negatively impact water quality downstream. Additionally, increased human use in the watershed may result in virus and bacteria introduction through human and domestic pet waste.

During the field investigation, trail conditions appeared to be generally good with the exception of a trail reach approximately 4.5 km upstream of the intake, where trail maintenance and construction was being conducted. This reach of trail maintenance and construction was located in a relatively saturated area and localized drainage issues were observed. This may increase sediment loading downstream as a result of localized overland flows. Conditions around Rainbow Lake were found to be good; no evidence of campsites or campfires or other signs of human activity were observed, other than the trails. Several signs are posted along Rainbow Trail indicating that the trail is located within RMOW's community watershed and that pets are prohibited, as is camping at Rainbow Lake; however, two dogs were observed on the trail and at Rainbow Lake during the field investigation.

Visual observations along Rainbow Trail and at Rainbow Lake are illustrated in Photographs 13-16 - Appendix B.

Outhouses

There are three outhouses in the watershed:

- 300 m up from the Twenty-One Mile Creek chlorination building;
- 3.5 km point on the Rainbow Tail from the trailhead (~2.5 from the intake); and
- 7.7 km point on the Rainbow Trail, down gradient of Rainbow Lake (~6.7 from the intake).

Signs are posted on the outhouses to communicate that the watershed provides RMOW's drinking water supply (Photograph 5 - Appendix B). Based on the current location of the outhouses of a couple hundred meters away from the creek, they are not anticipated to present a hazard to Twenty-One Mile Creek (rather, they are a preventative measure).

Snowmobiling

Although it is not permitted, it is known that snowmobile enthusiasts have been accessing the watershed during the winter months and based on anecdotal evidence, this activity is increasing. This has the potential to introduce contaminants from petroleum products, such as PHCs and other compounds, into Twenty-One Mile Creek. The operation of snowmobiles in the watershed will not likely impact the quality of water, excepting exceptional equipment failures, collisions and accidents, or refueling slipups that resulted in significant spills of fuels, oils, and debris.

In August 2011, two abandoned snowmobiles were reported to RMOW staff. The snowmobiles were located within the riparian area of Rainbow Lake at the base of a southwestern tributary (approximately 50° 09' 14" N, 123° 04' 19" W). A site inspection was completed by staff and an environmental consultant visually, both from helicopter and on the ground. Based on the findings of the site inspection, adverse residual impacts associated with the machines were expected to be negligible; however, this case demonstrates the risk that snowmobile activity may present to the drinking water source.

Snowmobile use in alpine areas also has the potential to increase the risk of avalanches, which may damage water infrastructure and affect water quality downstream.

Heli-skiing

Rainbow Lake is a popular drop-off point for backcountry heli-skiers. Blackcomb Aviation currently provides this service in the watershed. Skiers do not present a significant hazard to Twenty-One Mile Creek, with the exception of the potential to trigger an avalanche. The primary hazard associated with heli-skiing is the helicopter, which, like snowmobiles, may introduce PHCs and other compounds into the watershed in the event of a fuel leak, emergency landing or crash near the water course; otherwise it is expect that heli-skiing will have minimal impact to the water quality.

4.4 Contaminant Source Inventory Summary

The potential contaminant sources identified in the previous sections are summarized in Table 4.2.

- Types of contaminant sources within the assessment area;
- Nature of contaminants of concern that have been or potentially could be released;
- Location of contaminant sources within the assessment area and licensee or jurisdiction; and
- Distance to the intake.

The locations of contaminant sources are illustrated on Appendix B – Location of photos.

Table 4.2: Contaminant Source Inventory Summary

Potential Contaminant Source Type and Description	Licensee/ Jurisdiction	Location	Distance to the Source (intake)	Potential Contaminants of Concern
Natural Processes				
Snowmelt and rainfall (peak flows)	Crown RMOW	Throughout Crown land upstream of intake	Varies	Physical (sedimentation, dissolved organic content)

Potential Contaminant Source Type and Description	Licensee/ Jurisdiction	Location	Distance to the Source (intake)	Potential Contaminants of Concern
Slope failure	Crown RMOW	Throughout Crown land upstream of intake	Varies	Physical (sedimentation, dissolved organic content)
Debris flows	Crown RMOW	Throughout Crown land upstream of intake	Varies	Physical (sedimentation, dissolved organic content)
Rockfall	Crown RMOW	Upstream of intake	~500 m	Physical (sedimentation)
Climate change	Crown/ RMOW	Throughout Crown land upstream of intake	Varies	Physical (sedimentation, dissolved organic content)
Mountain Pine Beetle	Crown/ RMOW	Throughout Crown land upstream of intake	Varies	Physical (sedimentation, dissolved organic content)
Wildlife	Crown/ RMOW	Throughout Crown land upstream of intake	Varies	Biological (fecal coliforms, *E. coli*, protozoa, viruses)
Wildfire	Crown RMOW MFLNRO	Throughout Crown land upstream of intake	Varies	Physical (sedimentation, dissolved organic content) Chemical (nutrients)
Anthropogenic Uses				
Access roads	RMOW	Access road to intake and Rainbow Lake hiking trail	Varies	Physical (sedimentation, dissolved organic content)

Potential Contaminant Source Type and Description	Licensee/ Jurisdiction	Location	Distance to the Source (intake)	Potential Contaminants of Concern
Non-motorized trail use	RMOW MFLNRO	Throughout the watershed upstream of intake	Varies	Physical (sedimentation, dissolved organic content) Biological (fecal coliforms, *E. coli*, protozoa, viruses)
Domestic pets	RMOW	Throughout the watershed upstream of intake	Varies	Biological (fecal coliforms, *E. coli*, protozoa, viruses)
Outhouses	RMOW	See Section 4.3	See Section 4.3	Biological (fecal coliforms, *E. coli*, protozoa, viruses)
Snowmobiling	RMOW	Throughout the watershed upstream of intake	Varies	Chemical (petroleum products)
Heli-skiing	RMOW	Throughout the watershed upstream of intake	Varies	Chemical (petroleum products)
Wildfire (camping)	RMOW	Throughout the watershed upstream of intake	Varies; permitted outside the watershed	Physical (sedimentation, dissolved organic content) Chemical (nutrients)

4.5 Summary of Hazards to Drinking Water Quality and Quantity

Based on the literature review of available resources and the findings of the field investigation, existing and potential source hazards (and associated contaminants of concern) were identified. Intrinsic hazards were identified in Module 1, and anthropogenic hazards were identified in Module 2 during the contaminant source inventory. Identification of these hazards is essential to development of the Twenty-One Mile Creek Source Water Protection Plan, which will address the risks posed by these hazards.

The Hazard Identification Summary in (Table 4.3) provides the following:

- Types of hazards within the assessment area;
- Physical, biological and chemical contaminants associated with the hazards;
- Potential effects of hazards at the source level;
- Measures in place to prevent introduction of contaminants to the source water; and
- Existing preventative measures and associated barriers at the source level.

Table 4.3 Summary of Intrinsic and Anthropogenic Hazards and Contaminants

Hazard No.	Drinking Water Hazard	Potential Contaminants	Possible Effects	Existing Preventative Measures (at the Source Level)	Associated Barrier (at the Source Level)	Contaminant Transport Mechanism	Comments	Report Section No.
1.1	Snowmelt and rainfall (peak flows)	Physical (sediment, organic content)	Sediment and nutrient influx into watercourses Increase in turbidity and colour parameters > 1 NTU	Intake management in the form of sediment basin gravel extraction	Intake pond (coarse sediments) Intake screens (coarse solids only) In-line turbidity meter and automated shut-off valve	Stream flow Overland flow	Sources are variable and natural characteristics of the watershed are a significant contributor to these contaminants. Spring runoff can result in overland flow that can increase the delivery of contaminants to streams. Rainstorms can also result in overland flows. Off-stream diversion, settling and intake may reduce the vulnerability of the existing water quality to high turbidity, peak flows, etc.	3.2.4 3.2.5 3.2.8
1.2	Slope failure	Physical (sediment, dissolved organic content) Chemical (nutrients)	Sediment and nutrient influx into source watercourses Increased turbidity and colour parameters Debris flood	Some slope stabilization upstream of intake Routine inspection and maintenance of upland roads and infrastructure, and slope inspections	Intake pond (coarse solids only) Intake screens (coarse solids only) In-line turbidity meter and automated shut-off valve	Slope failures can act as a transport mechanism themselves as they can deposit contaminants into the source water above the intake. Overland flows	The valley upstream of the intake has a history of slope stability issues. Soil erosion potential ranges from medium to high, and very high in a few locations. Natural slips are common throughout the watershed. Given that landslides have impacted the water quality and quantity upstream of the intake in the past, there is a potential that they will occur in the future. The presence of unstable, steep slopes pose a significant hazard to water quality at the intake.	3.2.5
1.3	Debris flood	Physical (sediment, dissolved organic content) Chemical (nutrients)	Sediment and nutrient influx into source watercourses Increased turbidity and colour parameters Damage to intake	None identified	Intake screens (coarse solids only) In-line turbidity meter and automated shut-off valve	Debris floods can act as a transport mechanism themselves as they can deposit contaminants into the source water above the intake.	Debris floods are dependent upon slope failures	3.2.5
1.4	Rockfall	Physical (sediment)	Sediment and nutrient influx into source watercourses Increased turbidity and colour parameters	None identified	None identified	Streamflow	Substantial rockfall hazard near the water intake. Rock consists of quarts diorite and does not produce many fines.	3.2.5

Hazard No.	Drinking Water Hazard	Potential Contaminants	Possible Effects	Existing Preventative Measures (at the Source Level)	Associated Barrier (at the Source Level)	Contaminant Transport Mechanism	Comments	Report Section No.
1.5	Wildlife	Biological (fecal coliforms, *E. coli*, protozoa)	Introduction of pathogenic bacteria: *Escherichia coli (E. coli*) and protozoa (*Giardia lamblia* and *Cryptosporidium parbum*)	None identified	Source protection treatment (UV and chlorination)	Wildlife itself is a carrier May deposit on the ground and be transported by overland flows May deposit directly in a watercourse	All warm-blooded wildlife species (including birds and mammals) are capable of carrying and disseminating fecal coliforms and *E. coli* and their presence in the watershed results in a base level of hazard.	3.2.7
1.6	Mountain Pine Beetle	Physical (sediment, organic content)	Increase in overland flows resulting in sediment and nutrient influx to watercourses Earlier onset of snowmelt Increase in flashiness following storm events Increase in wildfire potential Increase in turbidity and colour parameters	None identified	None identified	Overland flows	The potential of MPB infestation in the Twenty-One Mile Creek watershed is limited based on the availability of mature lodgepole pine. MPB attacks increase the wildfire risk.	3.2.9
1.7	Wildfire	Physical (sediment, organic matter) Chemical (nutrients)	Formation of water repellant soils, leading to increased overland flows and erosion Nutrient loading in watercourses Changes in vegetation species composition Potential destabilization Increase in turbidity and colour parameters	The province issues bans on camp fires when fire potential is greatest	Source protection treatment (UV and chlorination)	Overland flows	Fuel management treatments could be undertaken (i.e. reductions in canopy closure and ground fuels) to reduce the intensity of fires and to increase access for fire fighters. The potential for chemical contamination of drinking water from nutrients following a burn is a concern.	3.2.10

Hazard No.	Drinking Water Hazard	Potential Contaminants	Possible Effects	Existing Preventative Measures (at the Source Level)	Associated Barrier (at the Source Level)	Contaminant Transport Mechanism	Comments	Report Section No.
1.8	Climate Change	Physical (sediment, organic content)	Increase in: annual temperature, precipitation as rain and evapotranspiration Less snowpack (storage) Increase in domestic outdoor water use Wetter winters and drier summers Increased sediment events in winter	Water conservation	None identified	Overland flows Snowmelt	The exact rate and extent of changes in the watershed due to climate change are unknown; therefore, approaches for protecting the long-term quality and quantity of surface water must be adaptable.	3.2.4
1.9	Roads	Physical (sediment, organic content) Chemical (petroleum products)	Erosion of roads, resulting in increased runoff and sedimentation Slumping along creek	Intake is gated	None identified	Overland flow	Historic logging roads were overgrown, the only road of concern is above the intake to Rainbow Lake hiking trial.	3.2.1 4.3.1 4.3.2
1.10	Forestry	Physical (sediment, organic content)	Increased runoff and sedimentation	None identified	None identified	Overland flow	Logging activity took place ~50 years, the watershed is no long susceptible to forestry impacts	4.3.2
1.11	Non-motorized Trail Use	Physical (sediment, organic content) Biological (fecal coliforms, *E. coli*, protozoa)	Erosion of trails, resulting in increased runoff and sedimentation Refuse within the watershed Introduction of pathogenic bacteria (*E. coli*) and protozoa (*Giardia lamblia* and *Cryptosporidium parbum*)	Signage at the trail head, along the trail and at Rainbow Lake	Source protection treatment (UV and chlorination)	Overland flows Humans	Trails provide opportunities for increased transport of contaminants to the source water via humans Erosion of existing trails and construction of new trails may increase sediment loading on watercourses	4.3.3
1.12	Domestic Pets	Biological (fecal coliforms, *E. coli*, pathogens)	Introduction of pathogenic bacteria: *Escherichia coli* (*E. coli*) and protozoa (*Giardia lamblia* and *Cryptosporidium parbum*)	Signage indicating that snowmobiling is not permitted	Source protection treatment (UV and chlorination)	Pets themselves are a carrier of contaminants	Pets are not currently permitted in the watershed; however, they have been observed	4.3.3

Hazard No.	Drinking Water Hazard	Potential Contaminants	Possible Effects	Existing Preventative Measures (at the Source Level)	Associated Barrier (at the Source Level)	Contaminant Transport Mechanism	Comments	Report Section No.
1.13	Campfire	Physical (sediment, dissolved organic matter) Chemical (nutrients)	Formation of water repellant soils, leading to increased overland flows and erosion Nutrient loading in watercourses Changes in vegetation species composition Potential destabilization Increase in turbidity and colour parameters	Signage indicating that camping is not permitted at Rainbow Lake	The province issues bands on campfires when fire risk is greatest Source protection treatment (UV and chlorination)	Humans introduce the campfire hazard Contaminants resulting from a campfire-induced fire are transported via overland flows	Campfire locations were not observed	4.3.3
1.14	Outhouses	Biological (fecal coliforms, *E. coli*, protozoa)	Introduction of pathogenic bacteria (*E. coli*) and protozoa (*Giardia lamblia* and *Cryptosporidium parbum*)	Appropriate location within the watershed relative to watercourses	Source protection treatment (UV and chlorination)	Groundwater, unless it is a closed system	Location (gradient) of outhouses with respect to watercourses is essential to preventing contamination Outhouses are also a preventative measure for non-point source contamination	4.3.3
1.15	Snowmobiling	Chemical (petroleum products)	Potential introduction of fuel (petroleum products) in the watershed	Signage indicating that snowmobiling is not permitted	None identified	Snowmobiles transport fuels (petroleum products) Overland flow Streamflow	Abandoned snowmobiles previously found within riparian area of Rainbow Lake	4.3.3
1.16	Heli-skiing	Chemical (petroleum products)	Triggering of an avalanche, which may damage water infrastructure and affect water quality Potential introduction of fuel (petroleum products) in the watershed	None identified	None identified	Helicopters transport fuels Overland flow Streamflow	None	4.3.3

4.6 Cumulative Effects

While minor contributions of contaminants (whether suspended sediment, bacteria or chemicals) considered individually may pose a limited risk to water quality, collectively they result in potential cumulative impacts on the drinking water supply. This is complicated by the inherent difficulty in managing for contaminants on a watershed scale because BC legislation does not define Total Maximum Daily Loads (TMDL) and background loading sources and non-point source inputs are almost untraceable.

Sediment contributions from recreational users in the watershed are an increasing concern because there is very limited legislation to control it. As recreational use increases in the watershed, so does the risk of the introduction of biological hazards, i.e., *Giardia*, *cryptosporidium* and viruses from humans and domestic animals (dogs); and of human caused wildfires and associated and chemical contaminants, i.e., petroleum products.

These issues underscore the importance of developing a watershed plan where all stakeholders and the public work collaboratively to manage cumulative effects.

5.0 Audit Water Quality and Availability (Module 5)

5.1 Objectives

In accordance with the scope of work required by RMOW in the Request for Proposals (RFP), the assessment included an audit of water quality and availability (supply side assessment only). More specifically, as outlined in the terms of reference, the project team was required to:

"Confirm the long-term sustainability of Twenty-One Mile Creek as a significant source of drinking water for the RMOW to year 2030 and beyond. If changes to Twenty-One Mile Creek water supply infrastructure (such as treatment, slope stabilization, etc.) will be required to retain Twenty-One Mile Creek as a municipal water supply over the long term, the general nature and approximate timing of such changes are to be determined."

The Guideline lists the assessment components for Module 5 as:

1. Analyze raw and finished water quality trends;
2. Determine if current treatment type and practices are effective;
3. Ascertain if the current water supply is sufficient to meet present and future water demands;
4. Evaluate the adequacy of the current monitoring and reporting program; and
5. Evaluate customer vulnerability and satisfaction.

To meet the scope of the RFP, items 1, 2 and 3 were conducted as part of this assessment; and items 4 and 5 were excluded as they are outside the scope of work.

5.2 Methodology

To complete items 1, 2 and 3, a detailed information review and correspondence with RMOW was conducted to fill any information gaps identified. Information was gathered through report reviews and field investigations and included:

1. Raw and finished water test results;
2. Information on the current treatment systems;
3. Information on distribution systems to the first customer;
4. Health requirements for filtration exemption; and
5. Information on water licenses and future plans for water supply.

5.3 Water Demands

Currently the RMOW is authorized to divert 4,977,979 m^3/year for waterworks purposes provided that the maximum daily diversion rate does not exceed 22,730 m^3 (263 liters per second (L/s)). Table 5.1 summarizes the current yearly breakdown of Twenty-One Mile Creek compared to other water sources:

Table 5.1: Summary of intrinsic and anthropogenic hazards and contaminants

Water Source	2010		2011		2012		2013	
	M^3	% of Total Water	M^3	Percent of Total Water	M^3	Percent of Total Water	M^3	Percent of Total Water
R231 - Twenty-One-Mile Creek	1,889,371	33.2%	2,112,143	40.0%	2,632,365	49.2%	2,794,284	52.6%
Other water sources	3,809,949	66.8%	3,163,004	60.0%	2,715,730	50.8%	2,514,175	47.4%
Total	5,699,320		5,275,147		5,348,095		5,308,459	

The Dayton & Knight report "Rainbow Park Well Field and Twenty-One Mile Creek UV Treatment System Design Brief" was reviewed and the following information was noted on historical water demands for flow records during the period of 2004 to 2007:

1. The maximum peak occurred in January 2005 and was 266 L/s;
2. The 95th percentile for the data was 130 L/s;
3. The maximum use is restricted by the system hydraulics;
4. Demand analysis completed by the RMOW and Dayton & Knight as part of the April 30, 2007 memo based the analysis on available flow in Twenty-One Mile Creek of 120 L/s;
5. The total Village build-out demand is estimated by the RMOW to be 288 L/s;
6. It was recommended that the initial capacity of the Twenty-One Mile Creek treatment system would be adequate for 150 L/s with 100% redundancy; and
7. Future build out of the Twenty-One Mile Creek was noted to be equivalent to the current diversion license capacity.

The Water Supply Update 2011 prepared by Opus Dayton Knight was also reviewed. This report provides a detailed supply analysis and summarizes the supply source capacity shown in Table 5.2:

Table 5.2: Supply Source and Capacity

Water Supply Source	Current Installed Pump Capacity (L/s)	Additional Aquifer Capacity (L/s)
Alpine		
W202	34.7	
W210	22.1	
W213	18.9	
Sub-Total Alpine	76	
South Whistler		
W212	38	
Athletes Village	61	60[3]
W 1-79 (Function Junction)[a]		28.4
Sub-Total South Whistler	99	88.4
Village		
Community Well Field[1]	60	43
W218 (Twenty-One Mile Aquifer)	75	65 - 82[2]
Twenty-One Mile Creek	158	
Blackcomb Creek	0	
Sub-Total Village	293	108 – 125
Total Supply	**468**	**196 - 213**
Total Installed and Additional Supply	**664 - 681**	

[1] Community well field design capacity is 103.4 L/s. However, based on input from RMOW's operations staff, the maximum sustainable flow is 60 L/s.

[2] Based on the Whistler Groundwater Resources report by Piteau Associates on January 9, 2012, new wells at Twenty-One Mile Aquifer can provide an additional 65 L/s, without environmental assessment, or an additional 82 L/s as a maximum safe yield with environmental assessment.

[3] Based on the Whistler Groundwater Resources report by Piteau Associates on January 9, 2012, new wells in the vicinity of W217 can provide a sustainable additional supply of 60 L/s.

[4] W 1-79 is a private well and it is currently not in use due to potential water contamination.

The report concludes that the "Village area has a supply deficiency of 17 L/s at build-out when Twenty-One Mile Creek is online and a deficiency of 175 L/s when it is offline". In the report Twenty-One Mile Creek is assumed to have a supply capacity of 120 L/s. Note that the 158 L/s in the table above refers to capacity of P280 – Twenty-One Mile Creek Pump Station. The licensed capacity of the creek is 263 L/s and the report "Rainbow Park Well Field and Twenty-One Mile Creek UV Treatment System Design Brief" indicates that the hydraulic capacity of the intake system is much greater. Currently the UV treatment system is sized for 150 L/s with 100% redundancy.

Dayton & Knight prepared a report entitled "Water Supply Strategy Update" in November 2007. The report goes into detail about the historical studies on Twenty-One Mile Creek and available water supply. It notes the following:

In 2004 KWL completed the report "Long Term Water Supply Plan" for the RMOW. It was stated in the report that the 50-year return period, 1-day low flow, for Twenty-One Mile Creek is 73 L/s in winter and 137 L/s in summer. The 20-year return period, 1-day low flow, was stated to be 88 L/s and 156 L/s for winter and summer, respectively.

Dayton & Knight went on to review the available hydrological data on Twenty-One Mile Creek and produced the following table:

21-MILE CREEK FLOW DATA

Month	Average L/s	10-Year Low Flow (L/s)	25-Year Low Flow (L/s)
January	465	287	214
February	431	218	146
March	465	170	94
April	932	417	263
May	2,309	1,189	775
June	3,980	1929	1,220
July	3,407	1,800	1,236
August	1,882	762	440
September	1,211	490	288
October	967	459	288
November	1,039	353	189
December	386	295	192

The report further notes that a minimum flow is required for aquatic organisms and that historically Twenty-One Mile Creek has supplied around 120 L/s. The 120 L/s became the baseline for evaluating the RMOW's source supply and capacity.

There is a large discrepancy between the flow data provided by Dayton & Knight in the table above and what was stated by KWL in 2004. However the approach used by Dayton & Knight makes use of existing hydrometric data and flow data on Fitzsimmons Creek as a surrogate watershed. It is also worth noting that the 25-year low flow estimates drop below the licensed volume in January, February, March, November, and December.

Based on the information review, the current licensed volume is sufficient to support the needs of the village in combination with the other source supply strategy. However, the future supply capacity is less certain when considering climate change, given that this creek is primarily dependent on snowpack and glaciers for supply. Climate change projections indicate a decline in snowpack and glaciers can be expected, which will have an impact on the available flow in Twenty-One Mile Creek, particularly during the summer and fall seasons.

Moving forward it will be difficult to monitor flow trends without a hydrometric station on the creek. The RMOW should consider installing a hydrometric station so that flow trends can be monitored and correlated with snowpack levels. This will help the RMOW predict how vulnerable the supply is to the changing climate and plan accordingly.

5.4 Water Quality

5.4.1 Raw Water

Grab sample water quality data was provided for the years 2010- 2014 for the Twenty-One Mile Creek Sampling Point R-231 SS#436. Table 5.3 includes all the sampling parameters, max readings, units, and comments for each parameter. Some key comments on the data:

1. Water quality is generally good;
2. Alkalinity is very low as is pH on occasion. Low alkalinity and low pH will cause the water to be corrosive and will limit the creek's ability to neutralize acids, but these parameters are not a health concern;
3. *E.Coli* has 21 detects in the data set with a maximum of 24.3 MPN/100ml;
4. Total coliforms has 95 detects in the data set with a maximum reading of 2419.2 MPN/100 ml; and
5. Turbidity has 11 exceedances in the data set with the maximum reading 7.54 NTU.

Table 5.3 Raw Water Sampling Parameters

Sample Parameter	Max Reading	Units	Comment
1,2-Dichloroethane	< 1.0	micro g/L	
Alkalinity (phenolphthalein, as CaCO3)	< 0.5	mg/L	
Alkalinity (total, as CaCO3)	16	mg/L	Very low
Aluminum (total)	< 50	micro g/L	
Antimony (total)	< 0.001	mg/L	
Arsenic (total)	< 0.005	mg/L	
Barium (total)	< 0.05	mg/L	
Benzene	< 0.0005	mg/L	
Beryllium (total)	< 0.001	mg/L	
Bicarbonate (as HCO3)	16.8	mg/L	
Boron (total)	< 0.05	mg/L	
Cadmium (total)	< 0.0001	mg/L	
Calcium (total)	7.59	mg/L	
Carbonate (as CO3)	< 0.5	mg/L	
Chloride	0.85	mg/L	
Chromium (total)	< 0.005	mg/L	
Cobalt (total)	< 0.5	micro g/L	
Colour	10	TCU	
Conductivity	48.2	microS/cm	
Copper (total)	< 0.002	mg/L	
Escherichia coli / E. coli (MPN / PA)	24.3	MPN/100mL	21 detects in the data set
Ethylbenzene	< 1.0	micro g/L	
Fluoride	0.14	mg/L	
Hardness (total, as CaCO3)	20.5	mg/L	
Heterotrophic Plate Count / HPC	88	CFU/mL	
Hydroxide (as OH)	< 0.5	mg/L	
Iron (total)	< 0.10	mg/L	
Langelier Index	-2		
Lead (total)	< 0.001	mg/L	
m- + p- Xylene	< 1	micro g/L	
Magnesium (total)	0.365	mg/L	
Manganese (total)	< 0.002	mg/L	
Mercury (total)	< 0.5	micro g/L	
Methyl tert-butyl ether / MTBE	< 4	micro g/L	
Molybdenum (total)	1	micro g/L	
Nickel (total)	< 2	micro g/L	
Nitrate (as N)	0.037	mg/L	
Nitrate + Nitrite (as N)	0.037	mg/L	
Nitrite (as N)	< 0.010	mg/L	
o-Xylene	< 0.5	micro g/L	
pH	7.97		Note min was 5.9; 3 below Guideline in data set
Phosphorus (total)	< 0.2	mg/L	
Potassium (total)	0.541	mg/L	
Selenium (total)	< 0.005	mg/L	
Silicon (total, as Si)	< 5	mg/L	
Silver (total)	< 0.5	micro g/L	
Sodium (total)	1.16	mg/L	
Styrene	< 0.5	micro g/L	
Sulfur (total)	< 3	mg/L	
Sulphate	6.44	mg/L	
Temperature	22.8	degrees C	
Toluene	< 1.0	micro g/L	
Total coliforms (MPN / PA)	2419.2	MPN/100mL	95 detects in the data set
Total dissolved solids / TDS	40	mg/L	
Total Organic Carbon / TOC	3.1	mg/L	
Total Xylenes	< 2.0	micro g/L	
Turbidity	7.54	NTU	
Uranium (total)	< 0.0002	mg/L	
Vanadium (total)	< 10	micro g/L	
Volatile Petroleum Hydrocarbons C6-	< 300	micro g/L	
Volatile Petroleum Hydrocarbons C6-	< 300	micro g/L	
Zinc (total)	< 0.04	mg/L	

On-line continuous turbidity readings were provided from April 2003 to September 2014 in hourly intervals. It was noted that turbidity readings exceeded 1 NTU at times for all months in the data set except:

- August 2006,
- January 2008,
- January 2009,
- January 2012, and
- August 2012.

Turbidity readings reached a maximum of 10 NTU; it is our understanding that the meter does not provide readings for turbidity higher than 10 NTU. Readings are taken continuously if the source is in use or not.

The data set available is limited and therefore it is difficult to comment on any emerging trends. However, there are studies that demonstrate that bacterial counts are well correlated to high turbidity events and warmer temperatures. Turbidity is also well correlated to high stream flow events. As water quality monitoring moves forward it would be useful to collect data to determine the correlations for Twenty-One Mile Creek. This will be a useful indicator on what the community can expect for future water quality given that climate change scenarios suggest that there will be larger peak flow events and warmer water temperatures.

5.4.2 Treated Water

On-line continuous UV transmittance (UVT) readings were provided from March 2010 to September 2014 in hourly intervals. It was noted that UVT readings fell below the design criteria of 85% when turbidity was less than 1 NTU for all months except:

- March, April, May, July, and August of 2011;
- September of 2012; and
- January, June and August of 2013.

Readings were as low as 50% when turbidity was less than 1 NTU. The readings did not seem to have a direct correlation with turbidity readings.

Comprehensive water quality data was reviewed for the collection system downstream of the intake after the other well sources are mixed with Twenty-One Mile Creek water. The only item noted (not already discussed under Section 5.4.1) was that iron and manganese exceeded the Canadian Drinking Water Guidelines on a number of samples. This is not a health concern but does not meet the water quality aesthetic objectives. The source of the iron and manganese is likely from one of the well water sources.

Bacteriological samples for the distribution system were reviewed from January 2006 to October 2014. The following counts were noted:

- July 22, 2014 10 coliforms per 100 ml at 8330 Rainbow Drive Alpine Meadows on the Whistler Main.
- October 16, 2012 2 coliforms per 100 ml at 1300 Mount Fee Road Athlete's Village on the Whistler Main.
- October 24, 2009 5 coliforms per 100 ml 1305 Cloudburst Drive Athlete's Village on the Whistler Main.
- August 5, 2009 25 coliforms per 100 ml 1305 Cloudburst Drive Athlete's Village on the Whistler Main.

- October 23, 2007 2 coliforms per 100 ml 5428 Stonebridge Drive Stonebridge Whistler Main.
- October 8, 2008 3 coliforms per 100 ml 4297 Mountain Square Whistler Village Whistler Main.

The bacteriological data provided does not raise any concerns.

Trihalomethane (THM) test data was reviewed and the highest value noted was 44.1 micrograms per litre. Haloacetic acids (HAA) data was also reviewed and it was noted the highest value was 50 micrograms per litre. Both of these are below the Canadian Drinking Water Guidelines.

Free chlorine, turbidity, pH, and temperature data were reviewed for the distribution system and it was noted that chlorine often dropped below the minimum of 0.2 mg/L at the end of the distribution system and occasionally dropped to 0 mg/L. Turbidity was occasionally higher than 1 NTU with the highest reading being 24.4 NTU. pH occasionally dropped below 6.5 and went above 8.5. Temperature was occasionally above 15 ^{o}C.

5.5 Treatment and Distribution

5.5.1 Treatment

Twenty-One Mile Creek Raw water has the following treatment before it is consumed by the first customer:

1. Coarse particle screening (3.2 mm x 3.2 mm);
2. Turbidity monitor linked to automatic valve that closes when turbidity reaches 1 NTU;
3. Trojan UVSwift 30 reactors
    a. Design flow 150 L/s per train (two trains)
    b. UVT design at 254 nm: minimum 85%
    c. Minimum design dose: 40 mj/cm2
4. ClorTec CT-100 onsite chlorine generator: dose 0.7 to 1 mg/l free chlorine
5. Plug flow contact time provided before the first customer.

Dayton & Knight designed the UV and chlorination system to meet the 4-3-2-1-0 treatment objectives. The Dayton & Knight report “Rainbow Park Well Field and Twenty-One Mile Creek UV Treatment System Design Brief” was reviewed and it was noted that the UV system is designed for 150 L/s with 100% redundancy. Dayton & Knight notes the following on plug flow contact time:

> *Chlorination of the surface water will be adequate to maintain 4-log virus treatment based on the flows from Twenty-One Mile Creek, the in pipe contact time will be adequate to achieve 4-log virus treatment, as follows:*

- *Minimum water temperature = 0.5 ^{o}C*
- *CT required = 12 mg/L-min*
- *Baffle factor = 1.0 (in pipe contact time)*
- *Residual free chlorine = 1.0 mg/L*

Flow from the Rainbow Park Pump station will be a mixture of Twenty-One Mile Creek surface water and the groundwater. The distribution system hydraulics will cause a portion of the flow to utilize the Lorimer Road Tie-in and the balance will flow through the Alta Lake Crossing. To achieve the required contact time in the water main to the Alta Lake crossing the existing PRV which services the 715 pressure zone, near Rainbow Park, will have to be replaced by a PRV near the existing Alta Lake crossing. The available watermain along Alta Lake Road which can be used for contact time is therefore approximately 1400 metres of 400 mm diameter, which provides a CT of 12 mg/l-min at a flow of 244 L/s. The flow through this watermain has never historically exceeded 150 L/s. The available contact time in the Lorimer Road Tie-in water main is adequate to provide 24 mg/L-min at the total maximum flow of 415 L/s (assuming Alta Lake Crossing off-line).

Summary of Water Quality Audit

Based on the review of the information provided, the treatment system is adequate to meet the 4-3-2-1-0 treatment objectives. It is worth noting that flows do occasionally exceed the treatment capacity of one reactor resulting in the use of both reactors eliminating the system redundancy. However, these are rare occurrences and the system is further backed up by groundwater supplies in case one of the reactors is off line.

5.5.2 Distribution

Review of the distribution system to evaluate customer vulnerability and satisfaction was outside the scope of this report. Additionally, the review and evaluation of the adequacy of the current monitoring and reporting program was beyond the scope of this report.

A review of the distribution system that forms a portion of the treatment system for plug flow contact time to the first customer is provided in Section 5.4.

5.6 Filtration Exemption

5.6.1 Regulatory Requirements

Table 5.4 summarizes the water quality objectives that the RMOW is recommended to achieve to continue filtration exemption. These objectives were developed based on Health requirements and Guidelines for Canadian Drinking Water Quality (GCDWQ). The MoH applies a discretionary standard that addresses protozoa, turbidity, and risk reduction, as well as bacteria and viruses. This is known as the 4-3-2-1-0 treatment objective, and can be summarized as follows:

- 4: 4 log (99.99%) inactivation of Viruses
- 3: 3 log (99.9%) inactivation of Protozoa (*Giardia Lamblia* and *Cryptosporidium Parvum*)
- 2: Minimum of two barriers for microbiological protection
- 1: Maximum of 1 NTU Turbidity
- 0: Zero Total or Fecal Coliforms

In addition, MoH adopts the GCDWQ for Maximum Acceptable Concentration (MAC) for other constituents, as shown in the following table.

Parameter	Goal / Limit
Viruses (log-Inactivation)	4
Giardia (log-Inactivation)	3
Cryptosporidium (log-Inactivation)	3
Fecal Coliforms (No./100mL)	0
Turbidity (NTU):	1
pH (-)	6.5 – 8.5[1]
Iron (mg/L)	0.3
Manganese (mg/L)	0.08
Trihalomethanes (THM), mg/L	0.100
Haloacetic acids (HAA5; five species),	0.080
N-Nitrosodimethylamine (NDMA)[2]	0.04

1 pH data shows 3 samples below 6.5.

2 NDMA guideline is currently under consideration by Health Canada

5.6.2 Filtration Exemption Requirements

Based on the source water quality, Twenty-One Mile Creek source water appears to be good candidate for continued filtration examption. Data analyzed between 2011 and 2014 demonstrate compliance with most criteria set out by the MoH in the 2014 GCDWQ (Section 3.5). Table 5.4 summarizes a brief description of some of the main considerations relevant to the decision to exempt a waterworks from the filtration requirement, as summarized from Section 3.5 of the GCDWQ and the MoH “Drinking Water Treatment Objectives (Microbiological) for Surface Water Supplies in British Columbia (November 2012).

Table 5.4: Consideration for Filtration Exemption

Health	RMOW
Source water protection Vulnerabilities assessment Contingency or emergency response planning	• The RMOW is in the process of creating a plan to protect their watershed. The first stage of this work is this Source Water Assessment.
Inspection and verification	• The RMOW regularly inspects the functioning and integrity of monitoring devices, treatment and distribution components.
4-log removal/inactivation of viruses and 3-log inactivation of protozoa, using two disinfection processes.	• Drinking water is treated using UV disinfection targeting 3-log inactivation of protozoa (*Cryptosporidium* and *Giardia*). • The existing chlorination process provides 4-Log removal/inactivation of viruses.
≤10% of the source water *E. coli* exceed 20/100mL in any 6 month period	• Criteria met[2]. One sample in the data set exceeded the criteria.
≤10% of the source water total coliform samples exceed 100/100mL in any 6 month period	• Criteria not met[2]. 14.4% of 97 samples exceeded the criteria. It is not clear from the data if the water is being used during this period as it may coincide with high turbidity events when the intake is off line.
Recommended that water entering the distribution system have turbidity levels of less than 1 NTU	• The RMOW does not use the water if turbidity exceeds 1 NTU.
Turbidity does not exceed 1 NTU 95% of the time in any 30 day period	• The RMOW does not use the water if turbidity exceeds 1 NTU.
Peak Turbidity readings do not exceed 5 NTU for more than 2 days in a 1 year period	• The RMOW does not use the water if turbidity exceeds 1 NTU.
Distribution	• The RMOW maintains best management practices to ensure appropriate design, and disinfection residual throughout the system.

1. GCDWQ: Guidelines for Canadian Drinking Water Quality.

2. Raw data available is limited to January 2010 to July 2014 (97 samples).

5.6.3 RMOW Water Quality Monitoring Review

The conditions of the operating permit for the RMOW include two references to water quality monitoring: 1) Maintain a Drinking Water Quality Sampling Program as prescribed; and 2) Minimum bacteriology sampling frequency is 25 per month (Distribution). Table 5.5 outlines the prescribed drinking water quality sampling program to the RMOW.

Table 5.5: Prescribed Drinking Water Quality Sampling Program

Parameter	RMOW
E.Coli & Total Coliforms	Bi-Weekly
Protozoa	None
Turbidity	Continuous
Temperature	Bi-weekly
Colour	Yearly
UVT	Continuous
Alkalinity and hardness	Yearly
Total Organic Carbon	Quarterly
pH	Bi-weekly

The RMOW is currently testing for all of the parameters above with the exception of protozoa. It is recommended that the RMOW have discussions with the Health to confirm the required parameters and monitoring frequency. During these discussions the protozoa monitoring frequency and method of testing should be determined to determine if such testing is required given that it is known that protozoa are endemic to surface waters and given that the costs of such testing is very expensive.

5.7 Summary of Hazards to Drinking Water Quality and Quality

Based on the literature review of available resources and correspondence with the RMOW, the primary concern with raw water quality is sedimentation resulting in turbidity of greater than 1 NTU. This is an issue because the UVT, and associated effectiveness of UV treatment, may be compromised, resulting in a shut-down of the Twenty-One Mile Creek supply and reliance instead on groundwater. As discussed in Modules 1 and 2, there are a variety of sources (hazards) associated with this contaminant. Furthermore, high user demands also present a hazard to the sustainability of the Twenty-One Mile Creek source.

A summary of these hazards is provided in Table 5.6 below.

Table 5.6: Summary of raw water quality and supply source capacity hazards

Hazard No.	Contaminant	Possible Effects	Existing Preventative Measures	Associated Barrier
Multiple	Sedimentation (high turbidity >1 NTU)	System shuts down eliminating the supply	Groundwater supply wells as a backup available (but does not address hazards at the source) Water demand restrictions available (but does not address the source)	Some slope stabilization upstream; otherwise, limited to no barriers.
1.17	High User Demands	Flows exceed treatment capacity of one UV unit reducing system redundancy	Groundwater supply wells as a backup available (but does not address hazards at the source) Water use restrictions available, which may reduce demands on the source	None identified

6.0 Risk Characterization and Analysis (Module 7)

6.1 Objectives

Module 7 considers the hazards to drinking water quality identified in Modules 1, 2 and 5, along with the consequence to drinking water should a contaminant or combination of contaminants reach the intake. The following sections review the barriers currently in place, and assess the related risks. The risk ranking forms the basis for developing a Source Water Protection Plan, which would be completed as a separate project.

Based on the assessment conducted following Modules 1, 2 and 5 of the Guideline, 17 different hazards were identified. The different sources of potential contaminants originate from both anthropogenic activities and intrinsic features.

6.2 Methodology

This risk assessment is consistent with the principles outlined in the Guideline and included four key components:

- determination of the assessment area vulnerabilities;
- determination of source protection barrier effectiveness;
- characterization of potential risks associated with contaminants / threats; and
- summary of the information in a Risk Characterization Table.

Risks were assessed based on the current state and use of the watershed. Some of these risks may increase over time as a result of such factors as climate change and anthropogenic uses; what is important is that measures are taken to prevent the risks to the watershed from increasing over time.

6.3 Evaluation of Source Protection Barriers

Source protection is the first barrier in the multi-barrier approach to protecting drinking water. The source protection barriers currently in place include regulations and guidelines set out in the *Forest and Range Practices Act,* the *Water Act* (to be replaced by the *Water Sustainability Act*) and the *Drinking Water Protection Act*. However, regardless of the intent of the regulating agencies and the licensed stakeholders to comply with the legislation and regulations and to implement best management practices, there are hazards to drinking water quality and quantity as a result of anthropogenic uses. In addition, there are natural hazards such as snowmelt and rainfall (peak flows), wildlife, and wildfire, for which there are no reasonably feasible strategies to reduce risk at the source level.

The evaluation of the multiple barrier approach is based on an assessment of the effectiveness of the components of the barriers from Modules 1, 2 and 5. Each barrier is assessed based on strength, reliability and security. Strength refers to the level of effectiveness of the barrier, while reliability indicates how dependable the

barrier is. Security refers to how much control the water supplier has over the assessment area. The whole system is evaluated according to how robust it is.

Barriers are a collection of protective or preventative measures that contribute to the protection of the drinking water system. As mentioned previously, the multiple barrier system is comprised of the following six barriers:

1. Source Protection (the subject of this report)
2. Treatment
3. Water System Maintenance
4. Water Monitoring
5. Operator Training
6. Emergency Response Planning

In addition, there are also three supporting mechanisms:

- Water Supply System Management
- Affordability
- Effective Governance

The assessment is conducted as part of the first barrier. A response plan (Source Protection Plan) to address the risks identified in the assessment is the subsequent step after the assessment report has been finalized.

The strength of the barrier is formed by the following preventative/protective measures:

- Location/setting of the intake is in a mostly natural area with minimal activity around it; and
- Intake inspection and maintenance is performed periodically.

These measures are somewhat effective, but they are not in themselves enough to provide adequate barrier measures. Access to the upstream watershed is not restricted and has pressure for continued development; education of local residents and trail users is limited; and the slope instability sites upstream of the intake (that contribute sediment to the stream during spring runoff and rain storms) are hazards to the drinking water source.

Half of the source area is outside the RMOW boundaries and is Crown land that is part of the Cheakamus Community Forest. The water supplier (RMOW) has authority over activities only within its municipal boundaries. Stakeholders (licensees) are generally required to consult with the community (RMOW) prior to undertaking any development activities. The most effective approach to protecting the source area is through communication and collaboration with the provincial agencies and the licensees that operate within the watershed.

It is important to recognize the challenges to water quality and quantity that RMOW faces,as well as all the efforts from the agencies and stakeholders in the watershed. It is through collaboration that the impacts on the source water quality and quantity in Twenty-One Mile Creek will continue to be controlled and efforts taken to address existing risks. The better the raw water quality at the intake, the lower the costs of treatment.

6.4 Assessment Area Vulnerability

As a surface water source of drinking water, Twenty-One Mile Creek is considered sensitive and vulnerable to contamination. Since vulnerability is determined by the potential for contamination, response time, and buffering or degradation capacity, the vulnerability of the assessment area will also be determined using biophysical information from Module 1. Factors that were considered are as follows:

- Watershed size and topography
- Biophysical attributes such as soils and forest cover
- The nature and transportation ability of the contaminants of concern
- Climate normals, such as precipitation and temperature

Unlike groundwater sources, surface waters are naturally vulnerable to contamination due to their biophysical characteristics. The capacity of a watershed to filter, buffer and absorb is generally not as great as many layers of earth. As well, the surface catchment is open to atmosphere and is not separated in any effective way from sources of contamination such as people, animals, organic material and the movement of fine sediments.

The Twenty-One Mile Creek watershed is relatively small with moderate to high slopes, providing moderate transportation capacity for contaminants. The majority of the watershed is forested with stable soils; however, there are areas where instability of soils and sedimentation are occurring along the creek naturally and there is a concern that increased recreation will results in higher erosion and sedimentation.

Overall the Twenty-One Mile Creek watershed is an excellent source of high quality drinking water for RMOW, as is demonstrated by much of the data summarized in Section 5. When compared to the other surface water sources that have been used by RMOW in the past, this watershed is worth protecting. In a natural state the vulnerability of the watershed to negative impacts to water quality is low, limited primarily to natural sources of sediment during spring freshet and rain storms. Its vulnerability to water quality degradation from anthropogenic activities is considered as high but potential impacts are manageable if these activities are carefully controlled.

6.5 Consequence of Hazards to Source Water Quality and Quantity

The impacts from natural factors that affect water quality, such as landslides, climate change and MPB, as well as the anthropogenic activities in the watershed, such as recreation, are the basis for the risk assessment. The intent of this section is to address the issue of the consequences to the drinking water quality and quantity that were used to estimate the risks. As defined in the Guideline, consequence is the effect on human well-being, property, the environment, or other things of value or a combination of these In the case of drinking water, consequence is the change, loss, or damage to the water quality or quantity caused by contaminants and physical threats such as climate change.

Modules 1 and 2 identified the hazards and associated contaminants to drinking water quality and are summarized in the Intrinsic and Anthropogenic Hazards and Contaminants Table (Table 4.3). Module 1 also identified climate change as a hazard to both water quality and quantity. Table 6.1 provides a summary for the ranking of consequences to drinking water quality and quantity, rated from insignificant to catastrophic.

Table 6.1: Qualitative Measures of Consequence to Drinking Water Quality/Quantity

Level	Descriptor	Description
1	Insignificant	Insignificant impact, no illness, little disruption to normal operation, little or no increase in normal operating costs. Manageable changes in water supply, both increased or decreased stream flow.
2	Minor	Minor impact for small population, mild illness moderately likely, some manageable operation disruption, small increase in operating costs. Restrictions on watering due to drought/decreased supply or increased operating/treatment costs due to regular flow events.
3	Moderate	Minor impact for large population, mild to moderate illness probable, significant modification to normal operation but manageable, operating costs increase, increased monitoring.
4	Major	Major impact for small population, severe illness probable, systems significantly compromised and abnormal operation if at all, high level monitoring required.
5	Catastrophic	Major impact for large population, severe illness probable, complete failure of systems. Loss of drinking water and fire suppression supplies.

Based on Module 7 of the Comprehensive Drinking Water Source-to-Tap Assessment Guideline (BC Ministry of Healthy Living and Sport, 2010).

Twenty-One Mile Creek has a water treatment plant that has been designed to address most of the potential hazards in the watershed through the application of UV and chlorination, as long as the plant is operating and provides drinking water that meets the regulation requirements. For the purpose of this assessment, as outlined in Module 7 of the Source Water Assessment procedure, **the consequence ratings for the identified hazards are based on the assumption that the plant is not operating other than treatment by chlorination** (a worst-case scenario). This is because the objective of this assessment is to maintain high water quality at the source prior to treatment. Table 6.2 summarizes the consequence ratings for each of the hazards.

Table 6.2: Consequences to Drinking Water Quality/Quantity at Intake

Hazard #	Drinking Water Hazard	Contaminant	Consequence Level
1.1	Natural snowmelt and rainfall (peak flows)	Sedimentation (turbidity)	3
1.2	Slope failure	Sedimentation (turbidity)	3
1.3	Debris Floods	Sedimentation (turbidity)	4
1.4	Rockfall	Sedimentation (turbidity)	1

Hazard #	Drinking Water Hazard	Contaminant	Consequence Level
1.5	Wildlife	Bacteria Protozoa	1 2
1.6	Mountain Pine Beetle	Sedimentation (turbidity)	1
1.7	Small wildfire	Sedimentation (turbidity) Total organic compound	1 1
	Catastrophic wildfire	Sedimentation (turbidity) Total organic compound	5 5
1.8	Climate change	Impact to water availability	3
1.9	Roads	Sedimentation (turbidity)	1
1.10	Forestry (current to August 2014)	Sedimentation (turbidity)	1
1.11	Non-motorized Trail Use	Sedimentation (turbidity) Bacteria Protozoa	1 1 2
1.12	Domestic Pets	Bacteria Protozoa	1 2
1.13	Campfire	Sedimentation (turbidity) Total organic compound	1 1
1.14	Outhouses	Bacteria Protozoa	1 2
1.15	Snowmobiling	Petroleum products	3
1.16	Heli-skiing	Petroleum products	3
1.17	High user demands	Impact to water availability	2

As shown in Table 6.2, the highest consequences to water quality in the Twenty-One Mile Creek watershed are related to suspended sediment and resulting turbidity; pathogens such as bacteria and protozoa; and petroleum products. The consequences of contamination from these physical, biological, and chemical contaminants are described in the following sections.

6.5.1 Consequences of Physical Contamination

Sedimentation due to peak flows, debris flows, rock fall, and trail use results increased turbidity. High turbidity is not necessarily directly harmful but the consequence is that the disinfection process may be compromised. Turbidity in raw water is also a secondary contributor of biological contaminants. Ultimately, high turbidity makes the Twenty-One Mile Creek source water unfit for consumption as drinking water, increasing RMOW's reliance on groundwater sources, which may have serious consequences during periods of maximum demand. The consequence of sedimentation from various hazards varies, as shown in Table 6.2, depending on the likely severity of contamination.

6.5.2 Consequences of Biological Contamination

The presence of biological contaminants such as fecal coliforms, *E. coli* and other pathogens were identified as part of a number of drinking water hazards, including wildlife, humans, and domestic pets. Certain pathogens can be harmful in extremely small concentrations, and ingestion can result in short and long-term illness, and possibly death for vulnerable individuals (e.g., the very young, the elderly, or those with a compromised immune system). Chlorination is effective at treating most pathogens, but is not as effective as UV on protozoa; therefore, as the potential for small concentrations of these contaminants in drinking water could lead to impaired human health, the consequence ranking has been considered as at least minor for contamination from protozoa.

6.5.3 Consequences of Chemical Contamination

Contaminants such as petroleum products and total organic carbon have potentially high consequences for drinking water. The presence of total organic carbon is an indicator of organic compounds that may contribute to THM formation.

Petroleum products such as gasoline, diesel and motor oil are part of a group known as light non-aqueous phase liquids (LNAPL), which are less dense than water and form a separate phase. Some components of petroleum products (e.g., benzene and xylenes) are more soluble in water than others, and even small amounts of a petroleum spill can contaminate and persist in surface waters. Most LNAPLs can be detected by odor and taste and even small concentrations in surface water can result in exceedances of drinking water standards.

There are currently no barriers to contamination from petroleum products in Twenty-One Mile Creek or its headwaters. Therefore, for the purpose of this assessment, the consequence is considered moderate. However, ultimately the consequence of a chemical spill in the Twenty-One Mile Creek watershed would depend on the location of the spill, the specific contaminant(s), and the volume of the spill.

6.6 Likelihood Assessment for Hazards to Source Water Quality and Quantity

A qualitative risk assessment was undertaken for the hazards identified. As previously described, risk is assessed at the intake (prior to treatment).

Qualitative measures of likelihood are presented in Table 6.3. A time horizon of 10 years is suggested in the guidelines when attributing likelihood of occurrence to identified hazards. The assessment of the likelihood for the hazards is summarized in Table 6.4 followed by a brief summary for each hazard.

Table 6.3: Qualitative Measures of Likelihood

Level of Likelihood	Descriptor	Description	Probability of Occurrence in Next 10 Years
A	Almost certain	Is expected to occur in most circumstances.	>90%
B	Likely	Will probably occur in most circumstances.	71-90%
C	Possible	Will probably occur at some time.	31-70%
D	Unlikely	Could occur at some time.	10-30%
E	Rare	May only occur in exceptional circumstances.	<10%

Reproduced from Module 7 of the Comprehensive Drinking Water Source-to-Tap Assessment Guideline *(BC Ministry of Healthy Living and Sport, 2010).*

Table 6.4: Likelihood of a Hazard Affecting Drinking Water Quality and/or Quantity at the Intake

Hazard #	Drinking Water Hazard	Contaminant	Likelihood
1.1	Snowmelt and rainfall (peak flows)	Sedimentation (turbidity)	A
1.2	Slope failure	Sedimentation (turbidity)	C
1.3	Debris Floods	Sedimentation (turbidity)	E
1.4	Rockfall	Sedimentation (turbidity)	E
1.5	Wildlife	Bacteria Protozoa	A A
1.6	Mountain Pine Beetle	Sedimentation (turbidity)	E
1.7	Small wildfire	Sedimentation (turbidity) Total organic compound	C C
	Catastrophic wildfire	Sedimentation (turbidity) Total organic compound	E E
1.8	Climate change	Impact to water availability	C
1.9	Roads	Sedimentation (turbidity)	E
1.10	Forestry (current up to August 2014)	Sedimentation (turbidity)	E
1.11	Non-motorized Trail Use	Sedimentation (turbidity) Bacteria Protozoa	D E E
1.12	Domestic Pets	Bacteria Protozoa	E E
1.13	Campfire	Sedimentation (turbidity) Total organic compound	E E
1.14	Outhouses	Bacteria Protozoa	E E
1.15	Snowmobiling	Petroleum products	E
1.16	Heli-skiing	Petroleum products	E
1.17	High user demands	Impact to water availability	E

6.6.1 Likelihood of Physical Contamination

As turbidity is monitored at the intake, it is known that sedimentation is affecting water quality as a result of peak flows (as discussed in Section 5.0). Furthermore, during the watershed inspections, it was evident that some sediment is being contributed to watercourses as a result of natural landslides and recreation. Therefore, the likelihood of sedimentation occurring from peak flows was assigned as almost certain. Conversely, due to the reduced likelihood of significant events such as debris flows and rock fall occurring, the assignment of likelihood for exposure to physical contamination from these events was lower.

Wildfire will always pose a hazard in the watershed and a risk to drinking water quality; conversely, MPB is not a major concern in the watershed and has a low likelihood of occurring. There is a lot of uncertainty in projecting the impacts of climate change; however, it is possible that the effects will be present within the watershed over the next 10 years.

6.6.2 Likelihood of Biological Contamination

Wildlife, pets and humans are all identified as potential pathogen sources in the watershed. Wildlife movement in the watershed is unknown, but it is likely that during the course of a year the creeks are crossed multiple times.

Section 3.3 of the *Health Canada Guidelines for Drinking Water, Supporting Documentation on Turbidity*, addresses the criteria for the exclusion of filtration for waterworks systems indicates that “Prior to the point where the disinfectant is applied, the number of *Escherichia coli* bacteria in the source water does not exceed 20/100 mL (or, if *E. coli* data are not available, the number of total coliform bacteria does not exceed 100/100 mL) in at least 90% of the weekly samples from the previous 6 months” (Health Canada, 2003).

Based on the sampling results, it is known that *E. coli* and other pathogens are present in the raw source water; however, the specific source of the pathogens is not yet known. For the purpose of this assessment, the likelihood of biological contamination from wildlife sources was assigned as ‘almost certain’, whereas the same likelihood due to human and domestic pet sources was assigned as ‘rare’.

6.6.3 Likelihood of Chemical Contamination

The potential impacts on drinking water from a fuel spill are a concern since there is snowmobile use throughout the watershed; however, the likelihood of a spill occurring from snowmobiles or a helicopter is considered rare. Similarly, the likelihood of chemical contamination from fire retardants is considered rare, as the retardant formula has been changed so as to minimize potential health impacts.

6.7 Risks to Drinking Water Quality and Quantity

Risk is the product of likelihood and consequence, as illustrated in Table 6.5.

Table 6.5: Qualitative Risk Analysis Matrix

Likelihood	Consequence				
	1 Insignificant	2 Minor	3 Moderate	4 Major	5 Catastrophic
A (almost certain)	Moderate	High	Very High	Very High	Very High
B (likely)	Moderate	High	High	Very High	Very High
C (possible)	Low	Moderate	High	Very High	Very High
D (unlikely)	Low	Low	Moderate	High	Very High
E (rare)	Low	Low	Moderate	High	High

Reproduced from Module 7 of the Comprehensive Drinking Water Source-to-Tap Assessment Guideline *(BC Ministry of Healthy Living and Sport, 2010).*

A summary of the physical, chemical and biological risks posed by the identified hazards is provided in Table 6.6.

Table 6.6: Twenty-One Mile Creek Watershed Qualitative Risk Assessment

Hazard #	Drinking Water Hazard	Contaminant	Consequence	Likelihood	Risk	Comment/Assumption
1.1	Snowmelt and rainfall (peak flows)	Sedimentation (turbidity)	3	A	very high	Natural sediment loads will increase with increasing peak flows.
1.2	Slope failure	Sedimentation (turbidity)	3	C	high	Slope failures will continue to increase with peak flows and climate change.
1.3	Debris flood	Sedimentation (turbidity)	4	E	high	Debris floods depend upon slope failures, peak flows and climate change.
1.4	Rockfall	Sedimentation (turbidity)	1	E	low	Unlikely to impact water quality for a prolonged period if one occurs.
1.5	Wildlife – Bacteria Wildlife – Protozoa	Bacteria Protozoa	1 2	A A	high	The risk from wildlife cannot be mitigated.
1.6	Mountain Pine Beetle	Sedimentation (turbidity)	1	E	low	As the climate changes, the risk of other invasive species may increase and have an impact on the forest health.
1.7	Small wildfire	Sedimentation (turbidity) Total organic compound	1 1	C C	low	The risk from a wildfire is considered to be low but if a catastrophic wildfire occurred in the watershed this risk could increase to very high.
	Catastrophic wildfire	Sedimentation (turbidity) Total organic compound	5 5	E E	high	
1.8	Climate Change	Impact to water availability	2	C	moderate	Over the long-term, 50 years and beyond, if there is a long-term decline in snow packs and a loss of the glaciers there may be reduced runoff; but due to the robust supply the risk is moderate. In the near future, 10 years, there may be a shift in peak flow timing and quantity.
1.9	Roads	Sedimentation (turbidity)	1	E	low	It is assumed that there will always be some sediment transport from overland flow and potential slumping.
1.10	Forestry	Sedimentation (turbidity)	1	E	low	There is no planned forestry activity in the future, so this risk will remain low.
1.11	Trails / Trail Use	Sedimentation (turbidity) Bacteria Protozoa	1 1 2	D E E	low	The risk from trail use will increase as proposed development continues into the future and increased demand from recreationalists.
1.12	Domestic Pets	Bacteria Protozoa	1 2	E E	low	The risk from domestic pets will increase as proposed trail development continues into the future with increased demand from recreationalists.

Hazard #	Drinking Water Hazard	Contaminant	Consequence	Likelihood	Risk	Comment/Assumption
1.13	Campfire	Sedimentation (turbidity) Total organic compound	1 1	E	low	The risk from trail use will increase as proposed development continues into the future.
1.14	Outhouses	Bacteria Protozoa	1 2	E E	low	The risk from outhouses should not increase if properly maintained.
1.15	Snowmobiling	Petroleum products	3	E	moderate	If a snowmobile overturned in a creek, the risk is from spilled oil that could reach the intake.
1.16	Heli-skiing	Petroleum products	3	E	moderate	If a helicopter crashed in a creek, the risk is from spilled oil that could reach the intake.
1.17	High user demands	Impact to water availability	2	E	low	Risks will increase as water use base increases.

6.7.1 Physical Risks

The risks associated with sedimentation from natural sources are considered to be high to very high due to peak flows and catastrophic wildfire, and slope failure/debris flows, respectively, and should be addressed. Conversely, the risk presented by roads, non-motorized trail use, campfire, rockfall and MPB are considered to be currently low. It is important to note, however, that risk will increase if the watershed is developed and anthropogenic uses of the watershed rise. Risk management strategies should therefore be developed to maintain the risk associated with anthropogenic use to a minimum. Finally, risks associated with climate change and high user demands (both of which threaten water availability) should be addressed in order to ensure there is sufficient supply for RMOW over the long term.

6.7.2 Biological Risks

The risks posed by wildlife are considered moderate to high for bacteria and protozoa, respectively (due to the assumption in this assessment that chlorination is the only treatment process available). Risks posed by anthropogenic uses are considered low currently, but as with physical risks, strategies should be developed and implemented to prevent the introduction of biological contaminants from humans and dogs to source water.

6.7.3 Chemical Risks

The risks from chemical hazards are considered moderate due to the potential consequences of chemical contamination to source water (as unlikely as it is). Risk management strategies should be developed and implemented to prevent the risk from rising due to recreational use of the watershed. Although the likelihood of a wildfire is increasing, the impacts from retardant chemicals used for fire suppression is low.

6.8 Risk Assessment Summary

It is important to understand that the risk assessment summarized in Table 6.6 is based on the assumption that the water treatment **is not** operating; the only active treatment barrier would be chlorination. The **source** protection barriers are generally the requirements established in the legislation that governs licensed activities in the watershed. These include the *Water Act* (to be replaced by the *Water Sustainability Act)* and the *Drinking Water Protection Act*. The barriers are the application of the legislation by the licensees.

As previously discussed, application of legislation by licensees does not, on its own, ensure the long-term delivery of high quality drinking water. As identified in this source water assessment, a variety of contaminants associated with both natural and anthropogenic hazards present risks to the quality and quantity of Twenty-One Mile Creek source water. Therefore, the development and implementation of risk management strategies as part of a coordinated response plan should be carried out to better protect this RMOW drinking water source over the long term.

7.0 Recommendations to Improve Drinking Water Source Protection and Sustainability (Module 8)

The importance of keeping the water quality of Twenty-One Mile Creek as high as possible is directly related to the alternatives, being either a significant capital construction plan to replace/upgrade this supply with a significant number of new supply wells, or install a treatment facility at the intake area at a cost of $6 to $20 million (estimates provided by the RMOW). Similarly, it is essential to ensure that there is sufficient availability of water from Twenty-One Mile Creek, as there is insufficient supply from groundwater to meet the community's long-term drinking water needs and during periods of high demand.

Preliminary risk management strategies to address intrinsic and anthropogenic hazards to water quality and quantity were identified with assistance from the TAC. In addition to the risk management strategies identified specifically for intrinsic risks (Section 7.1) and anthropogenic risks (Section 7.2), the following general strategies were identified:

- Monitor pollutant and sediment loading at intake and upstream of slumping to better inform future responses and to support potential filtration deferral
- Monitor hydrometric data from Twenty-One Mile Creek at the location of the original (decommissioned) station
- Review UVT and flow data to confirm that adequate dosing is maintained, and conduct additional water quality testing to determine why UVT is low at times when turbidity is also low.
- Continue TAC discussions once the Assessment is complete
    - Consider aligning with new provisions in the *Water Sustainability Act* for delegated authority for decision-making around water resources
- Remain apprised of, and participate in, development of regulations as part of the *Water Sustainability Act*, particularly regarding environmental flow needs, which may have implications for Twenty-One Mile Creek.

7.1 Strategies to Address Intrinsic Risks

Table 7.1 summarizes the preliminary risk management strategies to address intrinsic risks.

Table 7.1: Preliminary risk management strategies to address intrinsic risks.

Hazard (source)	Contaminant	Preliminary Risk Management Strategy	Comments
Natural snowmelt and rainfall (peak flows)	Sedimentation, turbidity, coloration	• Monitor water quality upstream of slumping to compare to quality at intake • Install a second intake further upstream of the slumping • Install an off-stream reservoir (storage) • Install an off-stream settling basin	• These responses do not address the *source* of sedimentation but may provide an additional drinking water protection barrier
Slope instability Debris flows	Sedimentation, turbidity, coloration	• Slope stabilization	
Wildfire	Sedimentation, turbidity, coloration, organic content	• Fuel thinning activities have been outcomes of the recent wildfire studies: consider expanding to 21 Mile Creek watershed • Update the wildfire protection plan to account for the 21 Mile Creek watershed's natural infrastructure/assets	• Potential to fund (at least in part) through the utilities budget
Wildlife	Bacteria, protozoa	• Monitor fecal coliforms, including RNA or genomic analysis to identify source, to develop a baseline and better characterize the actual risks	• This response does not address the *source* of faecal coliforms, but may better inform future responses
Climate change	Impacts to water quantity, quality, wildfire risk	• Conduct a climate change impact and response study that considers both natural and built assets and infrastructure, and anticipates potential (future) permitting constraints under the new *Water Sustainability Act;* e.g., environmental flow needs • Address water demands through greater water conservation efforts	• This response does not address the *source* of the impacts, but may better inform future responses

7.2 Strategies to Address Anthropogenic Risks

Table 7.2 summarizes the preliminary risk management strategies to address anthropogenic risks.

Table 7.2: Preliminary risk management strategies to address anthropogenic risks.

Hazard (source)	Contaminant	Preliminary Risk Management Strategy	Comments
Non-motorized trail use Domestic pets	Sedimentation, turbidity, coloration Bacteria, protozoa	• Expand MFLNRO's approach to monitoring/reporting snowmobile use to trail use and presence of dogs in the watershed • Engage trail users in identifying responses to risks: • Increase education efforts with trail users • Seek input on enhanced signage to inform users of drinking water source (Community Watershed)	• It will be important to engage the users of trails in identifying the most effective risk management strategies
Snowmobiling	Petroleum products	• Continue MFLNRO's approach to monitoring and reporting snowmobile use	
Heli-skiing	Petroleum products	• Do not permit flying directly over Rainbow Lake, Gin and Tonic Lakes, or Twenty-One Mile Creek • Inform heli-skiing operators of the hazards posed by helicopters to the drinking water source	
High user demands	Impacts water availability	• Implement water use restrictions through bylaw • Implement water conservation measures • Inform users of importance of conservation	

7.3 Source Protection Plan

As previously discussed, the scope of this study was limited to an assessment of the hazards, contaminants and risks posed to the Twenty-One Mile Creek source water quality and quantity. The next step will be to develop a Source Protection Plan, which should explore the preliminary risk management strategies in greater detail and through collaboration with other watershed stakeholders. A participatory approach will support the development and implementation of a more effective Source Protection Plan, as both the users and decision-makers involved in maintaining the health of the watershed will have been involved in working together to identify, and carry out, the best ways to achieve this.

8.0 References

The following documents were reviewed:

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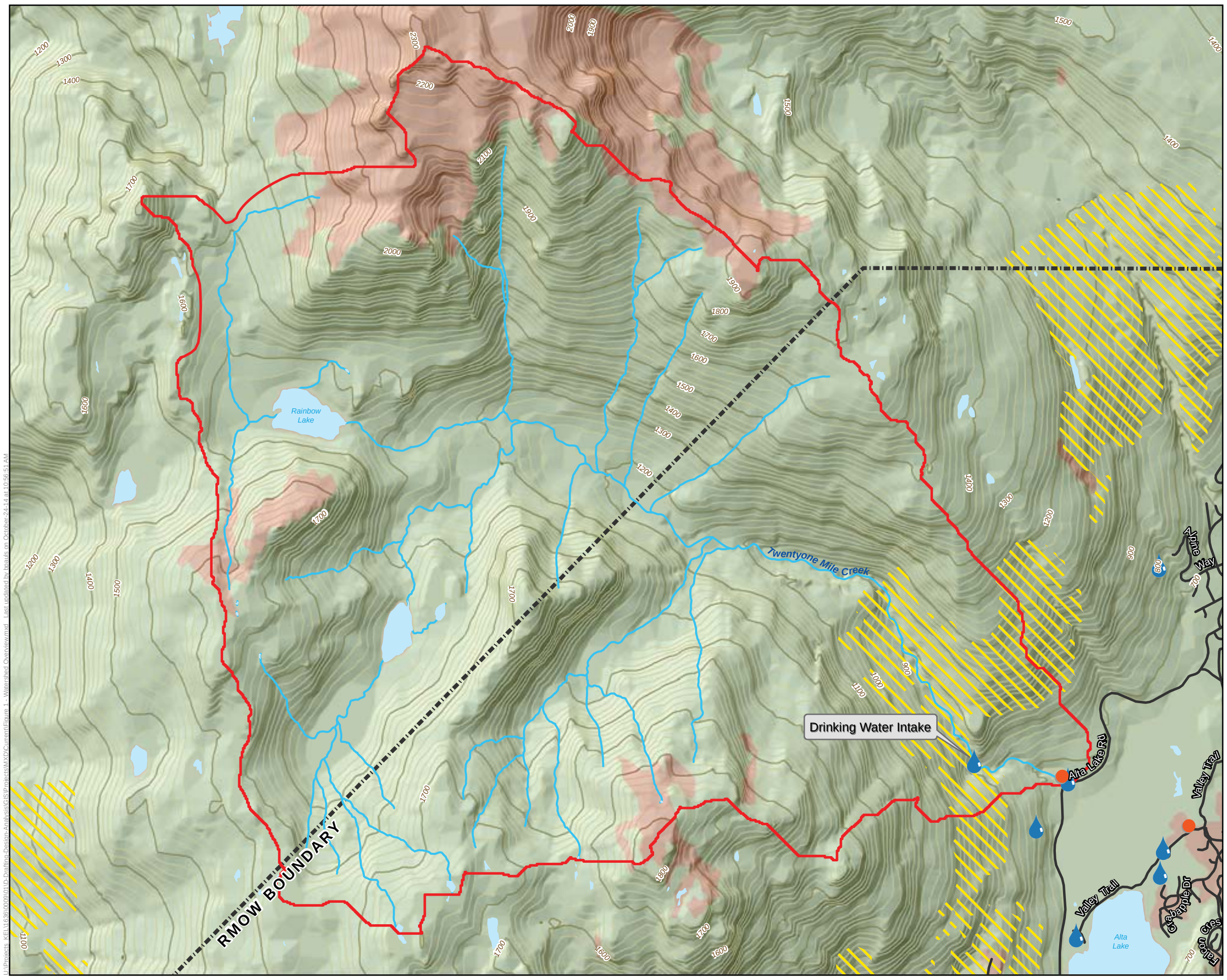
Appendix A

Map



WHISTLER

RESORT MUNICIPALITY OF WHISTLER

REPORT TITLE

WATERSHED OVERVIEW

Legend

- Water License Points of Diversion
- Hydrometric Station - Discontinued
- Municipal_Boundary
- Watershed Boundary
- Vegetated Region
- Non-vegetated Region
- Results - Openings

The accuracy & completeness of information shown on this drawing is not guaranteed. It will be the responsibility of the user of the information shown on this drawing to locate & establish the precise location of all existing information whether shown or not.

Meters

1:27,000

Coordinate System:
NAD 1983 UTM Zone 10N

Data Sources:
Government of BC

Project #:	
Author:	BP
Checked:	SL
Status:	~ DRAFT ~
Revision:	A
Date:	2014 / 10 / 24

URBAN systems

FIGURE 1

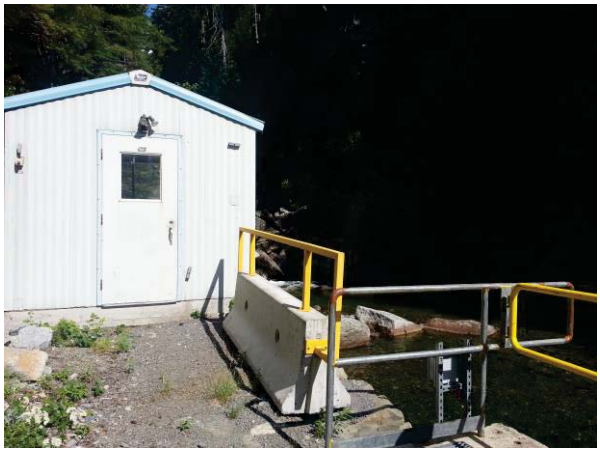
Appendix B

Field Investigation Photos

FIELD WORK

Field Work Date: | August 20 (on the ground) & 21 (helicopter and on the ground), 2014

General Field Notes
21 Mile Creek watershed is in excellent condition. There are areas of natural slumping along the stream channel upstream of the intake. Fully functioning watershed – means preserving it in this condition is very important.

1	Photo
Drinking water intake	
Notes	
Looking upsteam to the drinking water intake facility Intake N50 7.896 W122 59.733	

2	Photo
Drinking water intake	
Notes	
Concrete weir looking downstream Intake N50 7.896 W122 59.733	

3 **Photo**	
Road up to intake	
Notes	
Private road, accessible by RMOW. Road in good condition, no signs of surface erosion. Intake N50 7.874 W122 59.728	
4 **Photo**	
Wooden culvert	
Notes	
Wooden culvert along Rainbow Lake Trail Tributary crossing / Rainbow Hiking Trail N50 8.402 W123 0.34	
5 **Photo**	
Restroom facilities	
Notes	
Sign for outhouse facilities along Rainbow Hiking Trail Rainbow Hiking Trail N50 8.587 W123 0.716	

6 **Photo** Mid elevation tributary **Notes** Looking upstream from bridge along Rainbow Hiking Trail. Channel is stable. Large woody debris present. Tributary crossing / Rainbow Hiking Trail N50 8.726 W123 1.418	
7 **Photo** Mid elevation tributary **Notes** Looking downstream from bridge along Rainbow Hiking Trail Tributary crossing / Rainbow Hiking Trail N50 8.726 W123 1.418	
8 **Photo** Mid elevation tributary **Notes** Looking upstream from newly constructed bridge along Rainbow Hiking Trail. Channel is stable. Large woody debris present. Tributary crossing / Rainbow Hiking Trail N50 8.726 W123 1.442	

9 **Photo**	
Mid elevation tributary	
Notes	
Looking downstream from newly constructed bridge along Rainbow Hiking Trail Tributary crossing / Rainbow Hiking Trail N50 8.726 W123 1.442	
10 **Photo**	
21 Mile Creek	
Notes	
Looking upstream. Channel condition in this area is stable. Boulder rock cascade pool channel. Gradient 10%. Moss present along edge of channel. Large woody debris present in channel. Mid elevation 21 Mile Creek N50 8.782 W123 1.434	
11 **Photo**	
21 Mile Creek	
Notes	
Looking downstream. Channel condition in this area is stable. Boulder rock cascade pool channel. 12 m wide and 0.8 – 1.0 m water depth. Mid elevation 21 Mile Creek N50 8.782 W123 1.434	

12	Photo
Lock block Structure	
Notes	
Above intake, looking upstream. N50 7.924 W122 59.750	

13	Photo
Rainbow Lake	
Notes	
Looking southeast from upper watershed N50 9.403 W123 4.196	

14	Photo
Trail system at Rainbow Lake	
Notes	
Looking southeast N50 9.403 W123 4.196	

15 **Photo**	
Hut in Madeley Creek Watershed	
Notes	
View from helicopter N50 9.404 W123 4.196	
16 **Photo**	
Rainbow Hiking Trail	
Notes	
View from helicopter N50 9.188 W123 2.88	
17 **Photo**	
Gin and Tonic Lake	
Notes	
View from helicopter N50 8.452 W123 3.321	

18	Photo
Slumping	
Notes	
East side of creek. Connected to creek N50 8.539 W123 0.105	

19	Photo
Slumping	
Notes	
East side of creek. Connected to creek N50 8.269 W122 59.863	

20	Photo
Slumping	
Notes	
East side of creek. Connected to creek N50 8.046 W122 59.796	

FIELD WORK

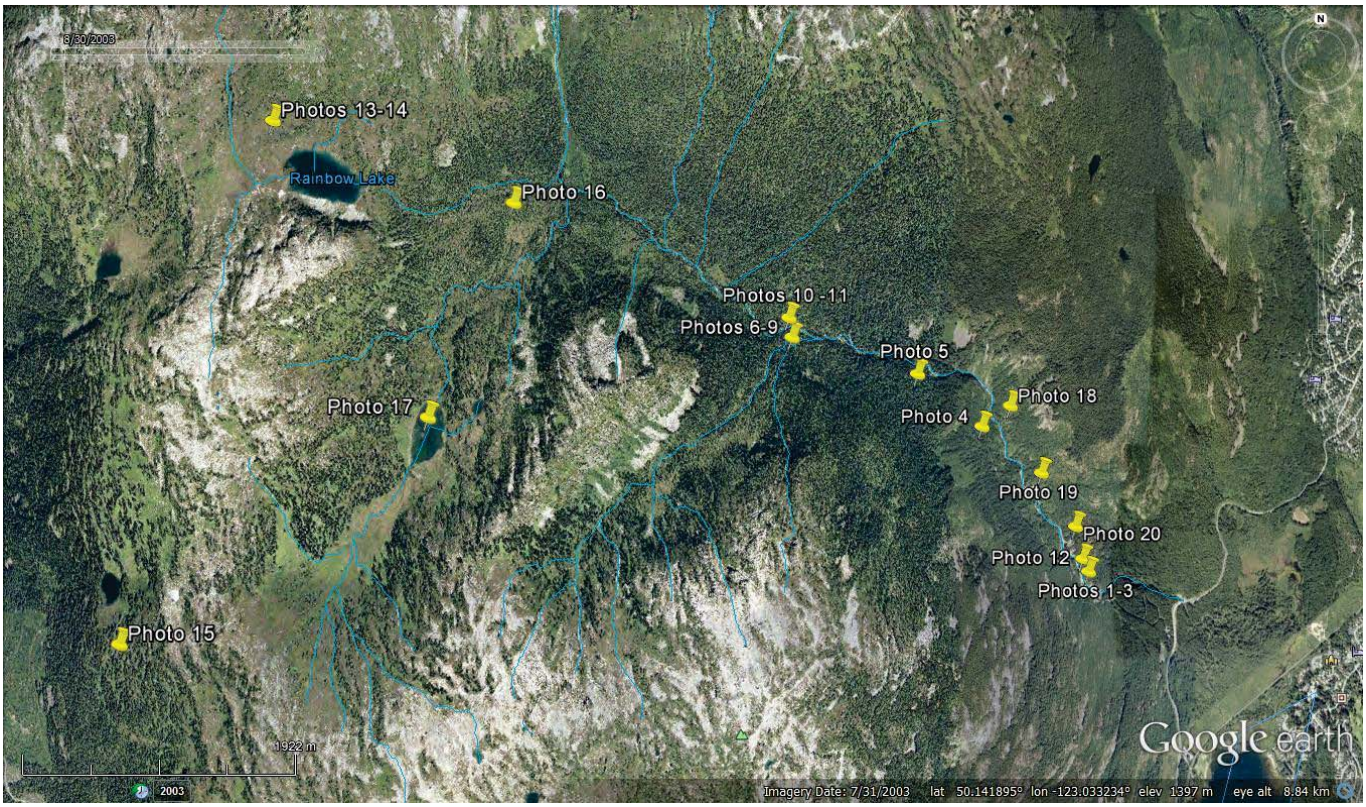
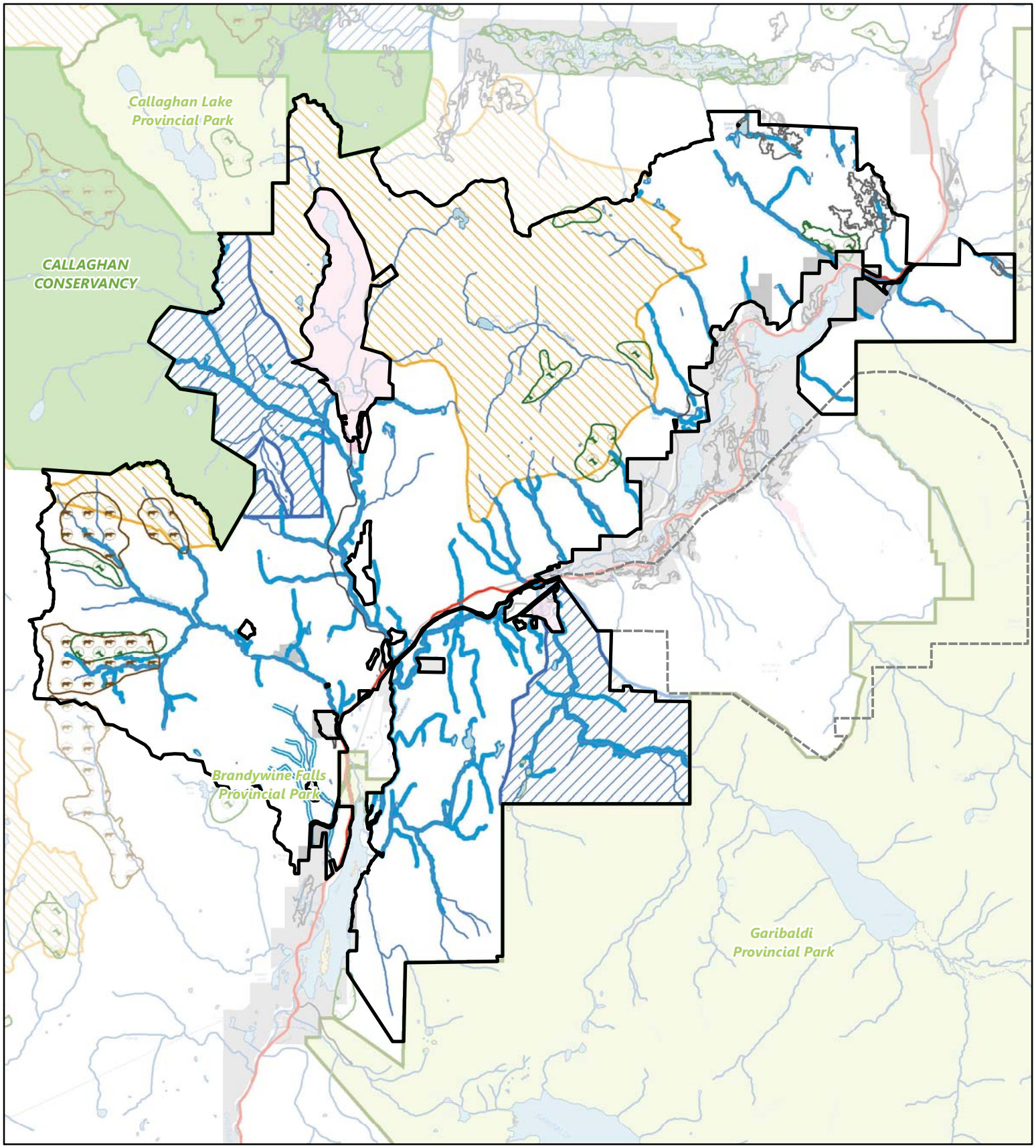


Figure A1. Location of photos.

Appendix C

Cheakamus Community Forest Map



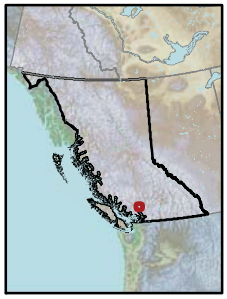
Cheakamus Community Forest
Protected Areas

Legend

- Whistler Community Forest
- Intrawest Management Area
- Provincial Park/Protected Area
- Conservancy
- LRMP - Wildlands
- LRMP - Cultural Management
- Riparian
- OGMA (Legal)
- Ungulate Winter Range
- Grizzly Bear Habitat Area

Data Sources:
Provincial 1:50,000 Base Hydrography, BC Digital Roads Atlas. Additional information from the BC Land and Resource Data Warehouse.
This map is not intended to be used for navigation.

Map produced by Lil'wat Nation September 2011.



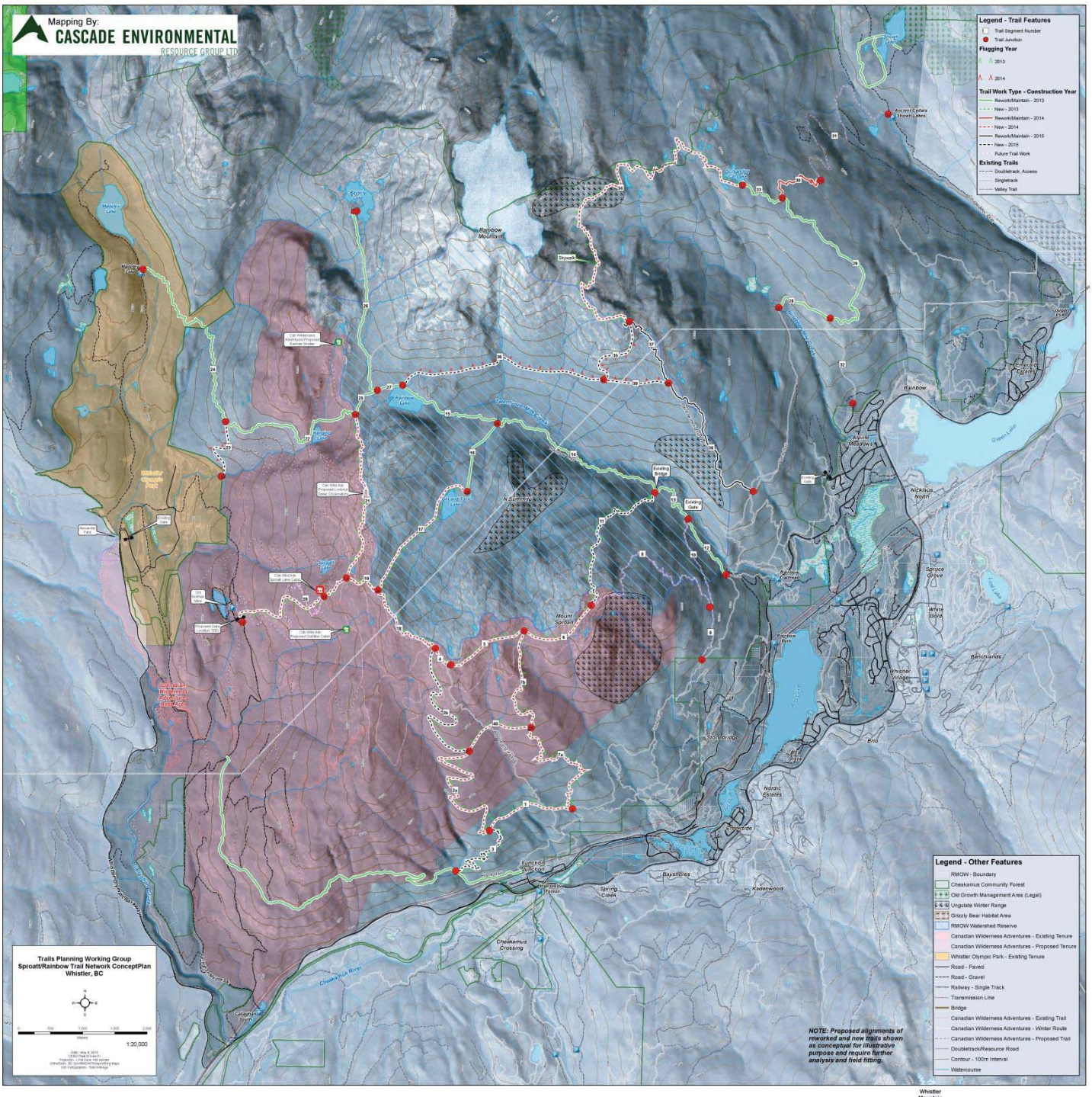
N
W E
S

UTM Zone 10N
NAD 1983

0 0.5 1 2
Kilometers

Appendix D

RMOW Trails Map


Mapping By:
CASCADE ENVIRONMENTAL
RESOURCE GROUP LTD
Legend - Trail Features
Trail Segment Number
Trail Junction
Flagging Year
2013
2014
Trail Work Type - Construction Year
Rework/Maintain - 2013
New - 2013
Rework/Maintain - 2014
New - 2014
Rework/Maintain - 2015
New - 2015
Future Trail Work
Existing Trails
Doubletrack_Access
Singletrack
Valley Trail
Trails Planning Working Group
Sproatt/Rainbow Trail Network ConceptPlan
Whistler, BC
1:20,000
Legend - Other Features
RMOW - Boundary
Cheakamus Community Forest
Old Growth Management Area (Legal)
Ungulate Winter Range
Grizzly Bear Habitat Area
RMOW Watershed Reserve
Canadian Wilderness Adventures - Existing Tenure
Canadian Wilderness Adventures - Proposed Tenure
Whistler Olympic Park - Existing Tenure
Road - Paved
Road - Gravel
Railway - Single Track
Transmission Line
Bridge
Canadian Wilderness Adventures - Existing Trail
Canadian Wilderness Adventures - Winter Route
Canadian Wilderness Adventures - Proposed Trail
Doubletrack/Resource Road
Contour - 100m Interval
Watercourse
NOTE: Proposed alignments of reworked and new trails shown as conceptual for illustrative purpose and require further analysis and field fitting.
Whistler Mountain

These reports are located at https://healthspace.ca/Clients/VCHA/CoastGaribaldi/CoastGaribaldi_Website.nsf

RMOW Community Water System - Inspection Report

Inspection Information:

Facility Type:	WS1A
Inspection type:	Evaluation
Inspection date:	March 21, 2018
Follow-up Required:	No

This facility was given a **low** hazard rating.
- More information on hazard ratings.

Violations:
No violations were found during the inspection

Comments:
The bacteriological sample range report for 2017 is attached. Of the 435 samples submitted for analysis, none (0%) were positive for total coliform or E Coli bacteria. This indicates satisfactory water quality was maintained throughout the year. As per VCH 2017 report, the water chemistry characteristics within the RMOW Community system are complex in view of the number of sources, both surface water and groundwater.

The new Operational Guideline for pH has been recently revised under the GCDWQ, now specifying a higher pH range from 7.0 to 10.5. Please provide a report outlining which of the RMOW Community sources do not meet this guideline and outline any remediation strategies under consideration. As we discussed, the MOH Health Protection Branch has developed Interim Guidelines (July 2017) on evaluating and mitigating lead in drinking water supplies, schools, daycares and other buildings. VCH has been reviewing the development of this interim guidance and are unsure if centralized water conditioning will relieve the need for a multifaceted approach by property owners (including plumbing upgrades; flushing and/or filters). As these Interim Guidelines have not as yet had industry/stakeholder review, we welcome any comments you wish to offer.

With respect to the subject of what constitutes a domestic water system pursuant to the DWPR, strata and other development are considered as a 'system within a system' and therefore exempt from the requirements of the Drinking Water Protection Regulations (DWPR). VCH will review the service connection to these developments for the purpose of issuing a Construction Permit to the RMOW as well as assessing the need for backflow protection. However the piping arrangements within the private / strata property are left to the design engineer to follow good engineering practice. Please provide an update on your progress with implementing a cross connection control program. VCH continues to advocate that by-law authority is essential to ensure all backflow protection assemblies are tested annually, and we can see no method by which it can be assured otherwise. At this time the GCDWQ limits for manganese continue to list that parameter as an aesthetic objective, although we are anticipating some change in view of the draft revisions previously circulated for public comment. Thank you for the extensive work on developing a Source Water

Protection Plan (SWPP) for the 21 Mile Creek supply source. From a VCH perspective it appears that the current level of public education and access into the watershed seems reasonable, however it must be understood that the 21 Mile Creek supply is an unfiltered surface water source. The advanced disinfection processes (comprising UV followed by chlorination) complies with the pathogen reduction requirements of the BC Surface Water Treatment Objectives - but may not protect against spills or other contamination events. Accordingly, we recommend the SWPP be reviewed at a high level within the RMOW to develop a common understanding. We are pleased to note the close interdepartmental relationship that exists within the RMOW which will continue to be important for issues such as trail maintenance activities and waste removal (which should be scheduled when the intake is in by-pass mode). A review of the SWPP for the RMOW Community groundwater sources should also be scheduled for review, including land use activities in the well capture zones. The RMOW Emergency Response and Contingency Plan (ERCP) will need some revision - as a minimum to reflect new staff and contact numbers, including those for VCH staff. VCH anticipates being able to send our staff updates next month once new staff arrive.

RMOW - Emerald Estates Water System - Inspection Report

Inspection Information:

Facility Type:	WS1A
Inspection type:	Evaluation
Inspection date:	March 23, 2018
Follow-up Required:	No

This facility was given a **low** hazard rating.
- More information on hazard ratings.

Violations:
No violations were found during the inspection

Comments:
For 2017, the bacteriological sample range report indicates satisfactory water quality was maintained within the distribution system throughout the year. Of the 45 samples submitted for analysis, none (0%) were positive for total coliform bacteria. This is very consistent with the results from previous years. VCH is pleased to note construction work on the new UV treatment system is underway. Please advise once the construction has been completed so that we can arrange an inspection in at the time of commissioning. From our review of the source water chemistry, the groundwater supplying the Emerald Estate wells appears to be soft with respect hardness and low in alkalinity, with a typical pH value close to 7.0. The new Operational Guideline for pH has been recently revised under the GCDWQ, now specifying a higher pH range from 7.0 to 10.5. We understand the new UV treatment facility may facilitate supplementation for pH adjustment. As we discussed, the MOH Health Protection Branch has developed Interim Guidelines (July 2017) on evaluating and mitigating lead in drinking water supplies, schools, daycares and other buildings. VCH has been reviewing the development of this interim guidance and are unsure if centralized water conditioning will relieve the need for a multifaceted approach by property owners (including plumbing upgrades; flushing and/or filters). As these Interim Guidelines have not as yet had industry/stakeholder review, we welcome any comments you wish to offer. A review of the SWPP for the RMOW - Emerald Estates groundwater sources should also be scheduled for review, including land use activities in the well capture zones. The RMOW Emergency

Response and Contingency Plan (ERCP) will need some revision - as a minimum to reflect new staff and contact numbers, including those for VCH staff. VCH anticipates being able to send our staff updates next month once new staff arrive.

WHISTLER

REPORT | ADMINISTRATIVE REPORT TO COUNCIL

PRESENTED:	July 10, 2018	**REPORT:**	18-092
FROM:	Resort Experience	**FILE:**	RZ1135
SUBJECT:	RZ1135 – NESTERS CROSSING – CTI1 ZONE AMENDMENT		

COMMENT/RECOMMENDATION FROM THE CHIEF ADMINISTRATIVE OFFICER

That the recommendation of the General Manager of Resort Experience be endorsed.

RECOMMENDATION

That Council consider giving third reading to "Zoning Amendment Bylaw (CTI1 Zone) No. 2187, 2018.

REFERENCES

Appendix "A" – Summary and Review of Public Hearing Comments for "Zoning Amendment Bylaw (CTI1 Zone) No. 2187, 2018"

"Zoning Amendment Bylaw (CTI1 Zone) No. 2187, 2018" (Not attached)

Administrative Report to Council No. 18-023, RZ1135 – Nesters Crossing – CTI1 Zone Amendment dated March 6, 2018 (Not attached)

Administrative Report to Council No. 18-052, RZ1135 – Nesters Crossing – CTI1 Zone Amendment dated April 24, 2018 (Not attached)

PURPOSE OF REPORT

The purpose of this Report is to present "Zoning Amendment Bylaw (CTI1 Zone) No. 2187, 2018" to Council for consideration of third reading. The report also provides a summary of verbal and written submissions made during the public hearing process and staff's review of these comments.

DISCUSSION

"Zoning Amendment Bylaw (CTI1 Zone) No. 2187, 2018" was introduced to Council on March 6, 2018. At the April 24, 2018 meeting, the bylaw was given first and second reading and authorization to proceed to Public Hearing. A Public Hearing was held on May 8, 2018.

Staff have reviewed the public hearing submissions made to Council on the proposed bylaw. This report presents a summary of staff's review and recommends that the bylaw be given third reading. This summary and review is provided in Appendix "A".

WHISTLER 2020 ANALYSIS

A Whistler 2020 analysis is provided in Administrative Report to Council No. 18-023, dated March 6, 2018.

OTHER POLICY CONSIDERATIONS

An analysis of policy considerations is provided in Administrative Report to Council No. 18-023, dated March 6, 2018.

BUDGET CONSIDERATIONS

All costs associated with staff time for the rezoning application, Public Hearing, Notices, and legal fees will be paid by the applicant and all fees will be required to be paid in full as a condition of adoption of the proposed Zoning Amendment Bylaw.

COMMUNITY ENGAGEMENT AND CONSULTATION

The required rezoning application site information sign has been posted. A Public Hearing, which is subject to public notice requirements, was held on May 8, 2018. A review of the public written and verbal submissions from the public hearing process is provided in Appendix "A".

SUMMARY

This Report presents a review of public submissions on "Zoning Amendment Bylaw (CTI1 Zone) No. 2187, 2018". The report also recommends that Council consider giving third reading of the Zoning Amendment Bylaw.

Respectfully submitted,

Robert Brennan
PLANNER
for
Jan Jansen
GENERAL MANAGER OF RESORT EXPERIENCE

APPENDIX A
SUMMARY AND REVIEW OF PUBLIC HEARING COMMENTS FOR ZONING AMENDMENT BYLAW (CTI1 ZONE) NO. 2187, 2018

The following provides a summary of written and verbal public hearing submissions for the May 8, 2018 public hearing as well as staff's review and recommendations related to the comments. The summary is not intended to transcribe or replicate all of the comments that were made during the public hearing process.

There were 15 written submissions received from the public prior to the public hearing and 13 oral submissions made by the public at the public hearing.

The summary is organized according to the following topic areas:

1. CTI zone land uses
2. Increased residential use and users on each parcel.
3. Clarification of landscaping requirements.

1. CTI1 Zone land uses

Public Comments:

Written and oral submissions noted that staff's references to the primary purpose of the CTI1 zone lands for heavy industrial uses were incorrect and that the zone includes a range of permitted uses. Comments were received which supported the amendment as written but that additional auxiliary residential units be considered on each parcel. Comments were received which supported additional residential uses be permitted in the CTI1 zone lands. Comments were also received asking why the industrial zone allows recreation and playground uses on the lands.

Staff Review:

In 2008 an applicant made a zoning application to rezone the existing RR1 zoned parcel to an industrial zone with an emphasis on a variety of industrial functions referred to as back-of-house operations, heavy equipment storage and maintenance, storage yard and transportation infrastructure uses. The Official Community Plan (OCP) and the existing industrial zones in the Zoning Bylaw at that time only permitted these uses in Function Junction. The applicant's rationale was the municipality needed a more centralized location than Function Junction for these uses to improve access for equipment, create larger parcels for larger storage yards for larger fleets and maintenance facilities, and to reduce unproductive time travelling from Function Junction to job locations throughout the municipality.

In October 2012, Official Community Plan Amendment Bylaw (Mons Industrial Lands) No. 1859, 2008 and Zoning Amendment Bylaw (Community and Transportation Infrastructure One) No. 1860, 2008 were adopted with respect to these lands.

The OCP amendment bylaw designated this parcel for service commercial and industrial land uses, created Development Permit Area No. 25 Mons Industrial Lands with guidelines for development of the parcel, and amended some Business, Service Commercial and Light industrial development policies but retained policy 4.4.2 stating: Residential use is to remain as an auxiliary use to provide for security and caretaker purposes.

The zoning amendment bylaw created the CTI1 zone. The intent statement written into the CTI1 zone states the intent is to provide industrial type uses supporting community and transportation

infrastructure, and civic uses. The zone permits land uses for auxiliary buildings and auxiliary uses, auxiliary residential dwelling unit for a caretaker or watchman or similar persons employed on the premises, fuel service station/fuel card lock, indoor and outdoor recreation, indoor storage for business, indoor and outdoor storage and maintenance of construction equipment, landscaping services, messenger or courier service, motor vehicle maintenance and storage facility, nature conservation parks and buffers, parks and playgrounds, storage and works yard including storage of construction equipment, recycling depot for household goods, taxi dispatch and storage yard, and vehicle impound yard.

Staff's reference to heavy industrial uses was misunderstood. It was meant as a reference to the heavy and/or large equipment and vehicles (i.e. snow removal equipment, buses, courier vehicles, and heavy construction equipment or vehicles) used in many of the permitted uses in the CTI1 zone.

The parks and playground use inclusions in the CTI1 Zone was in anticipation of the 5% park land dedication to the municipality at time of subdivision of the lands. This park dedication requirement is a provincial *Local Government Act* requirement, and almost all zones in the municipality permit parks and playground use for this reason. The park land dedication at Nesters Crossing was developed with a valley trial paralleling the highway, with the remainder utilized as a tree buffer between the development and the highway.

In March 2015 Zoning Amendment Bylaw (CTI Zone – 8017 Highway 99) No. 2076, 2015 was adopted which amended the "indoor and outdoor recreation" permitted use. These uses were made separate permitted uses with added restrictions to the outdoor recreation use category. Outdoor recreation was limited to non-motorized outdoor recreation, excluding rifle range and paintball facility, and excluding any other non-motorized outdoor recreation use that is likely, because of noise or dust it generates, to cause a nuisance to the owners, occupiers or users of adjacent lands or to the public.

Staff Recommendation:

Staff notes that there are no significant comments that require revisions to the proposed bylaw, and recommends that Council give third reading to the bylaw as written.

2. <u>Increase residential use</u>

Public Comments:

Written and oral submissions noted that the CTI1 zone should permit up to four residential dwelling units per parcel like some industrial zones in Function Junction. Some submissions recommended that these units should be available for a broader group of users. Others recommended the introduction of employee housing as a permitted use on the lands.

Staff Review:

Staff reviewed the municipality's 14 existing industrial zones. The number of auxiliary residential dwelling units permitted per parcel in these zones is as follows:

- Five zones – CTI2, IP1, IA1, IP2 and IS3 - 0 auxiliary residential dwelling units.
- Four zones – CTI1, IL2, IL3 and IU1 - 1 auxiliary residential dwelling unit.
- Two zones – IS1 and IS6 - 2 auxiliary residential dwelling units.
- One zone – IS4 - 4 auxiliary residential dwelling units.
- Two zones – IS5 and ILR permit employee housing.

The location of the industrial zones are shown on Maps 1a/1b/1c/1d – Location of Industrial Zones attached to this Appendix A.

There is a range in the number of auxiliary residential dwelling units permitted in Whistler's industrial zones. Review of the industrial zones identifies that the industrial zones that permit 2 or more auxiliary residential dwelling units also permit more service commercial and office uses, which are considered to be more compatible with residential use. The zones that permit 0 or 1 auxiliary residential dwelling unit, of which the CTI1 zone is included, permit a lessor range of service commercial and office uses.

The lands zoned CTI1 are comprised of 6 parcels, with an issued development permit for an additional 2 parcels, for a total of 8 parcels. As per the existing zoning, a maximum of 8 auxiliary residential dwelling units could be permitted. Further subdivision of the properties is also possible. The proposed four units per parcel could lead to a significant increase in the number of people residing in this industrial area.

Staff Recommendation:

Staff recommends the CTI1 zone continue to permit 1 auxiliary residential dwelling unit per parcel for a caretaker or watchman. This is consistent with similar industrial zones. Staff recommends that Council give third reading to the bylaw as written.

3. Landscape area requirements

Public Comments:

Written and oral submissions noted that the CTI1 zoning requirements for a tree buffer area, a highway buffer area and individual landscape areas per parcel are confusing and maybe excessive. Additional comments were submitted with respect to the long term survivability of the landscape areas and water conservation goals.

Staff Review:

At the time of the review to create the CTI1 zone it was recognized that it was important to screen the development from adjacent views from the highway corridor, from the adjacent Nicklaus North golf course and Cypress Estates subdivision, and from the Valley Trail.

To address screening and enhance the quality of the development the existing zoning requires:

- A 10 metre tree buffer area adjacent to the railway to screen the industrial uses from the golf course development on the north side of the railway.
- A 20 metre wide portion of land transferred to the municipality for public purposes as a separate parcel for a buffer to screen the development from Highway 99. In addition to the land transfer the applicant also agreed to the installation of a portion of the Valley Trail, additional trees, ground cover, lighting and an underpass to connect the Valley Trail under the railway.
- In addition to the landscape areas required above, a minimum of 10% of a parcel area shall be landscaped, with such landscaped area to be located to the maximum extent possible in the setback area adjacent to the front parcel line.

The adopted CTI1 zone did not specify that either the 10 metres tree buffer area adjacent to the rear parcel line nor the 20 metres wide parcel of land transferred to the municipality ownership could be deducted from the minimum of 10% landscaped area per parcel requirement.

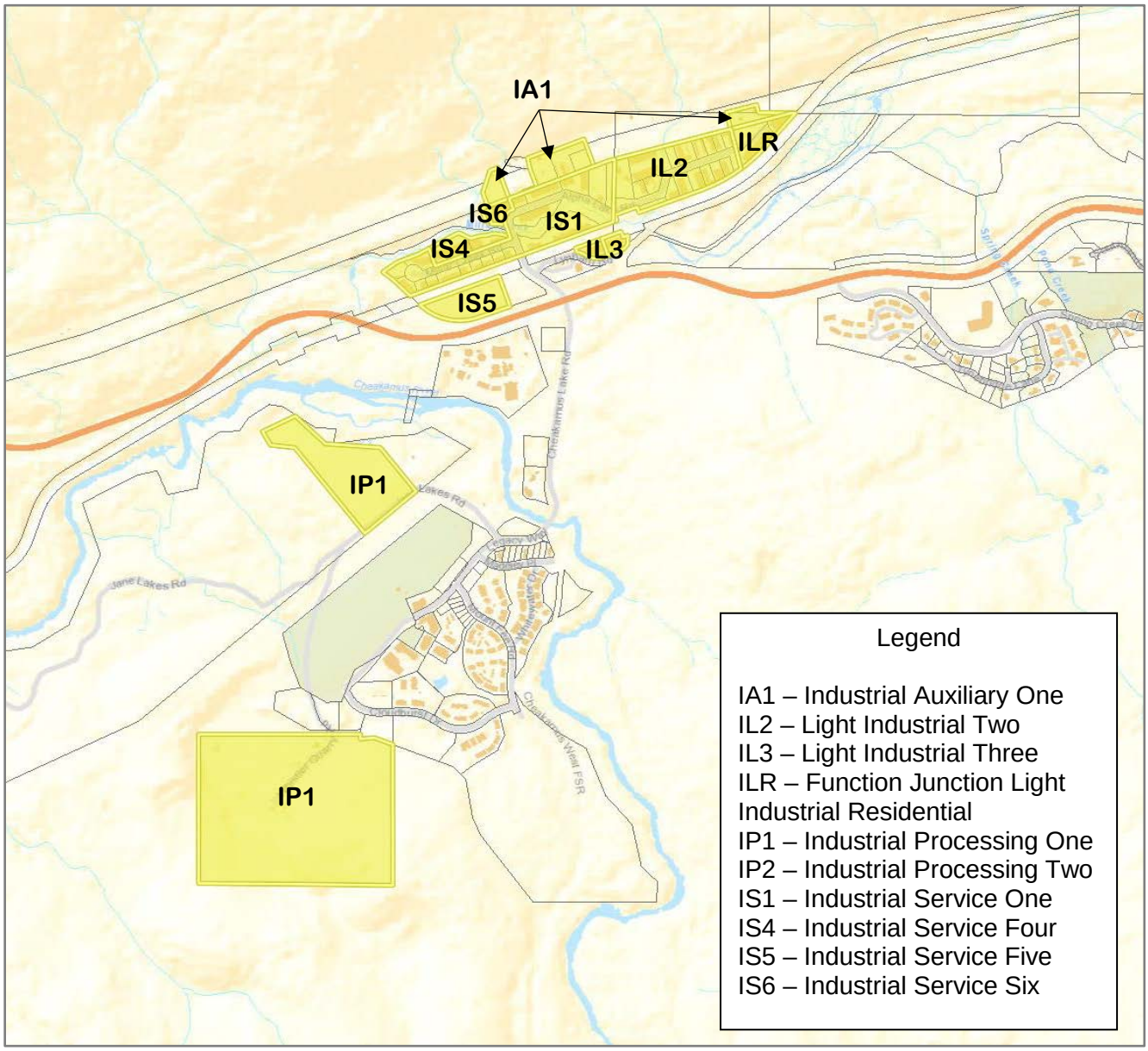
The 10% landscaped area per parcel is implemented through development permits required for development on each parcel. Owners are responsible for maintaining the approved landscaping shown on the landscape plan that is part of a Council approved development permit for a project. As part of the development permit guidelines owners with their landscape designer are encouraged to select plants suited to Whistler's climate conditions to minimize irrigation requirements.

Council has approved 4 development permits. Each has met the 10% requirement. Staff have indicated to the applicant that this requirement could be varied through a development permit based on specific parcel conditions, as opposed to reducing the requirement for all properties through amendment to the zone.

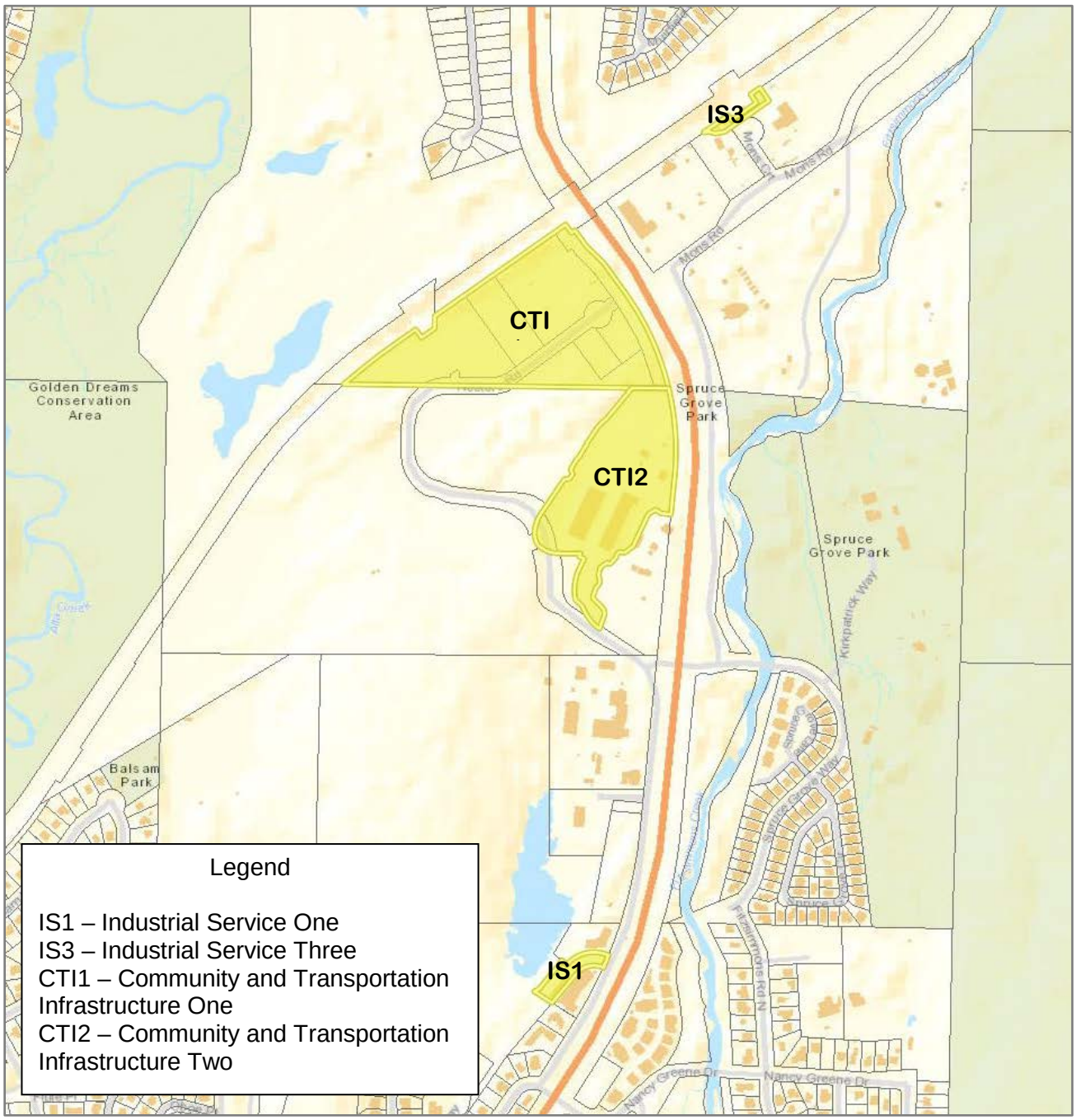
Staff Recommendation:

Staff recommend that the landscape requirements should not be amended and that any proposed reductions for specific parcel circumstances should be addressed through a development permit.

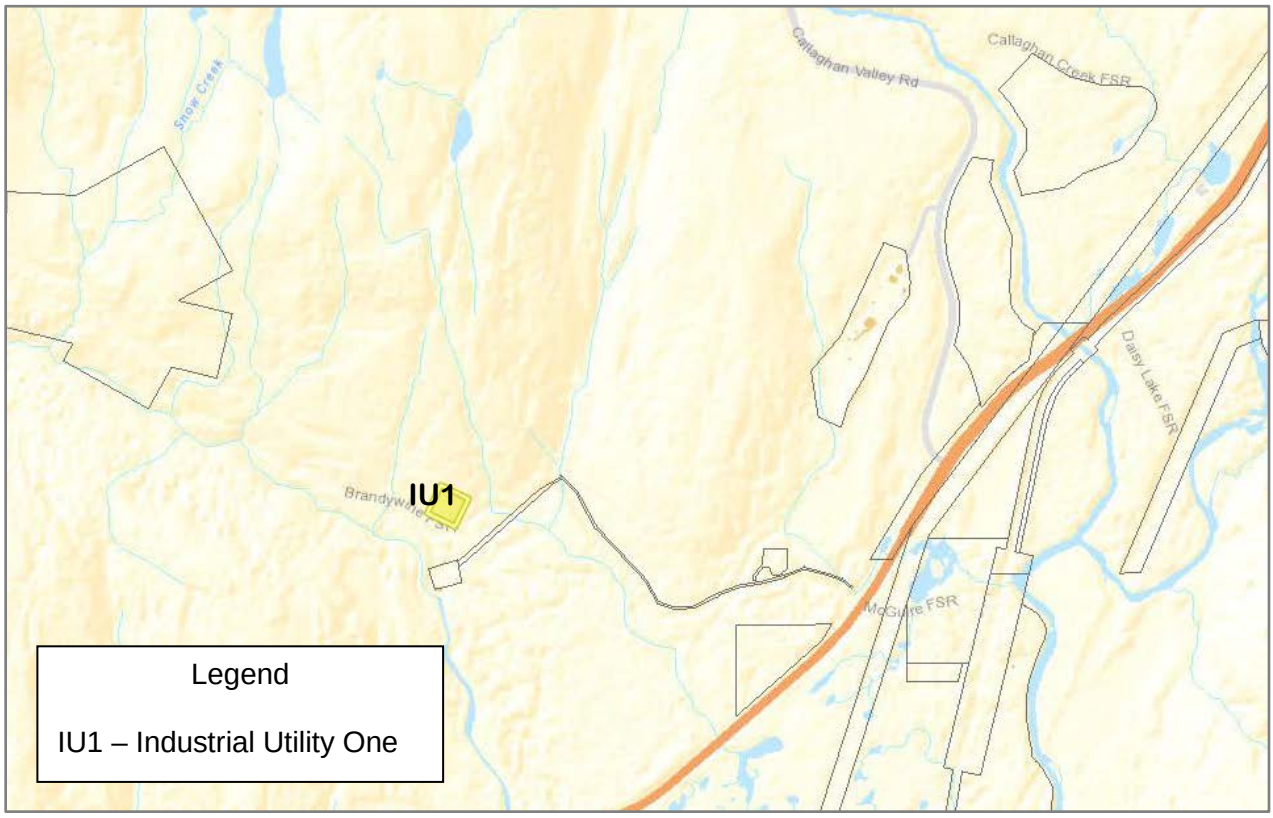
MAP 1a – Industrial Zones – Function Junction Vicinity



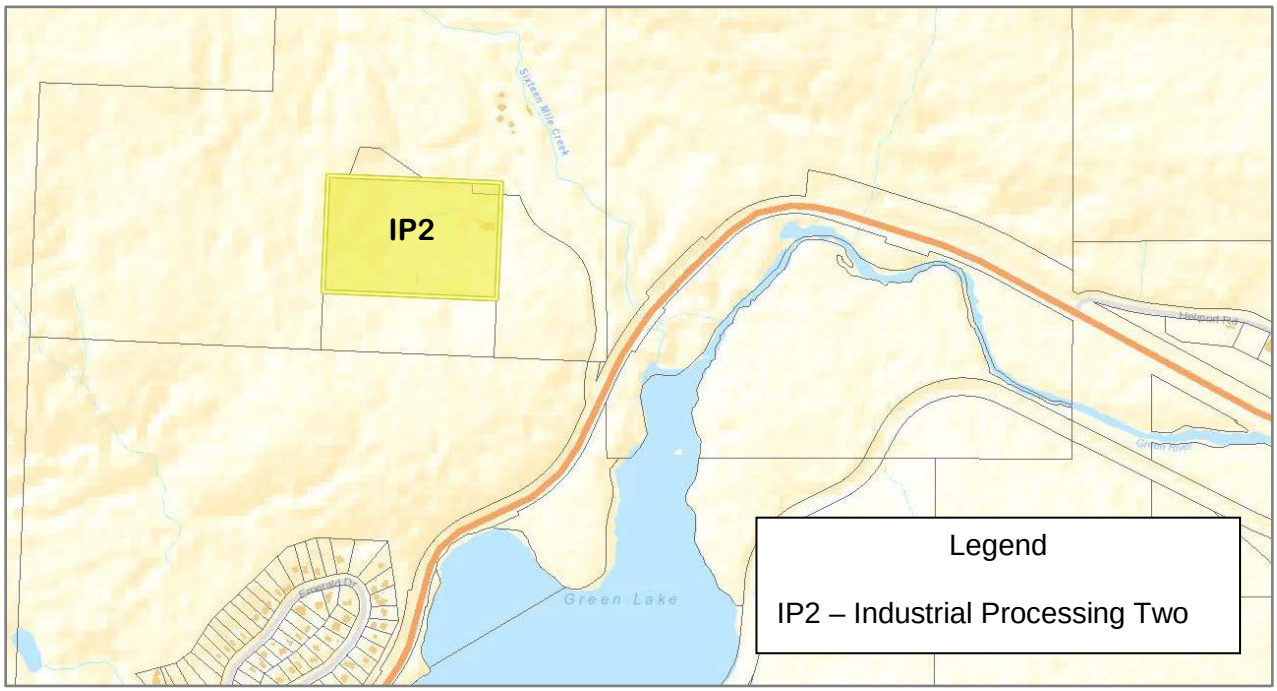
MAP 1b – Industrial Zones – Mons Vicinity



MAP 1c – Industrial Zones – Brandywine



MAP 1d – Industrial Zones – Cougar Mountain



WHISTLER

REPORT | ADMINISTRATIVE REPORT TO COUNCIL

PRESENTED:	July 10, 2018	**REPORT:**	18-093
FROM:	Corporate, Economic & Environmental Services	**FILE:**	A073
SUBJECT:	BUILDING AND PLUMBING REGULATION AMENDMENT BYLAW (ENERGY STEP CODE) NO. 2197, 2018		

COMMENT/RECOMMENDATION FROM THE CHIEF ADMINISTRATIVE OFFICER

That the recommendation of the Director of Corporate, Economic & Environmental Services be endorsed.

RECOMMENDATION

That Council consider giving first, second, and third readings to, "Building and Plumbing Regulation Amendment Bylaw (Energy Step Code) No. 2197, 2018", and

That Council direct staff to continue to provide Power Down Home Energy Assessment incentives to help support the transition to the new Energy Step Code performance regulations, and

That Council direct staff to advise the Province of BC's Energy Efficiency Policy, Electricity and Alternative Energy Division that the RMOW will provide $2,000 top-up incentive funding for eligible heat pump conversions, to a maximum of $50,000 over two years, in support of the upcoming Home Renovation Rebate - Retrofit Partnership program.

REFERENCES

Appendix "A" – Summary of Energy Step Code Performance Requirements for Part 9 Buildings in Climate Zone 6.

Appendix "B" – Letter of Support/Comment from the Sea to Sky Chapter of the Canadian Home Builders Association (S_2S CHBA)

PURPOSE OF REPORT

The purpose of this Report is to seek Council direction regarding two important initiatives designed to improve the energy efficiency of the residential building stock in Whistler. The first initiative is to seek first, second and third readings for, "Building and Plumbing Regulation Amendment Bylaw (Energy Step Code) No. 2197, 2018"; and the second initiative is to seek Council direction to provide 'top-up' funding for the Province's upcoming Home Renovation Rebate program within Whistler.

DISCUSSION

Buildings in Whistler consume approximately two thirds of the total energy, produce approximately one third of the total greenhouse gas emissions (GHGs), and expend more than $45 million annually on energy utility costs. The Whistler Official Community Plan (OCP) includes a goal of reducing community-wide GHGs to 33% lower than 2007 levels by 2020, and while the estimated 2016 community-wide GHG footprint was 9% lower than 2007 levels, current trends indicate that the community will not meet the OCP target for emission reductions by 2020.

Due partially to Whistler's reliance on stable snow patterns, this community has historically prided itself as a leader in GHG and energy management. There have been many examples of this leadership, from developing the first Integrated Energy, Air Quality and GHG Emissions Management Plan in Canada and its early adoption of the FCM Partners for Climate Protection Program as well as the UBCM Climate Action Charter, to early support for passivhaus construction, solar hot water, and district energy systems, and on to the fact that its local government operations have operated 'carbon neutral' every year since 2010.

However, despite this historic leadership and the associated accomplishments, Whistler's total community GHG and energy consumption footprints have both increased each of the last three years.

The development of the 2016 Community Energy and Climate Action Plan identified key areas for improvements within the community, and extensive work has been undertaken to reduce emissions and energy consumption from leading sources of emissions – i.e. from passenger vehicle emissions in particular. Work has also continued to support homeowner improvements through home energy assessment rebates and the use of green building covenants registered on title whenever possible.

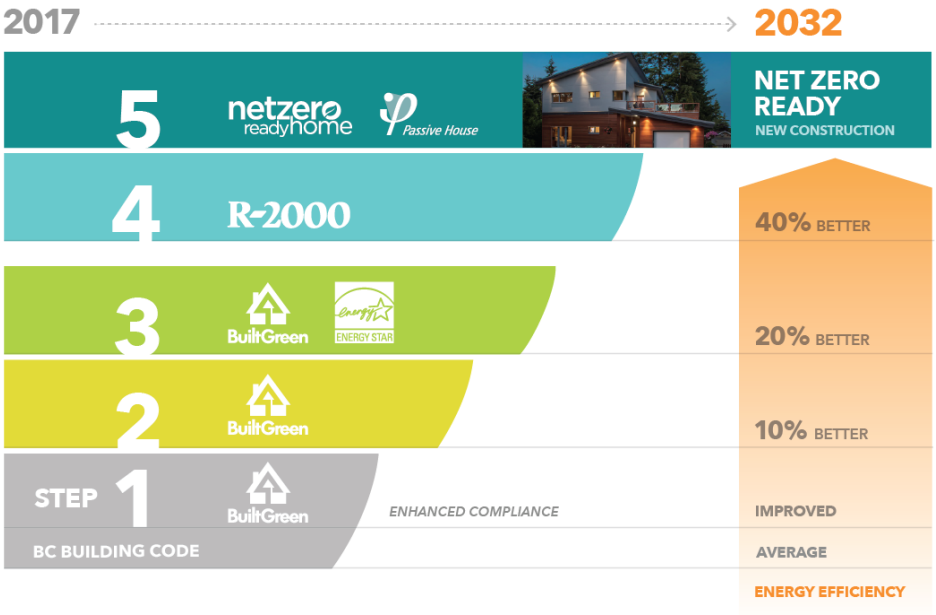
Recently however, important new opportunities to increase the energy efficiency of residential buildings have become available to local governments. Two of these opportunities are the subject of this report.

Improving New Buildings – the Energy Step Code

What is the Energy Step Code?

The BC Energy Step Code (ESC) is an optional compliance path in the BC Building Code that local governments may use, if desired, to incentivize or require a level of energy efficiency in new construction that exceeds the requirements of the base BC Building Code. It consists of a series of steps, representing increasing levels of energy-efficiency performance.

FIGURE 1. Conceptual Overview of the BC Energy Step Code showing existing program equivalencies



The ESC was developed in alignment with recent changes to the Building Act, and was undertaken with the collaborative input of builders, developers, governments, utilities, professional associations, and other stakeholders. The intent of the ESC is to:

1. reduce and/or eliminate the existing patchwork of compliance requirements used across the regulatory and incentive frameworks (e.g. CanPHi, Energy Star, ASHRAE, Built Green, LEED, R-2000 etc…),
2. to provide a standardized method for collectively achieving energy efficiency goals, and
3. to define a feasible path toward the goal of all new buildings being net-zero ready by the year 2032.

Over the past decade, significant advances in building science have yielded new approaches that allow for more energy efficient and low emission buildings that remain cost-effective to build. The BC Energy Step Code is designed to bring these new practices into the broader market, reducing energy demand across the board.

Municipal staff and the local building sector have been working with the Provincial government and the Energy Step Code Council for two to three years on the development of the ESC framework, and are supportive of the current opportunities and structure that it provides. As part of the changes brought about by the adoption of the Building Act, any references local governments had to alternative energy efficiency certifications and/or frameworks in policies or bylaws (but not s219 covenants) had to be updated to reference the new ESC levels or would be declared unenforceable as of December 15, 2017. It is worth noting that the RMOW did not have to make changes in this respect as all related energy performance references were included in s219 covenants rather than within bylaws.

However, the ESC regulation is now referenced in the BC Building Code and in relation to the conservation of energy and the reduction of greenhouse gas emissions, the a local government may reference and implement, in whole or in part, the BC ESC.

The BC Energy Step Code is performance based. It establishes measurable performance-based energy-efficiency requirements for new construction. To demonstrate compliance, a builder must prove to building officials that his or her building meets or exceeds a set of defined metrics. The standard uses the same metrics for each step, with progressively more demanding targets all the way up to the highest step, which represents a net zero ready level of performance.

To meet the requirements of a given step of the BC Energy Step Code, a builder needs to prove to building officials that the building meets or exceeds a set of defined metrics. The measurement and verification requirements include:

- **Energy modelling**: Prior to construction, builders must commission an energy model for their proposed building. This is already common practice for high-efficiency buildings in BC, and is already an optional compliance path for meeting the energy efficiency requirements in the existing BC Building Code.

- **Airtightness testing**: A certified energy advisor must complete a blower door test for all steps and all building types after construction and before occupancy.

This approach eliminates the prescriptive energy-related requirements of the BC Building Code. Instead of prescribing what builders and developers need to do to, the ESC sets the level of performance they need to reach, and leaves it up to the design/build team as to how to do it. This allows for more innovation, enabling the market to develop the most cost-effective methods and materials to meet the

end target, while providing certainty to building owners and governments that new buildings are designed and built to meet their objectives.

The ESC approach focuses first on performance requirements for building envelope (known as an 'envelope-first' approach). It also sets requirements for equipment and systems, such as ventilation equipment, heating and cooling, and boilers. Finally, the third pillar is modelling at the front end of the process, and measuring once construction is complete, using a blower door test, to confirm air tightness. More specific information about the ESC approach is available at www.energystepcode.ca, and a summary of the specific performance metrics associated with each step are provided for reference in Appendix A of this report.

Integration in Other Communities

In terms of relevant implementation references, all north shore communities have already adopted regulatory references to the ESC in their respective Building and/or Construction Bylaws with all three communities aligned to require Step 3 performance for new Part 9 residential buildings beginning on July 1st of this year. Moreover, the City of Vancouver has required Step 3 performance since 2017; Squamish is working toward Step 2 in 2018 and Step 3 for July 1st 2019; the City of Richmond is transitioning to Step 3 for smaller Part 9 buildings and requiring Step 3 for larger Part 9 residential buildings in 2018; New Westminster is moving to Step 3 in 2019; and Kelowna is moving to Step 3 in 2020. In total, 28 BC communities are either currently consulting with their respective communities on ESC integration, or are already referencing the ESC in local building regulations. Cumulatively, these 28 communities represent more than 70% of all annual housing starts in the province.

Integration Approach in Whistler

In response to the ESC opportunity and the movement of regional communities toward ESC integration, RMOW staff continued to work with Provincial counterparts toward an integration plan for Whistler. A local ESC Stakeholder Working Group was convened representing builders (both members and non-members of the S_2S CHBA), real estate and developer representatives, trades, architects, municipal building and planning staff as well as a community-at-large member from the CECAP Community Advisory Group. This Stakeholder Working Group discussed and evaluated the ESC opportunity, considered barriers and challenges that might be associated with the integration or the ESC, and developed a conceptual integration approach for further consideration.

The Stakeholder Working Group's conceptual approach was to recommend that Whistler move straight to ESC Step 3 for Part 9 residential buildings, but to delay the 'effective' date until Jan 1, 2019 to allow sufficient time for in-progress design projects to be completed, and new projects to be aware of the pending changes. It was felt that the complexity of many local residential building projects warranted this delay due to the longer duration of the design phase relative to buildings in many other communities. It was felt that a move straight to Step 3 would be quite achievable (and often already being achieved) given the current standard of construction within the community. Further it was also felt that a move straight to Step 3, followed by 3-5 years of a stable regulatory environment would be preferable to more frequent changes (i.e. a move to Step 1 then one to two years later to Step 2, followed 1-2 years later by Step 3), thereby allowing builders time to optimize new techniques and preferred equipment/insulation combinations within a single set of rules.

It was also noted by the Stakeholder Working Group that the transition process to Step 3 would need to be supported locally through access to training programs, site visits and opportunities to both learn about the specific requirements of the ESC, but to also have hands-on opportunities to learn more about energy modelling on actual build site(s) with certified energy assessment professionals

demonstrating relevant tools and methods that are used within the energy modelling and verification processes - a requirement of all levels of the ESC.

Ongoing discussions with the Stakeholder Working Group and municipal staff developed two additional policy options for the integration of the ESC that have been considered and implemented in other communities.

1. The first policy option is to require slightly higher energy performance (Step 4) for any new Part 9 residential buildings located on lands wherein an owner-initiated application to amend the Zoning Bylaw to increase the permitted density of residential development, or permit additional uses has been approved by Council.

   In general this means that any properties that have benefited from a rezoning should have to build slightly more energy efficient buildings than the base requirement (note that this would only apply to rezoning that occur after Jan 1, 2019).

   As reference, the first policy option (i.e. rezonings requiring +1 Step performance) has been adopted, or is being considered for adoption by most of the communities in the process of integrating the ESC into their local regulations (19 communities in total). In fact, it is estimated that the communities that are integrating the rezoning (+1 Step policy) will represent more than one third of all housing starts in BC on an annual basis by 2020.

2. The second policy option was to require any new Part 9 homes that include the construction of "in-ground basement floor area" that is excluded from gross floor area calculations under Part 5 of the Zoning Bylaw to be designed and constructed to meet the performance requirements specified in Step 4 of the Energy Step Code (rather than the base Step 3).

   In general this means that any new residential buildings that include the construction of additional in-ground (excluded) basement floor area would have to build a slightly more energy efficient building (Step 4).

   With respect to the second policy option, previous reports to Council regarding the uptake of the 'excluded space provisions' for new homes have indicated that there has been consequent increases in total building energy consumption associated with the use of these Part 5 provisions of the Zoning Bylaw (excluded basement space). For this reason, staff feel that there is suitable rationale for requiring these new larger homes (i.e. homes with greater total floor area than the base GFA permitted by the Zoning bylaw) to achieve higher levels of whole-building energy performance. Requiring Step 4 performance levels would reduce whole building energy performance by an additional 10% versus Step 3, thereby moderating or eliminating the potential additional energy consumption associated with the incremental 'excluded basement area' of these new homes.

Both of these policy options were shared and discussed at the Public Information Session, and were included within the ESC Public Opinion Survey.

Municipal staff in collaboration with the local building industry (CHBA representatives, and Bob Deeks co-vice chair of the Energy Step Code Council, a member of Codes Canada's Standing Committee for Energy Efficiency, and chair of the Canadian Home Builders Association's Net Zero Energy Ready Housing Council) developed public information session materials, the public opinion survey, and hosted a public information session on April 26 to share the information and solicit input on the proposed ESC integration approach. Approximately 40 people attended the public information session and 85 individuals responded to the associated public opinion survey. Survey respondents included local

builders, developer, designers and architects, local homeowners and renters, as well as a small number of interested 'corridor homeowners'.

Results of the survey are summarized for reference below:

Question 1

Please indicate your level of agreement with the following statements:	strongly disagree	disagree	neutral or no opinion	agree	strongly agree
Whistler should implement policies and initiatives that lead toward more energy efficient buildings.	1%	6%	2%	24%	66%
I generally support the integration of the BC Energy Step Code into Whistler building code regulations.	5%	8%	5%	28%	54%
I believe that more energy efficient buildings will cost less to operate (i.e. save money on utility bills).	0%	7%	4%	25%	64%
I am worried that requiring the construction of more energy efficient buildings will make new homes more expensive.	13%	23%	14%	27%	23%
I am comforted that the Energy Step Code was collaboratively created by the building, development and public sector together.	5%	6%	27%	36%	27%
Generally, I think that very large homes should be required to be even more energy efficient than smaller ones.	2%	6%	14%	16%	61%
I am confident that the local building industry will have the capacity to meet the new energy step code requirements.	5%	10%	17%	37%	31%
I think it's important that the RMOW continue to provide energy modeling rebates/incentives to help support the transition to the new energy performance regulations.	5%	6%	6%	25%	58%

Question 2

In your opinion, what is the primary reason that Whistler should consider integrating the Energy Step Code into our local regulations.	
Climate Change - reduce our contribution to climate change	60%
Affordability - reduce energy utility bills for homeowners	8%
Energy production impacts - reduce the potential negative impacts of new energy generation facilities	14%
None – we should not integrate the Energy Step Code	10%
Other (please specify)	7%

Question 3

After reviewing the available information, and understanding that West Vancouver, City of North Vancouver, and the District of North Vancouver will require Step 3 energy performance for residential construction (Part 9 of the BC Building Code) on July 1, 2018, please indicate you level of agreement with the following statements.	**strongly disagree**	**disagree**	**neutral or no opinion**	**agree**	**strongly agree**
I think that Whistler should move to the same Step as the North Shore communities (Step 3).	5%	12%	9%	27%	47%
I am supportive of Whistler moving to Step 3 as soon as is practical.	8%	5%	7%	33%	47%
I think that Whistler should move more slowly than these communities, and consider only moving to Step 1 or 2 in the next year or two.	43%	30%	7%	12%	7%
I would rather Whistler **not** integrate any parts of the Energy Step Code locally.	72%	12%	5%	5%	6%

Question 4

For this question, 'rezoning' in the following proposed policy refers to properties where Council has approved an owner-initiated application to change their zoning to increase density, or expand permitted uses.After reviewing the available information, and considering the proposed policy that would require all homes built on properties that have been rezoned after Jan 1, 2019 to achieve higher energy performance levels (i.e. Step 4), please indicate which statement most closely matches your opinion:	
I am generally in favour of further consideration of this policy approach (i.e Step 4 for rezoned properties)	67%
I am not in favour of further consideration of this policy approach (i.e Step 4 for rezoned properties)	17%
I do not have strong feelings on this proposed policy	16%

Question 5

For this question, 'in-ground basement floor area' refers to basement floor area in a new residential construction project that would be 'excluded' from gross floor area calculations under Part 5 of the Whistler Zoning and Parking Bylaw (commonly known as 'GFA Excluded Space').After reviewing the available information, and considering the proposed policy that would require all homes with additional 'in-ground basement floor area' to achieve higher energy performance levels (i.e. Step 4), please indicate which statement most closely matches your opinion:	
I am generally in favour of further consideration of this policy approach (i.e. Step 4 requirement for properties that build additional 'in-ground basement floor area')	65%
I am not in favour of further consideration of this policy approach (i.e. Step 4 requirement for properties that build additional 'in-ground basement floor area')	17%
I do not have strong feelings on this proposed policy	18%

Results of the opinion survey and the discussions at the Public Information Session are well-aligned with the input of the Stakeholder Working Group, and are also largely aligned with the proposed amendments to the Building Bylaw included within this report.

In addition, the majority of open-ended comments received within the survey were also generally supportive of the proposed direction, but responses did include some opposing comments related to the potential length of payback period associated with building more energy efficient buildings; the

potential negative impact on the cost of new buildings, some general opposition to the large size of new residential buildings in Whistler, opposition to government regulation generally, as well as the need to apply the Step Code to Part 3 buildings (generally, commercial or more complex buildings) in addition to Part 9 residential buildings.

It is also important to note, if the integration of the Energy Step Code is supported locally, the Stakeholder Working Group also suggested an approach for co-delivering training opportunities over the summer and fall in preparation for the integration of the new requirements.

Construction Cost Analysis

The cost implications of the proposed integration of the ESC have been well researched, compiled and made available to local government and building industry representatives through one of the largest cost impact assessment[1] ever undertaken for a code change in Canadian history. The report was prepared for BC Housing and Energy Step Code Council in partnership with BC Hydro, the Province of BC's Building and Safety Standards Branch, the City of Vancouver, and included additional support from Natural Resources Canada. For Part 9 buildings, the report evaluated 6 different building archetype, modelled over five climate zones, with many thousands of combinations of potential ECMs (energy conservation measures) to determine the least cost alternatives to meet each Step of the ESC in each climate zone.

The Metrics Research report generally found that for Part 9 buildings, there are only modest incremental capital costs overall, "builders can achieve the majority of the steps for less than a 2% capital cost premium above the cost of convention construction – this is particularly true for multi-unit residential buildings, row houses and larger single family archetypes. – each of which can reach Step 4 for less than a 2% cost premium in Climate Zones 4 through 6." Whistler is in Climate Zone 6.

Two relevant examples (Climate Zone 6) from the report are included for illustrative purposes:

Row Houses (i.e. Townhomes)

Building a six-unit row house project to the lower steps of the Step Code in Surrey will increase the construction cost of each unit by between a few hundred and a few thousand dollars for lower steps, and $5,500 to $9,400 for higher steps. For most steps, cost premiums are actually lower in Prince George and Kamloops, as buildings are able to meet the Step Code with lower-cost building envelopes than those prescribed by the BC Building Code. For example, in Prince George, Steps 2 and 3 can be built for a lower construction cost than to the BC Building Code.

[1] BC Energy Step Code Metrics Research Report - a comprehensive exploration of the energy, emissions and economic impacts of the BC Energy Step Code Summary report (PDF, 2MB)

Location: Prince George
Unit Size: 1,720ft²
Climate Zone: 6
Sample Sales Price per Unit: $320,000 - $360,000

Step 1: A construction cost premium of $500 above the cost of building to the prescriptive requirements of the *BC Building Code*.
Step 2: Increasing performance to Step 2 may result in a construction **cost savings** of about $365 per unit due to the building being able to meet the Step Code requirements with equipment and building materials lower cost than the BCBC prescriptions.
Step 3: As with the next-lower-step, building to this level may **save** builders about $365 per unit compared with the costs of a conventionally constructed home.
Step 4 & 5: Building to the very high-performance levels of the Upper Steps may require new building practices and materials. Our modelling revealed a construction cost premium of between $4,400 (Step 4) and $16,650 (Step 5) per unit.

Medium-Size Single Family Dwelling

Building a single-family home project in Surrey to the lower levels of the Step Code will increase the construction cost by between $1,000 and $3,950. Construction costs of the same-size building in Prince George and Kamloops will be significantly lower; in Prince George, using Step 2 will actually save builders money over not doing so. This is because the buildings can meet the Step Code with building envelopes that cost less than BCBC-prescribed envelopes.


Source: realspace

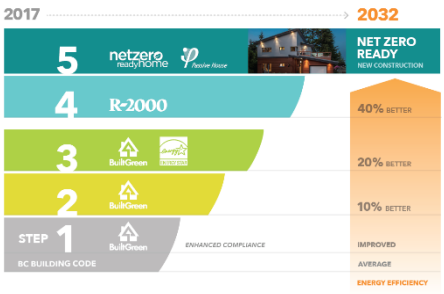
Location: Prince George
Unit Size: 2,551ft²
Climate Zone: 6
Sample Sales Price: $400,000 - $500,000
Step 1: A construction cost premium of $1,325 above the cost of building to the prescriptive requirements of the *BC Building Code*.
Step 2: A 0.4 percent construction **cost savings**, about $1,980.
Step 3: This level of energy efficiency performance may result in a cost saving of about $1,610.
Steps 4 & 5: Building to the very high-performance levels of the Upper Steps may require non-conventional building practices, so our modelling revealed a construction cost premium of between $7,210 (Step 4) and $50,840 (Step 5).

After more than a year of evaluation, wherein the contributing author's developed and peer reviewed, "literally millions of calculations and developed hundreds of scenarios", the report goes on to recommend that local governments, "begin at Step 3 of the Step Code", and that, "…as industry gains experience with energy efficient construction practices – and energy efficient products become more readily available, cost premiums will further decrease."

The report also concludes, "the projected impacts on cost are lower than typical variations in construction rates from year to year over the past ten years, and are unlikely to impact housing affordability based on the data available." Locally, conversations with the building community have generally aligned with the findings of the Metrics Report, and some builders suggesting that the actual premium for Step 3 or 4 in Whistler are likely to be even lower than projected due to the generally higher level of finishing and construction costs common across the local market.

Finally, it is important to note that while energy-retrofit funding programs for existing buildings will be important to meeting our climate targets (as per section below), but the most cost-effective time to invest in a building's energy efficiency is during the building's initial construction.

Anticipated Future Regulatory Timeline



As per Figure 1 (shown to the right for reference), the intention of the ESC is to provide a roadmap for ensuring that all new construction is built to Net Zero Energy Standard by the year 2032 (consistent with the Province of BC's Climate Leadership Plan). While this report and the associated Building Amendment Bylaw are proposing that Whistler adopts ESC Step 3 for Part 9 residential buildings beginning in 2019, it is important to note that the intent of staff, the Stakeholder Working Group, and the CHBA is that Whistler would adopt progressively higher steps over the next 10 to 13 years to align our regulatory framework with the 2032 target.

The specific details of this transition have not yet been determined, but for Part 9 residential buildings, it is anticipated that the base performance requirement would increase to Step 4 sometime between 2023 and 2026; and would further increase to Step 5 between 2028 and 2032. The specific timing of these future changes will be subject to continued engagement with the building community, discussions with other regional communities, as well as monitoring the outcomes of the transition to Step 3 over the next few years.

It is further anticipated that integration of the ESC to Part 3 (complex, commercial, institutional and industrial buildings) will be reviewed and considered once this integration is available for communities in Climate Zone 6 (likely in 2019 or 2020).

Improving Existing Buildings - Home Renovation Rebate, Retrofit Partnership program

In September of this year, the Province of BC will be launching a new Home Renovation Rebate – Retrofit Partnership (HRR-RP) program with funding provided by the federal Low-Carbon Economy Leadership Fund. The identified objectives of this Provincial program are:

1. to accelerate the reduction of GHGs from the existing building sector,
2. to reduce energy bills and improve affordability,
3. to support future energy codes and standards by increasing market share of energy efficient building technologies and retrofit approaches,
4. to improve the quality of installations and ensure efficiency potential is reached, and consumer expectations are met, and
5. foster improved standards and skills in related trades.

At present, the new HRR-RP program funding is assured for two years. Provincial staff have indicated that the intention is to migrate the program into a larger, longer running program, however with a long term funding mechanism yet to be determined.

The HRR-RP program will be fully integrated with the existing Home Renovation Rebate (HRR) program to maximize incentive dollars and minimize participant confusion, and will continue to be administered by the utility sector (primarily BC Hydro and FortisBC, as well support from BC Housing). The new program will be integrated with the existing BC Energy Coach online interface for further end-user consistency. The new provincial rebates included within the HRR-RP are specifically designed to maximize the GHG reduction potential of the retrofits (thereby aligning with the Federal Low Carbon Economy Leadership program goals), and to fill identified gaps in the existing HRR program offerings.

Stakeholder consultation with local governments, utilities and building system professionals have been undertaken over the last 6-8 months to identify the best retrofit opportunities for achieving the identified

program objectives. In order to maximize program deliverables, the Provincial government has offered local governments the opportunity to 'top-up' planned HRR-RP rebate levels in order to increase retrofit uptake levels, and maximize GHG reductions within our respective communities.

The 'top-up' option is entirely voluntary by the local governments, but it does provide a very efficient and integrated delivery mechanism for deploying rebates and incentives into the Whistler residential sector without having to take on the administrative burden of managing and processing the incentives locally. In this HRR-RP model, the Province is responsible for the planning, management, branding and promotion for the program, and the utilities are contracted out to take care of all day-to-day administration of the incentive applications and related program oversight. The local government simply provides the 'top-up' funding for any successful applications that occur within their local jurisdictions as well as any additional local marketing that they wish to contribute. After engagement with local governments, the Province is currently offering the following incentive 'top-up' options for local government consideration:

A Energy Assessments: $150
B(1) Fuel Switching Incentive: $350 (oil/propane/ng to electric heat pump)
B(2) Fuel Switching Incentive: $2,000 (oil/propane/ng to electric heat pump)

Staff have reviewed these opportunities and are recommending the B(2) option for the following reasons:

- **Option A** is redundant in structure (and lower in value in comparison) to the existing RMOW Power Down incentive structure. The RMOW already provides Energy Assessment funding to eligible homeowners (generally at $250 per assessment), so topping up in this manner would not improve local incentive levels.
- **Option B(1) and B(2)** have the potential to accelerate a shift to significantly more energy efficient HVAC systems in Whistler's residential sector. The shift from a natural gas or propane-based furnace (system efficiencies generally between 65% - 95%) to an electrical heat pump system (efficiencies generally between 200% - 300%) would typically yield the single most substantive GHG reduction potential of any available retrofit strategy for these homes (approximately an annual reduction of 4,000 – 10,000 kgCO2e per retrofit).
    - The base fuel switching incentive that will be provided by the Province for the shift to an electric heat pump will be $2,000 provided the retrofit meets the criteria listed in the table below.
    - A typical upgrade to a heat pump system for an existing home will range from $10,000 to 12,000 to potentially as much as $17,000 for larger, or more complicated installations.
    - The Provincial incentive alone would represent a rebate of value of 12%-17% of the capital cost (incl. labour), and depending on the size and thermal integrity of the building would likely represent a *negative* internal rate of return (IRR) and a simple pay back (SPB) of 25 years or longer.
    - The **B(1)** option would represent a capital cost rebate of 14%-20% and an estimated IRR of close to zero, with a SPB of 20-25 years.
    - The **B(2)** option would represent a capital cost rebate of 24% - 33% and an estimated IRR of 2% and a SPB of a little less than 20 years.
    - Note that heat pump conversions will also provide air conditioning service post retrofit. The value of this air conditioning service has not been factored into the aforementioned financial analysis, but for some homeowners would be a likely be a contributing rationale for choosing to undertake the retrofit.

- Finally, note as well that all aforementioned numbers are premised on regular natural gas rates. If renewable natural gas was used as the baseline (i.e. zero-carbon natural gas purchased through FortisBC) instead of fossil fuel based natural gas, the financial metrics change considerably – IRRs range from 9% - 20%, and SPBs for the option noted above would range from 5-7 years. While this approach would be a fair comparison from an equalized carbon footprint perspective, this is not the likely to be the actual price comparison experience of local homeowners. From a purely financial perspective, it is therefore not reasonable to assume that many gas to heat pump retrofits would occur in the absence of meaningful rebate values.

Table 1 Provincial Criteria for Fuel Switch to Heat Pump Eligibility

Measure	Incentive Level	Criteria
Fuel Switch: Air-source heat pump for space heating	$2,000	• Must be switching from fossil fuel (e.g. NG, oil, propane) • Heat pump must be providing the primary heating for the home • Air-to-air: Seasonal Energy Efficiency Ratio (SEER) of 15 or higher and Heating Seasonal Performance Factor (HSPF) of 8.5 8.5 BTU/watt-hr or higher for Region IV as tested by CSA standard C656-14 (equivalent to HSPF 7.4 for Region V) • Air-to-water or combined space & water heating: contact MEM program staff to determine product eligibility BEFORE installation

Research on rebates and incentives suggest that uptake levels are very sensitive to capital cost retrofit upgrades in this price range, and that capital cost rebate levels >20% and SPBs of ten years or less are generally necessary to engender significant program uptake. The current assessments indicate that from a purely financial lens, the economic return on this type of retrofit is modest, and without substantive incentives, there will be limited conversion between gas systems and electric heat pump. It is however also true that shifting from fossil fuel space heating systems to an electric heat pump based systems is a critical component of a required shift to a lower carbon building sector (4-10 tCO2e reductions/yr, per retrofit).

For the reasons noted above, staff recommend funding the $B_{(2)}$ top-up option for a period of two years (2019 and 2020), up to a maximum total incentive funding level of $50,000 (i.e. up to 25 successful retrofits). Recent experience and ongoing financial analysis suggests that it will be challenging to fully deploy the entire maximum value even at the 'topped-up' level, however this limit will allow staff the opportunity to evaluate program uptake and overall project success prior to committing further potential funds, restructuring the program, or potentially discontinuing it in the future.

As a point of reference, ongoing discussions with the provincial staff indicate that three communities (including Vancouver) are already committed to providing HRR-RP top-up funds within their jurisdictions, and that another five communities are currently in the process of confirming Council support for their jurisdictional involvement as well.

Staff further suggest that the source of the municipal top-up funding to support these retrofits be allocated from the existing balance of Climate Action Revenue Incentive Program (CARIP) funds. The CARIP funds currently held in 'deferred contributions' total approximately $175,000 and are a product of the municipality's carbon tax rebates associated with municipal operations over the last 3-5 years. As a matter of policy, municipal CARIP funds are kept out of the general revenue stream (in deferred contributions) and are intended to be used to accelerate GHG reduction and energy efficiency improvements across RMOW corporate operations, and to accelerate and build capacity for energy efficiency and GHG management capacity within the community. Staff feel that this opportunity is well aligned with the purpose of these rebate revenues.

WHISTLER 2020 ANALYSIS

W2020 Strategy	TOWARD Descriptions of success that resolution moves us toward	Comments
Built Environment	Building design, construction and operation is characterized by efficiency, durability and flexibility for changing and long-term uses.	The integration of the ESC will accelerate the community's shift to more energy efficient new residential buildings. The support for air source heat pump retrofits will meaningfully reduce the GHG footprint of participating homes.
	The new and renovated built environment has transitioned towards sustainable management of energy and materials	
	Streamlined policies, regulations and programs have helped to efficiently and effectively achieve green development	
	Whistler's green building sector contributes to the local economy	The integration of the ESC in Whistler will support the development and viability of the green building sector in our community by entrenching energy assessment and modelling services, energy efficient design expertise, as well as the sale and servicing of more energy efficient products and systems. Support for air source heat pump retrofits will also help support the growth of energy efficient HVAC systems and equipment within the corridor.
Energy	Energy is generated, distributed, and used efficiently, through market transformation, design, and appropriate end uses	The integration of the ESC will accelerate our community's shift to more energy efficient new residential buildings. The support for air source heat pump retrofits will meaningfully reduce the GHG footprint of participating homes.
	Residents, businesses and visitors understand energy issues	Both the ESC regulations and the new Home Renovation Rebate program will raise energy literacy for homeowners and associated businesses about the importance of energy efficiency.
	Whistler's actions will positively influence other communities' and stakeholders' movement toward sustainability	Integrating the ESC locally will help accelerate future shifts toward increased energy efficiency within the BC Building Code, and may help build momentum for other local governments to adopt the ESC within their respective jurisdictions.
Resident Housing	Housing is healthy and livable, and housing design, construction and operations are evolving toward sustainable and efficient energy and materials management	The integration of the ESC will accelerate our community's shift to more energy efficient new residential buildings. The support for air source heat pump retrofits will meaningfully reduce the GHG footprint of participating homes.

The recommended resolution has the potential to move our community away from the following Whistler2020 Descriptions of Success.

W2020 Strategy	AWAY Descriptions of success that the resolution could move us away from	Comments
Resident Affordability	Residents have access to affordable goods and services that meet their needs	Engagement with the local development community suggests that the majority of newly built residential buildings are already achieving Step 2-3 (some even higher). For new buildings the incremental cost of meeting Step 3 will be close to nil. Substantive research undertaken by independent consultants, and supported by the ESC Council have calculated that the cost premium for Step 3 construction of Part 9 bldgs is 0-1.5% (vs. the base BCBC), and is generally less than annual fluctuations in the price of trades/materials.

OTHER POLICY CONSIDERATIONS

The resolutions contained in this report are also consistent with the Official Community Plan, OCP Amendment Bylaw 1983, 2011 as well as recent related updates to same; the UBCM Climate Action Charter (to which the RMOW is a signatory); the RMOW Community Energy and Climate Action Plan (CECAP); the RMOW's commitments within the FCM Partners for Climate Protection program, the RMOW Corporate Plan as well as with Council's 2018 Strategic Priorities (in particular, to facilitate improved community environmental performance).

BUDGET CONSIDERATIONS

Building Bylaw Amendment:

The amendments of the Building Bylaw do not create any incremental costs beyond those associated with the community and stakeholder engagement mentioned within this report, legal review, and the training programs planned during the five to six month transition period. All of these aforementioned costs are included within existing 2018 project budgets. No additional budget is required or requested.

Power Down Home Energy Assessments:

This existing Power Down incentive program has been in effect since August of 2014, and all ongoing incentives noted within this report are included within the current Five Year Financial Plan. No additional budget is required or requested to support this program.

BC Home Renovation Rebate - Retrofit Partnership program, 'Top-Up Incentives':

As noted in the discussion section of this report, the recommended 'top-up' incentives would total a maximum of $50,000 over a two year period (2019 & 2020), and would be drawn from existing Climate Action Rebate Incentive Program (CARIP) rebate funds currently held in deferred contributions. These CARIP funds are intended to be used to support GHG reduction and increased energy and GHG management capacity, and staff feel that this program is a suitable use for these funds. CARIP rebates are equivalent to the annual carbon tax burden of municipal operations and total approximately $35,000 to $45,000 per year.

COMMUNITY ENGAGEMENT AND CONSULTATION

As noted in the discussion section of this report, the development of the Energy Step Code approach was developed in ongoing dialogue with representatives from the Provincial government; provincial utilities; discussions with building, development, energy management and planning department staff from neighbouring and regional local government staff; as well as a local Stakeholder Working Group. A Public Information Session was hosted on April 26 at Myrtle Philip Community School. This session was advertised in local papers, on the municipal website as well as through Whistler Today, the RMOW Facebook page, and physically at both the Building Department and Planning Department front desks; the event was also shared and promoted through Stakeholder Working Group networks. Approximately 40-45 people attended the Public Information Session.

The S2S CHBA has been actively involved in the development and consideration of both the proposed integration of the BC ESC, as well as the process to ensure an informed, and successful transition to the new regulatory approach. A letter of support (including some partial opposition) from the S2S CHBA is attached as Appendix B.

As per the Appendix B, the CHBA is highly supportive of the move to ESC Step 3 for Part 9 residential buildings. Representatives from the CHBA have been actively involved in the Stakeholder Working Group, the Open House and ongoing work on the development of the Building and Plumbing Amendment Bylaw. The CHBA is also supportive of the Step 4 requirement for Council approved, owner-initiated rezoning as noted as 13.1.2 in the Amendment Bylaw.

It is noted that the CHBA does not support Step 4 requirements being applied to buildings that intend to include the construction of “in-ground basement floor area” that is excluded from gross floor areas calculations consistent with Part 5 of the Zoning Bylaw (Clause 13.1.3); nor did they support clause 13.2 related to general ESC reporting requirements.

Staff reviewed (the previous) clause 13.2 and noted that this particular bylaw language was used in only one of the precedent community bylaws, and that the removal of the clause did not materially impact the management of future energy reporting requirements. It is the intent of staff to leverage the new provincial templates for ESC energy reporting (shared with CHBA), and submission requirements for all aspects of the permitting process are adequately dealt with within the existing Building and Plumbing Bylaw. As such, staff were agreeable to the removal of clause 13.1.2 as suggested.

The CHBA letter contends that any additional requirements of any type that would be placed on owners that intend or desire the opportunity to build additional “in ground basement” floor area will lead to the re-emergence of the illegally constructed space, thereby potentially compromising occupant life safety. Notwithstanding the CHBA position on this matter, the discussions at the Public Information Session, the results of the Survey, and the opinion of staff all support the continued inclusion of clause 13.1.3.

Staff believe that the risk that owners will knowingly build new illegal space to avoid the requirement of constructing a 10% more energy efficient building is very low. Staff rationale for this position are as follows:

1. The current regulatory environment for new buildings is fundamentally different, covenants are no longer used as a tool to regulate void spaces within construction
2. New basements are large excavations easily identified by inspectors,
3. The price premium of a 10% increase in energy efficiency is small relative to the investments that are being made in new “in ground basement spaces”. Increasing energy efficiency from Step 3 to Step 4 requires a 10% improvement in overall building energy efficiency. The construction cost increase between Step 3 and 4 will vary based on the type of construction,

methods used, and other variables, however the incremental cost is forecasted to be between 0.5% to 1.5% (vs. Step 3) for Climate Zone 6. As such, a 3,500 ft^2 house constructed at prime cost of \$350/ft^2 would incur a potential increased cost of construction related to the energy performance requirements of between \$1.80 to \$5.30/ft^2, or an incremental cost of \$6,000 to \$18,000 for the entire home. Over the last three years, the reported prime cost value of the in-ground basement space for new Part 9 residential construction has averaged \$660,000 and an average size of 1,764 ft^2. Staff feel strongly that the additional Step 4 energy requirement will not create a regulatory environment that would encourage new illegal construction driven by energy performance requirements, and would provide meaningful energy efficiency improvements to the approximately 66% of new residential homes that choose to include in ground basement space in their new homes.

4. Finally, staff believe that owners generally want to build legal, conforming spaces that are energy efficient.

Finally, in addition to above, an ESC public opinion survey was developed and promoted for the three weeks immediately after the Public Information Session. The results of Opinion survey are presented in the Discussion section above. Approximately 90 people responded to the survey.

All materials developed through this process have also been shared with neighbouring local governments.

SUMMARY

This report requests Council's consideration of first, second and third reading for Building and Plumbing Regulation Amendment Bylaw (Energy Step Code) No. 2197, 2018. The report also requests that Council direct staff to continue the delivery of the Power Down Home Energy Assessment Incentive program, and to direct staff to provide 'top-up' funding in support of the Province of BC's upcoming Home Renovation Rebate - Retrofit Partnership program.

Respectfully submitted,

Ted Battiston
DIRECTOR, CORPORATE, ECONOMIC AND ENVIRONMENTAL SERVICES
and
Joe Mooney
MANAGER, BUILDING DEPARTMENT
for
Jan Jansen
GENERAL MANAGER OF RESORT EXPERIENCE

Appendix A
Building and Plumbing Regulation Amendment Bylaw (Energy Step Code) No. 2197, 2018
July 10, 2018

Table 9.36.6.3.C Requirements for Buildings Located Where the Degree-Days Below 18°C Value is greater than 3999 (Climate Zone 6, 7a, 7b, and 8)[1]

Forming Part of Sentence 9.36.6.3.(1)

STEP	AIRTIGHTNESS (AIR CHANGES PER HOUR AT 50 PA PRESSURE DIFFERENTIAL)	PERFORMANCE REQUIREMENT OF BUILDING EQUIPMENT AND SYSTEMS	PERFORMANCE REQUIREMENT OF BUILDING ENVELOPE
1	N/A	EnerGuide Rating % lower than EnerGuide Reference House: not less than 0% lower energy consumption or Conform to Subsection 9.36.5.	
2	≤ 3.0	EnerGuide Rating % lower than EnerGuide Reference House: not less than 10% lower energy consumption **or** mechanical energy use intensity ≤ 100 kWh/m².year	Thermal energy demand intensity ≤ 70 kWh/m².year **or** Peak thermal load ≤ 55 W/m²
3	≤ 2.5	EnerGuide Rating % lower than EnerGuide Reference House: not less than 20% lower energy consumption **or** mechanical energy use intensity ≤ 85 kWh/m².year	Thermal energy demand intensity ≤ 60 kWh/m².year **or** Peak thermal load ≤ 50 W/m²
4	≤ 1.5	EnerGuide Rating % lower than EnerGuide Reference House: not less than 40% lower energy consumption **or** mechanical energy use intensity ≤ 55 kWh/m².year	Thermal energy demand intensity ≤ 50 kWh/m².year **or** Peak thermal load ≤ 45 W/m²
5	≤ 1.0	Mechanical energy use intensity ≤ 25 kWh/m².year	Thermal energy demand intensity ≤ 15 kWh/m².year **or** Peak thermal load ≤ 10 W/m²

CANADIAN
HOME BUILDERS' ASSOCIATION
SEA TO SKY

Good morning, Ted.

Thank you for the feedback. On June 20th the CHBA Sea to Sky chapter reviewed the proposed bylaw and have the following thoughts on it. I will keep this short and to the point.

13.1.1 - The CHBA Sea to Sky chapter supports this bylaw as noted.
13.1.2. - The CHBA Sea to Sky chapter supports this bylaw as noted.
13.1.3. – The CHBA Sea to Sky chapter do not support this bylaw.
13.2. – The CHBA Sea to Sky chapter do not support this bylaw.

Notes:

13.1.1 – The proposed bylaw confirms to the intent of the Step code and reflects, what we believe, the Whistler community and contractors think the energy requirements of Whistler Part 9 buildings should be build too.

13.1.2. – The proposed bylaw reflects, what we believe, would be a reasonable requirement for increased density and use.

13.1.3. – The proposed bylaw compromises the intent of the bylaw 26.1. (ii). Bylaw 26.1.(ii) was created primarily to ensure that the life-safety concerns with unpermitted construction is encouraged to be permitted and in the process ensured to be 'safe'. The CHBA Sea to Sky Chapter is concerned that ANY additional requirements put on top of the studied and approved bylaw will discourage/hinder the intent of bylaw 26.1(ii). We understand that other municipalities have similar bylaws but believe that other municipalities do not have the same problem with development of previously undeveloped basements.

13.2. The bylaw as proposed allows for inconsistency in the minimum documentation requirements for building permits conformity with the bylaw proposed in 13.1.1. The provincial requirements for energy modeling requirements are very clear and as such we would encourage an amendment by the building permit 'check-list' that include the energy modeling documentation. This will ensure that applications can be made/accepted with complete documentation.

If you would like to discuss, please contact David Girard and or Derek Venter who has been assigned to this task.

Kind regards,
Derek Venter
Vice President,
CHBA Sea to Sky Chapter

WHISTLER

REPORT | ADMINISTRATIVE REPORT TO COUNCIL

PRESENTED:	July 10, 2018	**REPORT:**	18-088
FROM:	Office of the CAO	**FILE:**	VAULT
SUBJECT:	WHISTLER VILLAGE LAND CO. LTD. – 2018 ANNUAL REPORT		

COMMENT/RECOMMENDATION FROM THE CHIEF ADMINISTRATIVE OFFICER

That the recommendation of the Director of Corporate, Economic and Environmental Services be endorsed.

RECOMMENDATION

That Council of the Resort Municipality of Whistler in open meeting assembled, hereby resolves that the Municipality, as sole shareholder of the Whistler Village Land Co. Ltd. (the "Company") pass the 2018 consent resolutions of the shareholders of the Whistler Village Land Co. Ltd., a copy of which is attached to Administrative Report to Council No 18-088 as Appendix "A", and that the Mayor and Municipal Clerk execute and deliver the attached resolutions on behalf of the Municipality; and

That Council accept the resignation of Ken Roggeman as Director and Officer of Whistler Village Land Co. Ltd. as of April 26, 2018.

REFERENCES

Appendix "A" – 2018 Shareholders' Resolutions
Appendix "B" – 2018 Directors' Consent Resolution
Appendix "C" – 2017 Financial Statements
Appendix "D" – Resignation of Ken Roggeman

PURPOSE OF REPORT

The purpose of this Report is to seek Council's approval for the Mayor and Municipal Clerk to execute the annual Shareholders' Resolutions of Whistler Village Land Co. Ltd.

DISCUSSION

The filing of the 2018 Annual Report of Whislter Village Land Co. Ltd. is now due for filing with the Registrar of Companies.

The Shareholders' Consent Resolutions for the 2018 Annual Report are as follows:

1. That the report of the Directors to the Shareholder on the affairs of the Company and the financial statements dated December 31, 2017 be accepted and that all acts and proceedings of the Directors since the date of the last Annual General Meeting be confirmed and approved.

2. That:

    - Nancy Whilhelm-Morden
    - Louis Edward Battiston, and
    - Maureen Peatfield

    having consented in writing to act as Directors of the Company, be elected directors of the Company, to hold office until the next Annual General Meeting of the Company or until sooner ceasing to hold office.

3. That pursuant to Section 204 of the *Business Corporations Act* in respect of the current financial year, the appointment of an auditor is hereby waived.

4. That pursuant to Section 180 of the *Business Corporations Act*, the Resort Municipality of Whistler, being the sole shareholder of the Company entitled to attended and vote at the Annual General Meeting, does hereby waive the holding of the said meeting and does consent in writing to all of the foregoing resolutions, which constitute proceedings in lieu of the 2018 Annual General Meeting of the Company and does specify April 7, 2018 as being the date on which the 2018 Annual General Meeting shall be deemed to have been held, as evidenced by the signatures of the Mayor and Corporate Officer hereto.

Ken Roggeman resigned from his position as Director and Officer of the Company as of April 26, 2018.

WHISTLER 2020 ANALYSIS

W2020 Strategy	TOWARD Descriptions of success that resolution moves us toward	Comments
Economic Strategy	The Whistler economy provides opportunities for achieving competitive return on invested capital.	Corporations in good standing with the BC Registrar of Companies are able to operate to take full advantage of financial opportunities.

The filing of Whistler Village Land Co. Ltd.'s annual filing does not move our community away from any of the adopted Whistler 2020 Descriptions of Success.

OTHER POLICY CONSIDERATIONS

Pursuant to Section 203 of the *Business Corporations Act*, the Company may consent in writing to waive the appointment of an auditor.

BUDGET CONSIDERATIONS

There will be minimal costs incurred for the filing of the documents with the Registrar of Companies. All costs associated with the filing of the documents will be accommodated within existing Legislative Services budgets.

SUMMARY

The 2018 Annual Report of Whistler Village Land Co. Ltd. must be filed with the Registrar of Companies. This Report seeks Council's approval of the Shareholders' Resolutions of Whistler Village Land Co. Ltd. as attached in Appendix "A" to this Report.

Respectfully submitted,

Wendy Faris
LEGISLATIVE AND PRIVACY COORDINATOR
for
Brooke Browning
MUNICIPAL CLERK
for
Ted Battiston
DIRECTOR, CORPORATE, ECONOMIC & ENVIRONMENTAL SERVICES

Incorporation No. BC0173471

WHISTLER VILLAGE LAND CO. LTD.
(the "Company")

RESOLUTIONS OF SHAREHOLDER IN WRITING
AND
WAIVER OF ANNUAL GENERAL MEETING

WHEREAS the Resort Municipality of Whistler is the sole shareholder of the Whistler Village Land Co. Ltd.

Pursuant to the provisions of Section 180 of the *Business Corporations Act* (British Columbia), the following resolutions are passed by the shareholder of the Company entitled to attend and vote at the annual general meeting of the Company.

FINANCIAL STATEMENTS

RESOLVED that the report of the Directors to the Shareholder on the affairs of the Company and the financial statements dated December 31, 2017 be accepted and that all acts and proceedings of the Directors since the date of the last Annual General Meeting be confirmed and approved.

APPOINTMENT OF DIRECTORS

RESOLVED that Nancy Wilhelm-Morden, Louis Edward Battiston, and Maureen Peatfield having consented in writing to act as directors of the Company, be elected directors of the Company, to hold office until the next annual general meeting of the Company or until sooner ceasing to hold office.

WAIVER OF APPOINTMENT OF AUDITORS

RESOLVED that pursuant to Section 204 of the *Business Corporations Act* (British Columbia) in respect of the current financial year, the appointment of an auditor is hereby waived.

WAIVER AND CONSENT

RESOLVED that pursuant to Section 180 of the *Business Corporations Act* (British Columbia), the Resort Municipality of Whistler, being the sole shareholder of the Company entitled to attend and vote at the annual general meeting, does hereby waive the holding of the said meeting and does consent in writing to all of the foregoing resolutions, which constitute proceedings in lieu of the 2018 Annual General Meeting of the Company and does specify April 7, 2018 as being the date on which the 2018 Annual General Meeting shall be deemed to have been held, as evidenced by the signatures of the Mayor and Corporate Officer hereto.

DATED this _____ day of _____, 2018.

RESORT MUNICIPALITY OF WHISTLER by its authorized signatories:

_____
Mayor:

_____
Municipal Clerk:

Incorporation No. BC0173471

WHISTLER VILLAGE LAND CO. LTD.

("Company")

DIRECTORS' RESOLUTIONS

Pursuant to the articles of the Company, the following resolutions are passed as resolutions of the directors of the Company, duly consented to in writing by all the directors of the Company.

RESOLVED THAT:

1. the following persons be and are hereby appointed officers of the Company to hold the offices set opposite their names until their successors are appointed, at the pleasure of the Board of Directors:

Nancy Wilhelm-Morden	- President
Louis Edward Battiston	- Secretary
Maureen Peatfield	- Treasurer; and

2. the financial statements of the Company for the financial year ended December 31, 2017 be approved and that any two directors of the Company be authorized to sign the balance sheet included in the financial statements as evidence of such approval.

DATED this _____ day of _____, 2018.

_____
NANCY WILHELM-MORDEN

_____
LOUIS EDWARD BATTISTON

_____
MAUREEN PEATFIELD

WHISTLER VILLAGE LAND CO. LTD.

FINANCIAL STATEMENTS
DECEMBER 31, 2017
Unaudited

TABLE OF CONTENTS

These Financial Statements are prepared for internal management purposes.

WHISTLER VILLAGE LAND CO. LTD.

BALANCE SHEET
AS AT DECEMBER 31, 2017

UNAUDITED

	2017	2016
ASSETS		
Cash	20,235	14,164
Accounts Receivable	3,629	2,801
	23,863	16,965
Capital assets, at cost	15,111,489	15,472,794
	$15,135,351	$15,489,758
LIABILITIES		
Due to Resort Municipality of Whistler	388,198	196,061
	388,198	196,061
EQUITY		
Share Capital	1	1
Equity in Capital Assets -Contributed Surplus	15,111,489	15,472,793
Unallocated Surplus	(364,336)	(179,098)
	14,747,153	15,293,696
	$15,135,351	$15,489,758
	$0	

WHISTLER VILLAGE LAND CO. LTD.

STATEMENT OF REVENUE AND EXPENDITURES
YEAR ENDED DECEMBER 31, 2017

UNAUDITED

	2017 Budget	2017 Actual	2016 Actual
REVENUE			
Parkade User Fees	123,082	124,214	123,081
Interest	0	151	88
Patio Licence Fees	37,000	40,538	41,679
Recoveries	52,500	52,800	56,371
	$212,582	$217,702	$221,218
EXPENDITURES			
Amortization	0	525,877	525,297
Utilities	51,231	62,422	48,680
Repairs and Maintenance	170,521	169,853	199,217
Administration and Other	5,000	6,094	3,799
Capital expenditures			
	$226,752	$764,246	$776,994
EXCESS REVENUE OVER EXPENDITURES FOR THE YEAR	(14,170)	(546,543)	(555,776)
Beginning Surplus	$15,293,696	15,293,696	15,849,472
BALANCE, END OF YEAR	$15,279,526	$14,747,153	$15,293,696

Certificate of Incorporation
No. 0173471

RESORT MUNICIPALITY OF WHISTLER MUNICIPAL CORPORATION

Whistler Village Land Co. Ltd.

RESIGNATION OF OFFICER/ DIRECTOR

I, **Ken Roggeman**, hereby resign as Officer and Director of Whistler Village Land Co. Ltd. effective April 26, 2018.

Signature

Ken Roggeman

Print Name: Ken Roggeman

WHISTLER

MINUTES

REGULAR MEETING OF LIQUOR LICENCE ADVISORY COMMITTEE
THURSDAY, JANUARY 11, 2018 STARTING AT 8:45 A.M.

In the Flute Room at Municipal Hall
4325 Blackcomb Way, Whistler, BC V0N 1B4

PRESENT:

Food & Beverage Sector Representative – Pubs, Mike Wilson
Food & Beverage Sector Representative – Nightclubs, Terry Clark
Food & Beverage Representative – Restaurants, Vice-Chair, Kevin Wallace
Accommodation Sector Representative, Chair, Colin Hedderson
RMOW Staff Representative, Secretary, Frank Savage
Liquor Control and Licensing Branch (LCLB) Inspector, Holly Glenn
Whistler Community Services Society Representative, Cheryl Skribe
Recording Secretary, Donna Savage

REGRETS:

Councillor, Steve Anderson
Whistler Fire Rescue Service Representative, Geoff Playfair
Public Safety Department Representative, RCMP, Rob Knapton

Vice-Chair Kevin Wallace called the meeting to order at 8:46 a.m.

ADOPTION OF AGENDA

Moved by Kevin Wallace
Seconded by Terry Clark

That Liquor Licence Advisory Committee adopt the amended Agenda of January 11, 2018 LLAC meeting to defer to a future meeting the presentation on the proposed amendments to the Terms of Reference of the Liquor Licence Advisory Committee.

CARRIED

ADOPTION OF MINUTES

Moved by Mike Wilson
Seconded by Kevin Wallace

That Liquor Licence Advisory Committee adopt the Regular Liquor Licence Advisory Committee minutes of August 10, 2017.

CARRIED

COUNCIL UPDATE

As the Council representative was not present, there was no Council update.

PRESENTATIONS/DELEGATIONS

Liquor Licences for Non-Traditional Businesses - Community Feedback
File 8292.03

A presentation by Frank Savage was given regarding the new provincial policy to permit non-traditional businesses to apply for a liquor licence and the results of community engagement on the potential impacts of these licences.

- Provincial Liquor Control and Licensing Branch (LCLB) liquor policy on non-traditional businesses
  - Any business, except those that operate in a motor vehicle or are primarily directed at minors, can apply for a liquor primary licence.
  - Any business, even businesses without a primary focus on food service, can apply for a food primary licence
- Current high level RMOW liquor policy on non-traditional businesses
  - Liquor service complementary and subordinate to primary business
  - Liquor service only when primary business operating
  - Maximum liquor service hours 9 a.m. to 10 p.m.
  - Access by minors must be considered
  - Impacts on community must be considered/mitigated
  - Community support for liquor primary licences is necessary
  - Serving It Right certification required
- City of Vancouver liquor policy on non-traditional businesses
  - Only applications from arts and cultural organizations will be considered on a case by case basis for a liquor licence
- Liquor licence application fees
  - Liquor primary: $7,000 combined LCLB and RMOW application fees, including first year LCLB licence fee
  - Food primary: $1,250 combined LCLB and RMOW application fees, including first year LCLB licence fee
- Proposed RMOW policy framework – Temporary Use Permits
  - Considered on case-by-case basis
  - Provide flexibility
  - Valid for limited period of time, but can be renewed
  - Do not establish permanent uses – unlike zoning
  - Could satisfy policy objectives for regulation of liquor licences for non-traditional businesses
  - Temporary Use Permit application would be part of the RMOW liquor licence application process
- Open house and online survey questions
  1. What potential positive and/or negative impacts might liquor licences for non-traditional businesses have on resident and visitor experience, existing liquor licensed establishments, public health and safety, resort reputation?
  2. Suggest licence conditions to manage the negative impacts
  3. What types/locations of businesses should or should not be considered for a liquor licence?
  4. What other comments do you have?
  5. What comments do you have about Temporary Use Permits?
- Feedback received
  A total of 30 community members attended the December 14, 2017 open house at the Whistler Conference Centre. An online survey was

available from December 15 through January 2, and 15 people provided comments. The following are the most frequent comments received from the open house and the online survey.

1.a. Potential positive impacts on resort
- Expands and enhances visitor experience
- Closer to the "European model"
- Expected by international visitors
- Industry leader, innovative
- Less restrictive, more appealing
- Added value for businesses
- Reduce line-ups during busy après
- Legitimize current unlicensed serving

1.b. Potential negative impacts on resort
- Increased consumption/over consumption
- Impacts on surrounding businesses
- Insurance will go up
- Negatively impact family experience
- Businesses push the boundaries
- Party town reputation and behaviours
- Could lead to saturation of market
- Take business from existing establishments
- Inexperienced, poorly trained servers

2. Suggested licence conditions to manage negative impacts
- All staff must have Serving It Right; Business management policies to support
- Ensure businesses remain focused on primary business, not liquor service
- Limit quantity of liquor sold to a customer
- Limit sales to beer and wine, not spirits
- To protect other businesses require a minimum price
- Limit consumption to post-activity for motorized events/businesses
- Minimum of two staff always present

3.a. Businesses that should be considered for a licence
- "Experience providers", not pure retail
- Spas
- Everyone should be able to apply
- Salons, barber shops
- Assess on case by case
- Those that are safe and appropriate

3.b. Businesses that should not be considered for a licence
- Any child focused business
- Businesses with many under-age staff
- Assess case by case
- Those without appropriate space
- Purchase-based, not service-based
- Any motorized activity

4. Other comments received

- Have "liquor primary lite" licence, with limit on number of drinks sold, restricted hours, beer and wine only
- Allow businesses operating 10 a.m. to 6 p.m. to serve liquor after business hours
- Consider models in Europe and other ski resorts
- Ensure Village Stroll remains family friendly
- I do not feel that non-traditional business should be able to sell liquor. However, allow businesses to offer a small sample quantity, similar to how hotels are able to do

5. Comments regarding Temporary Use Permits
   - Limited length of permit, cost, other regulations make it prohibitive to small businesses
   - Offer a hybrid, retail based liquor licence
   - When does liquor licence become permanent?
   - Ensure we keep the uniqueness of the Village
   - Set regulations to prevent businesses from turning into a pub

- A discussion was then held regarding municipal policies and potential restrictions or conditions for liquor licences for non-traditional businesses.

1. Types of licences: food primary and/or liquor primary
   - The LCLB terms and conditions manuals for both food primary and liquor primary licences are comprehensive in defining the responsibilities of licence holders and their employees.
   - If these requirements are followed, it may be adequate to address the concerns expressed by the community about the management of liquor service.
2. Types and locations of businesses
   - There was general agreement that the application costs and the LCLB requirements for either type liquor licence would preclude most businesses from applying for a licence.
   - Staff were informed by a liquor licensing consultant that as of December there are only three liquor primary licences issued to non-traditional business in all of BC
   - The new provincial policy would provide an opportunity for those businesses currently serving liquor illegally (without a licence) to legitimize their current business practices.
   - It was suggested that each application for a liquor licence should be evaluated on its own merit.
   - Once a liquor licence is issued then provincial and municipal regulations should ensure that licence holders continue to focus on their main business, not liquor sales.
3. Hours of liquor service
   - Restrict liquor service to the normal hours of business, but not beyond the current RMOW policy hours of 9 a.m. to 10 p.m.
   - Restrict to a 10 p.m. end to liquor service, even if the business is open later.
   - Consider further restrictions on a case by case basis.
   - If business hours change they must apply to liquor branch for permanent change in hours of liquor service.

- For a special event the business could de-licence and apply for a Special Event Permit (SEP) with later hours. Some retail businesses hold SEP licensed events on a periodic basis, also giving them the flexibility to provide complimentary liquor.

4. Area in business where liquor may be consumed
   - Seating should not be mandatory because this might encourage people to stay longer and therefore consume more liquor, taking the focus away from the main business.
   - Licencing of patios could be problematic, as it may encourage others who are not customers to join friends for a drink.
   - Deal with the patios on a case by case basis.
5. Person capacity of liquor service area
   - The calculation of the maximum occupant load for non-traditional businesses when liquor is being served is the same for a licensed establishment and is specified in existing municipal policy (Council Policy G-17 *Municipal Liquor Licensing Policy*, Section 7.0 A-D).
   - Retail businesses use every square inch of space. Therefore, the existing regulations will likely result in a relatively small occupant load when liquor is being served.
6. Types of liquor served/amount of liquor per customer
   - Restrictions on quantity are not enforceable. Existing regulations and penalties on over-service are sufficient.
   - Restrictions on liquor type are not necessary and would not be practical to enforce.
7. Access by minors/employment of minors
   - Current LCLB regulations state the conditions under which minors who are employed by a licensed business can deliver liquor but cannot open or pour it.
   - Licensing of businesses which employee minors or where the customer base includes minors is a major issue to be concerned about. Minors learn from visualization and perceived societal norms.
   - If a businesses is licensed to serve liquor, what happens when only under age staff are on site? Businesses should consider the implications on youth employment opportunities in situations when only one staff member is present.
   - Restrictions could be built into a Temporary Use Permit.
8. Types of entertainment offered
   - The LCLB has some restrictions on types of entertainment, especially if minors area present.
   - Certain types of entertainment could shift the focus away from the primary business, which would contravene LCLB regulations.
   - If there are further concerns, then restrictions could be included in the Temporary Use Permit.
9. Number of licences issued in Whistler
   - Restrictions are likely not necessary due to the cost and conditions of applying for and managing a liquor licence.
   - A large uptake of liquor licence applications is not anticipated.

- If there are a large number of applications, then a restriction in numbers might be considered in future.

10. Temporary extension of hours/area for events
    - These should not be considered if it shifts away from primary business. Licence extensions for events should only be considered if they complement the primary business.
    - All applications for temporary extensions of licensed hours or area are referred to LLAC members in accordance with municipal policy, so this will give LLAC members an opportunity to provide their comments on specific applications.
11. Temporary Use Permit (TUP)
    - Duration of initial permit
        - Follow the Vancouver policy for restaurant hours. One year trial period and then renew.
        - The possibility of the TUP not being renewed may prevent businesses from applying for a liquor licence.
    - Renewal criteria
        - Use LLAC review criteria as a starting point.
        - Consider additional restrictions, if merited by the application.
    - Renewal period
        - Current liquor licences must be renewed annually by the LCLB.
        - The TUP could be renewed annually or it could be considered for a longer time.
12. Other conditions or restrictions
    - The LCLB is not responsible for telling businesses how they manage their business.
    - Temporary Use permit would be used to give RMOW some control over the process. This would be built into bylaw and therefore could be enforced by the RMOW.
    - Current LCLB regulations state that if the business is sold the licence is inherited (if the new owner meets the LCLB suitability criteria), and the business cannot be changed to some other business. They can change the name, etc. but it will still be the same type of business. If it changes they must notify the LCLB.
    - If sales of liquor become out of line with main business this could this be flagged and dealt with by the LCLB.

Accommodation Sector Representative, Chair, Colin Hedderson, entered the meeting at 9:45 a.m.

Food & Beverage Representative – Restaurants, Vice-Chair, Kevin Wallace, left the meeting at 9:50 a.m.

OTHER BUSINESS

1. ELECTION OF CHAIR AND VICE-CHAIR

The LLAC Terms of Reference state that the Chairperson shall be elected to a term of one-year. Both a chair and a vice-chair should be elected.
Moved by Terry Clark
Seconded by Kevin Wallace

That Mike Wilson be elected chair and Terry Clark be elected vice-chair of the LLAC.

CARRIED

2. LLAC MEETING TIME

- Early morning (8:45 a.m.) meeting start times are difficult for the food and beverage sector representatives.
- Fire and RCMP representatives are sometimes not available; how can we accommodate them?
- Perhaps a community police person could be invited.
- Frank will survey the committee to determine optimal day of the week and time for the next and future meetings.

3. SPECIAL EVENT PERMITS (SEP) POLICY CHANGE

- The LCLB issued Policy Directive 18-01 on January 10, 2018, which allows the general manager of the LCLB to exempt SEP holders from donating event profits to charity if the event is of municipal, provincial, national or international significance. The LCLB policy change was made to support the music industry in BC.
- Previous LCLB Policy
  - The LCLB established maximum ("cost-recovery) prices for liquor ($5.25 for beer) at an SEP event. If an event charged more than these prices, all profits from the entire event must go to a charitable cause.
  - Non-profit organizations often obtained the SEP licence for large events and assumed the risks in the hope of receiving a financial benefit from the event organizer.
  - The charity assessed the risks and potential benefits of holding the liquor licence.
  - Any SEP for more than 500 require Council approval.
- New LCLB Policy
  - For events determined to be of municipal, provincial, national or international significance, the event producer can hold the SEP, make a profit by charging more than the cost-recovery price and no link with a non-profit is required.
  - This takes the liquor licence risk away from the non-profit but also takes away a potential source of funding.
  - The Whistler Community Services Society (WCSS) representative noted that it is a fine line for WCCS benefits versus risk. There has to be the spirit of community rather than mandating a donation to a non-profit.
  - WCSS experiences a higher demand for its services during large festivals/events without any substantial benefit, even though the Whistler resort community as a whole benefits from the festival/event.
  - The LCLB will determine if an event is of provincial, national or international significance. The RMOW will need to decide how to deal with applications from an event producer to make a profit for events they identify as being of "municipal significance."

4. Legalization of Recreational Cannabis

- The LCLB Liquor Inspector noted that the LCLB is actively reviewing the implications and uncertainties around the introduction of legalized recreational cannabis.
- It is unknown if the distribution of recreational cannabis will occur in conjuction with liquor distribution.
- The RMOW is updating its bylaws in anticipation of the legalization of recreational cannabis.

MOTION TO TERMINATE

Moved by Colin Hedderson

That Liquor Licence Advisory Committee meeting of January 11, 2018 be terminated at 10:02 a.m.

CARRIED

Vice-Chair: Kevin Wallace

Recording Secretary: Donna Savage

WHISTLER

MINUTES

REGULAR MEETING OF THE MAY LONG WEEKEND COMMITTEE
TUESDAY, APRIL 3, 2018, STARTING AT 3:00 P.M.

In the Piccolo Room
4325 Blackcomb Way, Whistler, BC V0N 1B4

PRESENT:

Chair, Councillor C. Jewett
Accommodation Sector Representative, D. Andrews
Liquor Primary Sector Representative, T. Clark
Member at Large, S. McCullough
Restaurant Sector Representative, K. Wallace
Retail Merchants Sector Representative, N. Shannon
RCMP Representative, S. Sgt. P. Hayes
RCMP Acting Corporal B-Watch, M. Gauthier
RMOW Manager of Protective Services, S. Story
RMOW Manager, Village Animation and Events, B. Andrea
RMOW Protective Services Planning Analyst, K. Creery
Recording Secretary, R. Lawrence

REGRETS:

RMOW General Manager, Corporate and Community Services, N. McPhail

ADOPTION OF AGENDA

Moved by K. Wallace
Seconded by S. Story

That the May Long Weekend Committee adopt the May Long Weekend Committee agenda of April 3, 2018.

CARRIED

ADOPTION OF MINUTES

Moved by N. Shannon
Seconded by T. Clark

That the May Long Weekend Committee adopt the Regular May Long Weekend Committee minutes of June 19, 2017.

CARRIED

PRESENTATIONS/DELEGATIONS

Review of May Long Weekend and 2018 Plan

A presentation by Shannon Story, Manager Protective Services was given regarding a review of the history of the May Long Weekend and the 2018 plan. Key 2018 focus points include a resort friendly focus, building on success,

retaining resources and the operational plan. RCMP will continue with a strong presence. A discussion was held and topics included:

- Developing accommodation/ GO Fest events packages
- Obtaining a large 'Tough Mudder'-like event for that weekend
- Having security patrols in parkades / lots
- Contacting parent advisory committees to inform parents
- Adding links to event websites (Whistler Valley Trail Run) to Go fest programming and packages

GO Fest

A presentation by Bob Andrea, Manager, Village Animation and Events was given regarding GO Fest 2018. The focus is on a resort-friendly atmosphere. A discussion was held.

OTHER BUSINESS

There were no items of Other Business.

TERMINATION

Moved by K. Wallace
Seconded by D. Andrews

That the May Long Weekend Committee meeting of April 3, 2018 be terminated at 4:01 p.m.

CARRIED

Chair, Councillor C. Jewett

Recording Secretary, R. Lawrence

WHISTLER

MINUTES

REGULAR MEETING OF RECREATION LEISURE ADVISORY COMMITTEE
THURSDAY, MAY 3, 2018, STARTING AT 3:00 P.M.

In the Flute Room
4325 Blackcomb Way, Whistler, BC V0N 1B4

PRESENT:

Manager, Resort Parks Planning, RMOW, Martin Pardoe
Recreation Manager, RMOW, Roger Weetman
Member at Large, Diane Ziff
Member at Large, Chair, Josie Chuback
Member at Large, Kirk Paterson
Member at Large, Roger Soane
Member at Large, Lynda Harnish
Councillor, Jen Ford
Howe Sound School District 48 representative, Ian Currie
Recording Secretary, RMOW, Shannon Perry

REGRETS:

Member at Large, Andrew Ross
Member at Large, Murray Lunn
Member at Large, Dave Clark
Tourism Whistler representative, Meredith Kunza

Meeting called to order at 3:01 p.m.

Round table introduction from the committee.

ADOPTION OF AGENDA

Added BCRPA symposium 2019

Moved by Jen Ford
Seconded by Lynda Harnish

That Recreation Leisure Advisory Committee adopt the Recreation Leisure Advisory Committee agenda of May 3, 2018

CARRIED

ADOPTION OF MINUTES

Moved by Jen Ford
Seconded by Lynda Harnish

That Recreation Leisure Advisory Committee adopt the Regular Recreation Leisure Advisory Committee minutes of March 8, 2018.

CARRIED

PRESENTATIONS/DELEGATIONS

Update by SD48 representative

An update to the committee by School District 48 (SD48) Director of Operations Ian Currie regarding the Whistler Area Long Term Facilities Planning

Full presentation package on the SD48 website – www.sd48seatosky.org/wp-content/uploads/2018/03/Whistler-Area-Long-Term-Facilities-Planning-Information-Package.pdf

Ian provided a brief overview of the presentation related to growth, challenges and potential outcomes for the Whistler community.

Three scenarios for Whistler – these were available for community and staff input:

1- Primary and intermediate model – Spring Creek grades K – 3, Myrtle Phillip grades 4 -8, Whistler Secondary grades 9 – 12.
2- Large expansion at the Whistler high school – Grade 6 – 12.
3- A new middle school build – with a new build Spring Creek would be grades K-5, Middle 6-8, Whistler Secondary 9-12.

Pros and cons of each outlined in the presentation.

The SD48 have 35 acres above Myrtle Philip Community Elementary School. The land is held in trust for school expansion. If a school was committed to on this site it would likely use approximately 7 acres of the available land. Consideration would need to be given to the remaining lands – retained by the SD48 for future needs, sold off for development or some other use. Potentially the SD48 could work with the RMOW to preserve the remaining acreage.

Feedback from the community was positive but it should be noted the SD48 were hearing a lot about the need for housing – the community's response build the school as well as housing.

Next steps -

SD48 will make a recommendation to the ministry of education board that they support the middle school model in Whistler. If it is approved the project will be entered into the 5 year capital plan. Typically a new school is developed on a five year feasibility, planning, design and construction schedule.

Further to this presentation and discussion the committee was in full support of the SD48 and their plans to adapt to the growing Whistler community.

Moved by Jen Ford
Second by Diane Ziff

That Recreation Leisure Advisory Committee are interested in collaborating with the SD48 on moving forward with initiatives and looking at opportunities to enhance community space through the school.

CARRIED

Joint school use agreements.

A brief overview from RMOW Recreation Manager regarding joint school agreements.

- Whistler holds one of British Columbia's first joint use agreements.
- Myrtle Phillip Elementary School just celebrated 25 years operating as a school and community centre in Whistler.
- Spring Creek and Myrtle Phillip are approximately an $80K cost per year plus annual capital costs.
- Spring Creek has a small amount of community space, in the 2000's the community rooms were not used that much. SD93 (La Ecole Paserelle) now has an exclusive use to the community rooms based on a separate agreement with the RMOW.
- Whistler high school – the RMOW was more involved on a capital level purchasing items such as the gym the bleachers.
- The High School agreement has a proportional use agreement vs the elementary schools that have fixed use agreements.

Questions & Answers:

If a community group wanted to use the facility do they come to the school district or RMOW? The RMOW generally handle bookings of the facility.

If Waldorf closed would the kids fit into the school? No – the schools are currently at capacity. Demographers do review birth rates, adults of age who might have children, marital status, ages of people in homes etc.

Is Pemberton an option for students? – Declining enrolment in Pemberton secondary for two years in a row. Whistler students could be transported to Pemberton for schooling if they needed to.

Does the international program effect the fullness – Whistler only has 50 international students who fill classes from grades K – 5. International students help with school revenues.

School field use agreements

Presentation and discussion regarding school field use agreements. Overview provided from RMOW Parks Planning Manager.

- The RMOW currently have an agreement for 4 fields at Myrtle Phillip, baseballs diamonds and tennis courts, the 2 fields at the high school and the 1 at spring creek.
- The RMOW would like to formalize agreements with SD48.
- An MOU (appendix B) has been drafted and well received by the SD48.

Moved by Diane Ziff
Second by Roger Soane

That Recreation Leisure Advisory Committee support continued ongoing communication to formalise the joint use agreements for the fields and continue in cooperation with the school use agreements.

CARRIED

Artificial Turf Field Project

An update by staff regarding the status of the Artificial Turf Field (AFT) Project.

Staff briefly provided highlights on the project including an overview of the reasoning behind the requirement for an ATF. https://www.whistler.ca/culture-recreation/parks-trails/parks/artificial-turf-field-project

- An explanation of the AFT was presented by staff - Appendix A
- Note that the budget is now at $2.8m which includes the field, lights, fencing and a small maintenance building for storage.
- Intend to present to council June 5, 2018
- Since the RMOW is handling the facility, how to do determine priority? RMOW has a bylaw outlining priority - local youth 1st, and local adult second, 3rd youth out to town, 4th adult out of town.
- Estimated date of completion – Autumn 2018
- All groups are aware of the need for and expects to pay user fees to access the facility.

Discussion – EPA - Environmental protection agency have been working on a study. Vancouver Health Statement https://www.whistler.ca/culture-recreation/parks-trails/parks/artificial-turf-field-project

Moved by Roger Soane
Moved Lynda Harnish

That Recreation Leisure Advisory Committee support the completion of the artificial turf field in Bayly Park in 2018. The Committee is in support of making

the facility the most environmentally friendly artificial turf facility that we can, considering all materials and location and, to mediate any of the adverse effect for drainage that might occur.

CARRIED

Cardio Room Expansion Project

An update on the Cardio Room Expansion Project, Recreation Manager advised – MPSC was approached by a private donor with $400K to upgrade the cardio room. The RMOW accepted and will be working on planning in 2018 and 2019 to the expansion. At the moment RFP is being prepared to go out to the public. That will provide more understanding of costing.

Question and Answer:

Was this his or her specific request for the donation? Yes.

Is the cardio room at capacity more often than not? Yes, the goal is giving more space in the room for cardio and stretching. There will likely be commemoration plaque installed for the foundation making the donation to this project.

Lynda Harnish left the meeting 4:21 pm

OCP update

A presentation by staff regarding the OCP update, specifically the recreation and leisure chapter.

Reviewed draft recreation and leisure section of the OCP – staff pointed out the high level changes, toning down from world class and leading edge towards more emphasis on being outside in an incredible environment that Whistler has to offer.

Next steps – staff meeting next week to discuss moving forward and where the OCP is at.

Committee to provide more feedback to Parks Planning Manager.

RLAC Terms of Reference

A discussion regarding draft amendments to the RLAC Terms of Reference (TOR). Parks Planning Manager presented on the changes to the TOR – last October it was suggested to have a vision statement, which overall covers what Whistler provides in recreation and leisure. The committee would like to have the TOR and the OCP reflective of each other's vision.

Changes:

1.0 Add a vision statement. To be coordinated with new vision document to replace retired Whistler 2020 Vision document.

3.2 Meetings may include topics that do not require RLAC feedback.

3.3 Add reference to goals and vision in this section.

4.0 Change "Core Values" to "Goals".

5.1a No change to "*Representatives of the youth/young adult and ageing populations in the community.*" Members had previously suggested having more youth and young adults on the Committee. In response staff used Facebook to advertise call for membership applications, however there were no responses from youth and young adult.

5.1b Add Whistler Sports Legacies as a permanent partner member equal to that of Tourism Whistler and SD48.

Committee members to take a final look of the draft amended TOR once the OCP is complete to ensure alignment and consistency between the two documents. Finalizing the Terms of Reference requires Council approval.

Trails Planning Working Group

An update by staff regarding the Trails Planning Working Group (TPWG). Staff provided background information on TPWG.

The public asked for clarity on the coordinated trail planning – Parks Planning Manager reviewed the trail approval process which is a 4 – 6 month process.

Trail information signs and maps are being developed. These will be posted on the RMOW website, at trailheads, and printed for guest information programs (Tourism Whistler, Village Host)

Update on various park programs

An update by staff on various park programs including food trucks, park and trail rangers, and geese management.

- 3rd year on the food truck program – 2018 the RMOW has 10 different vendors this summer for Lost Lake, Rainbow and Lakeside Parks. More info at www.whistler.ca/culture-recreation/parks-trails/foodtrucks

- Park ranger program and a Valley Trail ranger program –budget is higher with the intent to include more rangers hours this summer. Targeting weekends and statutory holidays. Also have a Trail Ranger for trails within municipal watershed (Rainbow Lake Trail) and new trails on Mt Sproatt.

- Geese management contractors are coming back to keep geese away. More monitor and communication coming in 2018. There has been a significant reducing in geese waste. Fences were also replaced. More info at www.whistler.ca/services/environmental-stewardship/geese

OTHER BUSINESS

BCRPA symposium

BCRPA symposium is coming to Whistler May 1-3, 2019

All members qualify to get membership – Roger to send out the information.

Call for volunteers.

Curling in Whistler

Next Agenda

NEXT MEETING

June 14, 2018 3 p.m.

TERMINATION

Moved by Diane Ziff
Second by Roger Soane

That Recreation Leisure Advisory Committee terminated the May 3, 2018 Recreation Leisure Advisory Committee meeting at 5 p.m.

CARRIED

Chair, Josie Chuback

Recording Secretary, Shannon Perry

WHISTLER

MINUTES

REGULAR MEETING OF WHISTLER BEAR ADVISORY COMMITTEE
WEDNESDAY, MAY 9, 2018 STARTING AT 8:30 A.M.

In the Decker Room
8020 Nesters Road, Whistler, BC V0N 1B8

PRESENT:

Co-Chair, AWARE/C2C Grizzly Bear Initiative, C. Ruddy
RMOW Environmental Coordinator, T. Symko
RMOW Bear Smart Program Assistant, L. Harrison
Carney's Waste Systems, P. Kindree
RMOW Bylaw Services, C. Baker
Conservation Officer Service, B. Mueller
RMOW Council, S. Maxwell
Member at Large, M. Toom

PUBLIC:

Whistler Wildlife Protection Group, I. Minic-Lukac

REGRETS:

Co-Chair, RMOW, H. Beresford
Member at Large, N. Dudley
Whistler Blackcomb, A. DeJong
Get Bear Smart Society, N. Fitzgerald
RCMP, P. Hayes

ADOPTION OF AGENDA

Moved by S. Maxwell
Seconded by C. Baker

That Whistler Bear Advisory Committee adopt the Whistler Bear Advisory Committee agenda of May 9, 2018.

CARRIED

ADOPTION OF MINUTES

Moved by C. Baker
Seconded P. Kindree

That Whistler Bear Advisory Committee adopt the Regular Whistler Bear Advisory Committee minutes of April 11, 2018

CARRIED

Updates

RMOW Bylaw Service

- Bylaw Services is completing proactive patrols of construction sites. Last year they found many violations of food waste in open construction bins however this year they are finding most construction sites have waste management plans, appropriate waste bins and signs and are very aware of the bears.
- There have been issues with dogs and bears on the golf course lately. Bylaw Services is now been doing bike patrols on the golf course and educating about why dogs need to be on leashes. The golf course opens soon which means there will likely be fewer people and dogs walking through the golf course.

ACTION: L. Harrison and C. Baker to send a thank you note to the Canadian Homebuilder's Association regarding proactive waste management efforts at local construction sites.

B. Mueller arrived at 8:35 am

Conservation Officer Service

- The biggest issue this month was the seven squatter camps in the forest between Lost Lake and the day lots attracting a bear. Five of the squatter camps were left from last fall and two were active. All squats have now been cleaned up and the active camps have been evicted. The bear was not known to the COS however it is responding positively to being hazed.
- Tour operators are starting to operate around Callaghan Rd. Some tour operators are getting too close and COS will be patrolling to provide education/enforcement.
- On May 8, 2018 there was an unconfirmed reporting of a grizzly bear sow and two cubs in the Mackenzie trails area in Pemberton.

ACTION: L. Harrison to consider outreach to hotel concierges about promoting bear smart viewing practices.

M. Toom arrived at 8:43 am

Carney's Waste Systems

- Tough Mudder is happening in Whistler June 16-17, 2018 and the event team has a new Solid Waste Manager. Carney's has made them aware of concerns surrounding bears and solid waste.

C2C Grizzly Bear Initiative/AWARE

- Working with RMOW on signs to go up around trails.
- AWARE and C2C are planning a Bears, Beers and Backcountry event with Steve Rochetta (Provincial Ecosystems Biologist and grizzly bear specialist).
- C2C is planning a shared learning session about grizzly bears with Steve Rochetta. This learning session will be for people not involved with bear conservation in the Sea to Sky, including

groups such as the Trail Planning Working Group, the Forest and Wildlands Advisory Committee and the Recreation and Leisure Advisory Committee.

PRESENTATIONS/DELEGATIONS

Alpine Trail Kiosk Sign

Reviewed the draft RMOW forest and alpine trail signs

- Questions surrounding who the 1-855-GO-GRIZZ number reports to.
- Some information is duplicated on the sign and it should be streamlined.
- It would be nice to have different signs at specific trailheads based on whether or not dogs are allowed on that trail, etc.

ACTION: T. Symko to pass on comments from WBAC about the content on the Alpine Trail draft sign.

Bear Smart Program Assistant

Reviewed BSPA 2018 work plan

- Has been trained up on the Restaurant Program and is in contact with the Restaurant Association of Whistler to get restaurants involved.

NEW BUSINESS

Reviewed status of past actions

Action	Meeting Date	Status
L. McIvor to follow up with Emma DalSanto and Communications Department to offer assistance again on the garbage on buses initiative.	January	In progress. L. Harrison has created signage to go up at all bus stops about being allowed to bring garbage on buses. L. Harrison will continue to look for ways to promote this project.
L. McIvor/H. Beresford to touch base with Parking Lot Committee and RMOW Communications Department.	January	In progress. Parking Lot Committee is happy for signs to go up however now need to find the budget for these signs. L. Harrison is going to look into GBS taking the lead on this and then they will be able to get funding from WB EnviroFund.
T. Lunn discussed opportunity for RMOW to share bear management approach at upcoming License Inspectors	February	Unknown. T. Lunn no longer working with RMOW after end of March. C. Baker to follow up (May).

and Bylaw Officers Association of BC zone meeting or annual conference in 2019. T. Lunn investigate how to get on zone meeting agenda.		
Bears 1-pager for rental properties	February	L. Harrison will work on this. Collaborate and coordinate messaging with AWARE's Eco-Citizen awareness initiative.
RMOW to consider existing and needed efforts to promote proper composting practices	March	Not started.
Follow up on suggestion to promote the Tourism Whistler Sustainable Events Guidelines and bears section within the Solid Waste Management Plan template	March	T. Symko will look into this.
Send thank you to the Canadian Homebuilders Association on behalf of the WBAC for keeping construction sites in Whistler attractant free.	May	L. Harrison will work on this with support from C. Baker.
Look into permitting for bear viewing tours and removing permits if operators are not operating under a set of guidelines that keeps bears and people safe.	May	C. Baker will look into this.
Talk to concierges and Visitor Centre about information going out if people would like to view bears on their own.	May	L. Harrison will work on this.
Review Alpine Trail Signs draft and recommend edits to streamline content;	May	T. Symko to work on this.

look into GO-GRIZZ phone contact.		
Review RMOW draft Solid Waste Bylaw revisions to ensure bear issues addressed, with particular attention to special events.	May	T. Symko to work on this.
Look into the potential of an RMOW internal staff referral system for special event applications.	May	T. Symko will look into this.
Investigate how SLRD manages special events (E.g. triggers for permits, etc) with respect to integration of bear smart content	May	T. Symko to work on this.
Talk to Kerry Ing regarding an RMOW reporting app for issues in the community and ensure that there is a bear component.	May	L. Harrison will look into this.
Investigate potential for shared online site for key WBAC resources, accessible by all group members	May	T. Symko to work on this.

TERMINATION
Moved by P. Kindree

That the Whistler Bear Advisory Committee terminate the May 9, 2018 Whistler Bear Advisory Committee meeting at 10:45 a.m.

CARRIED

CO-CHAIR: C. Ruddy

RECORDING SECRETARY: L. Harrison

WHISTLER

MINUTES

REGULAR MEETING OF FOREST AND WILDLAND ADVISORY COMMITTEE
May 9, 2018, STARTING AT 3:00 – 5:00 P.M.
In the Flute Room
4325 Blackcomb Way, Whistler, BC V0N 1B4

PRESENT:

Name	**Meetings to Date: 5**
Present:	
Member at Large, Derek Bonin, Chair	5
Council, Cathy Jewett	4
Member at Large, Trevor Burton	3
AWARE, Claire Ruddy	4
Member at Large, Arthur DeJong	4
WORCA, Todd Hellinga	5
Member at Large, Colin Rankin	3
Member at Large, Kathi Bridge	2
Member at Large, Mac Lowry	3
Recording Secretary, Heather Beresford	5
Regrets:	
Member at Large, Johnny Mikes	4
Member at Large, Candace Rose-Taylor	2

ADOPTION OF AGENDA

Moved by K. Bridge
Seconded by T. Hellinga

That the Forest and Wildland Advisory Committee adopt the Forest and Wildland Advisory Committee Agenda of May 9, 2018.

CARRIED

ADOPTION OF MINUTES

Moved by C. Rankin
Seconded by K. Bridge

That the Forest and Wildland Advisory Committee adopt the Forest and Wildland Advisory Committee Minutes of April 11, 2018.

CARRIED

PRESENTATIONS/DELEGATIONS

Updates

Council:

- Nesters Crossing public hearing
- Attending Local Government Management Association AGM May 16
- Alpine Meadows fuel thinning project – receiving queries regarding trail and site access, plus road conditions

WORCA:

- Engaging in Vision and OCP, stakeholder session
- Grizzly bear signs going up at trailheads

WORCA:

- Lower Sproatt trail volunteer night to re-establish trail after BC Hydro completed road clearing

M. Lowry arrived at 3:07 p.m.

- Coordinating trail improvements with Bob Brett for Cat Scratch Fever in Alpine Meadows fuel thinning treatment area
- WORCA hired an operations manager for 9 months to assist with projects, staff, administration

AWARE:

- Took part in RMOW Partners OCP session
- Letter sent to RMOW Parks Planning from AWARE and Coast to Cascades Grizzly Bear Initiative requesting a meeting to discuss alpine trail planning

RMOW:

- Fuel thinning projects occurring at CCF5 (above cemetery); Alpine Meadows; Kadenwood
- CCF joint fuel thinning project along Callaghan Road underway and soon to start along Cheakamus Lake Road.
- Firesmart program; 6 chipper days in spring

Cheakamus Community Forest:

- Open house planned for June

Trail Planning Working Group:

- Meeting held in late April
- Recreation Sites & Trails BC provided draft e-bike policy
- Referral process discussed

C. Jewett left at 3:26 p.m.

- Camping at Long Lake was mentioned but not discussed

- Blackcomb Helicopter is seeking a partnership agreement with province to maintain trail used for heli-biking

Crown Land Referral: Signal Systems

A presentation by H. Beresford was given regarding Signal Systems Crown Land application and a discussion was held.

Signal Systems held a tenure on Sproatt mountain peak since 2008 but did not develop the site until late summer 2017. Repeater equipment was being installed in front of Sproatt trail benches. RMOW requested tenure site be changed. Signal Systems submitted this application for a new site 400 metres northwest. Original site was dismantled and cleaned up last fall.

FWAC recommends that installation be timed to avoid impacts to wildlife use in the area, and that Signal Systems notify RMOW, WORCA and Alpine Club when the work starts.

Crown Land Referral: Wedge Campground

A presentation by H. Beresford was given regarding the Wedge Campground Crown Land application and a discussion was held.

Proponent Daan Murray is proposing a 29.7 acre campground with a maximum of 14 tent platforms installed over 5 years plus two small buildings. Location is on Wedge Forest Service Road.

FWAC reviewed the application at its May 9 meeting and had the following comments that the proponent should address:

- Campground will increase risk of wildfire
- Location may be part of future wildfire thinning area
- Location overlaps Comfortably Numb, an iconic trail in Whistler and will compromise the experience of riding it as well as the camping experience with lack of privacy due to trail proximity
- Development increases impacts to species at risk and may increase wildlife conflicts (e.g. creating more attractants that increase human-bear conflict)
- Whistler is hitting capacity thresholds and this development beyond the municipal boundary takes advantage of Whistler amenities but does not contribute to its operations or respect capacity.
- Development will increase road use and road maintenance but not require proponent to contribute to expense.
- These types of development should be considered within a master plan.

Staff will provide these comments through the provincial referral process.

Whistler Blackcomb Update

A presentation by A. DeJong was given regarding Whistler Blackcomb plans and a discussion was held.

- Lift expansion project is already underway. $38 million 10 seat gondola replacing Wizard and Solar chairs. Emerald chair goes to Catskinner, Emerald becomes a 6 pack.
- Gondola provides flexibility for alpine access in shoulder seasons. Food service can be loaded on it rather than driven up the mountain. Can download 4,000 people/hour. 35 – 40 year life expectancy.

- Creekside bike park expansion also planned.
- Whistler peak suspension bridge estimated for July completion.
- Umbrella bar almost complete.
- Emerald chair will balance upload with use in the area. Will use existing maze and skier use patterns will be monitored.
- No parking lot additions.
- Burn Trail will be closed for summer.

WB Climate Change presentation

- Winters are not a concern yet – receiving more snow each decade since the 1970s. Likely related to increasing La Nina frequency.
- Seasonal temperature increases since 1976: Winter, 0.5 degrees; Summer, 2.3 degrees
- Increased wildfire risk is a concern. WB is adapting planning and operations related to wildfire.
- Horstman Glacier – 70% is less than 20m in depth. Planning to lower ridge to provide easier access from glacier to Seventh Heaven.
- Invasive plant species are moving higher on mountain. Hawkweed being managed with Sea to Sky Invasive Species Council.
- World destination travel is increasing 6-7% per year, and Whistler needs to diversify into a full 4-season resort to remain successful over the long term

RMOW Alpine Trail Signs

A presentation by H. Beresford regarding RMOW alpine trail signs and a discussion was held.

RMOW Parks Planning is drafting maps and information signs for key trail heads.

FWAC reviewed the kiosk information sign and had the following comments:

- Some messaging is duplicated
- Very dense text but engaging graphics
- Some information needs to be different depending on sign location. E.g. Rainbow Trail doesn't allow dogs.
- RMOW should develop overall strategy for managing people's behavior on the trails. E.g. instructional signs needed at various locations along trails; camping area instruction signs.
- RMOW should develop an overall vision and plan for alpine trails and signs.

OTHER BUSINESS

- FWAC Spring CCF Field trip – May 15, 1:30 – 4:30 p.m.

MOTION TO TERMINATE

Moved by T. Hellinga
Seconded by A. DeJong

That the Forest and Wildland Advisory Committee Meeting of May 9, 2018 be terminated at 5:01 p.m.

CARRIED

Chair, Derek Bonin

Recording Secretary, Heather Beresford

RESORT MUNICIPALITY OF WHISTLER
BUILDING AND PLUMBING REGULATION
AMENDMENT BYLAW (ENERGY STEP CODE) NO. 2197, 2018

A BYLAW TO AMEND BUILDING AND PLUMBING REGULATION
BYLAW NO. 1617, 2002

WHEREAS Sections 8(3)(l) and 53(2) of the *Community Charter* authorize the Resort Municipality of Whistler to regulate, prohibit and impose requirements in relation to buildings and other structures;

AND WHEREAS Section 2.2(1) of the *Building Act General Regulation* authorizes the Resort Municipality of Whistler to reference and implement, in whole or in part, the British Columbia Energy Step Code;

AND WHEREAS the Council has enacted Building and Plumbing Regulation Bylaw No. 1617, 2002 (the "Building Bylaw") and wishes to amend the Building Bylaw;

NOW THEREFORE, the Municipal Council of the Resort Municipality of Whistler, in open meeting assembled, **ENACTS AS FOLLOWS:**

Title

1. This Bylaw may be cited for all purposes as "Building and Plumbing Regulation Amendment (Energy Step Code) Bylaw No. 2197, 2018".

Amendments

2. The Building Bylaw is hereby amended by inserting the following definitions in the appropriate alphabetical order:

   Energy Step Code means the energy performance standards set out in Subsection 9.36.6 of the Building Code, and a reference to a numbered step in the Energy Step Code is a reference to a step established in that Subsection.

3. The Building Bylaw is further amended as follows:

   1. By inserting after the section entitled, "12. FEES, CHARGES AND SECURITY", a new section entitled, "13. ENERGY STEP CODE" as included herein:

      13. ENERGY STEP CODE

      13.1. Effective January 1, 2019 but subject to section 4 of this Bylaw:

13.1.1. Any new residential building regulated by Part 9 of the *Building Code* must be designed and constructed to meet the minimum performance requirements specified in Step 3 of the Energy Step Code.

13.1.2. Any new residential building regulated by Part 9 of the *Building Code* which is located on land in respect of which Council has after January 1, 2019 approved an owner-initiated application to amend the Zoning Bylaw to increase permitted density of residential development, or permit additional uses, must be designed and constructed to meet the minimum performance requirements specified in Step 4 of the Energy Step Code.

13.1.3. Any new residential building regulated by Part 9 of the *Building Code* which includes the construction of "in-ground basement floor area" that is excluded from gross floor area calculations under Part 5 of the Zoning Bylaw must be designed and constructed to meet the minimum performance requirements specified in Step 4 of the Energy Step Code.

2. By updating all section numbering within the Building Bylaw to reflect these amendments.

Transition

4. A Building Official may, after January 1, 2019, issue a building permit that does not comply with section 13 of this Bylaw only if the application for the building permit was made in accordance with section 9 or 10 of this Bylaw, and accepted by a Building Official, prior to January 1, 2019.

GIVEN FIRST, SECOND AND THIRD READINGS this ___ day of _____, 2018.

ADOPTED by the Council this _____ day of _____, 2018.

Nancy Wilhelm-Morden,
Mayor

Brooke Browning,
Municipal Clerk

I HEREBY CERTIFY that this is a true copy of "Building and Plumbing Regulation Amendment Bylaw No. 2197, 2018."

Brooke Browning,
Municipal Clerk

RESORT MUNICIPALITY OF WHISTLER

ZONING AMENDMENT BYLAW (CTI1 ZONE) NO. 2187, 2018

A BYLAW TO AMEND THE RESORT MUNICIPALITY OF WHISTLER "ZONING AND PARKING BYLAW NO. 303, 2015"

WHEREAS the Council may in a zoning bylaw pursuant to the *Local Government Act*, divide all or part of the area of the Municipality into zones, name each zone and establish the boundaries of the zone, regulate the use of land, buildings and structures within the zones and require the provision of parking spaces and loading spaces for uses, buildings and structures;

NOW THEREFORE the Council of the Resort Municipality of Whistler, in open meeting assembled, **ENACTS AS FOLLOWS**:

1. This Bylaw may be cited for all purposes as "Zoning Amendment Bylaw (CTI1 Zone) No. 2187, 2018".

2. Part 10, Industrial Zones, of "Zoning and Parking Bylaw No. 303, 2015" is hereby amended by replacing, in section 16, the regulations for the CTI1 (Community and Transportation Infrastructure One) with the regulations attached to and forming part of this Bylaw as Schedule "A".

GIVEN FIRST and SECOND READINGS this 24th day of April, 2018.

Pursuant to section 464 of the *Local Government Act,* a Public Hearing was held this 8th day of May, 2018.

GIVEN THIRD READING this __ day of _____, 2018

Approved by the Minister of Transportation and Infrastructure this __ day of _____, 2018.

ADOPTED by the Council this __ day of _____, 2018.

_____
Nancy Wilhelm-Morden,
Mayor

_____
Brooke Browning,
Municipal Clerk

I HEREBY CERTIFY that this is a true copy of "Zoning Amendment Bylaw (CTI1 Zone) No. 2187, 2018".

_____
Brooke Browning,
Municipal Clerk

Schedule A to Zoning Amendment Bylaw (CTI1 Zone) No. 2187, 2018

CTI1 Zone Regulations

16. CTI1 (Community and Transportation Infrastructure One) (Bylaw No. 2187)

Intent

(1) The intent of this zone is to provide industrial type uses supporting community and transportation infrastructure, and civic uses.

Permitted Uses

(2) The following uses are permitted and all other uses are prohibited;

(a) auxiliary buildings and auxiliary uses;

(b) auxiliary residential dwelling unit for a caretaker or watchman or other persons similarly employed on the premises;

(c) fuel service station / fuel card lock;

(d) indoor recreation (Bylaw No. 2076);

(e) indoor storage;

(f) indoor and outdoor storage and maintenance of construction equipment;

(g) landscaping services;

(h) messenger, courier service, shipping agent and freight forwarder;

(i) motor vehicle maintenance and storage facility;

(j) nature conservation parks and buffers;

(k) non-motorized outdoor recreation, excluding rifle range and paintball facility, and excluding any other non-motorized outdoor recreation use that is likely, because of noise or dust it generates, to cause a nuisance to the owners, occupiers or users of adjacent lands or to the public (Bylaw No. 2076);

(l) parks and playgrounds;

(m) storage and works yard including storage of construction equipment;

(n) recycling depot for household goods;

(o) taxi dispatch and storage yard; and

(p) vehicle impound yard.

Density

(3) The maximum permitted gross floor area of all buildings and structures in the CTI1 Zone is 18,581 square metres.

(4) The maximum permitted gross floor area of all buildings and structures on each site within the CTI1 Zone, as shown on the Key Plan attached to this CTI1 Zone, shall be as shown

in the following table, and, for clarity, if any of the sites is further subdivided, the gross floor area for that site may be distributed among the new parcels but shall remain restricted to the maximum for the site as shown in the table:

Site as shown on Key Plan	Gross Floor Area (square metres)
Lot 1 of Lot A	1,161.3
Lot 2 of Lot A	1,161.3
Lot B	6,410.3
Lot C	3,251.6
Lot D	6,410.3
Lot E	185.8

(5) The maximum floor space ratio is 0.5.

Height

(6) The maximum permitted height of a building is 12 metres.

Site Area

(7) The minimum permitted parcel area is 2000 square metres.

(8) The minimum parcel frontage is 23 metres.

Site Coverage

(9) The maximum allowable site coverage is 40 percent.

Setbacks

(10) The minimum permitted front setback is 7.5 metres.

(11) The minimum permitted side setback is 3.0 metres.

(12) The minimum permitted rear setback is 3.0 metres.

(13) Notwithstanding any other regulation in this zone, a minimum 20 metre setback is required from the right of way of Highway 99 and a minimum 10 metre setback is required from the railway right of way.

Off Street Parking and Loading

(14) Off street parking and loading spaces shall be provided and maintained in accordance with the regulations contained in Part 6 of this Bylaw.

Other Regulations

(15) A maximum of 1 auxiliary residential dwelling unit is permitted per parcel.

(16) An auxiliary residential dwelling unit shall contain a gross floor area no greater than 75 square metres and no less than 32.5 square metres.

(17) A maximum of 40 percent of the gross floor area of a principal building is permitted to be used for auxiliary office use.

(18) Setback areas described in subsection (13) shall be landscaped to visually screen the buildings, structures and storage areas from Highway 99 and the railway tracks.

(19) In addition to subsection (18), all uses on parcels adjacent to the railway shall be screened by a landscape berm in the 10 metre setback area described in subsection (13) and a fence at least 2.4 metres high constructed and maintained upon such parcels at a 10 m setback from the southeast property line of the railway right of way.

(20) In addition to the landscaped area required by subsection (18), a minimum of 10% of a parcel shall be landscaped, such landscaped area to be located to the maximum extent possible in the setback area adjacent to the front parcel line.

(21) Snow storage shall be predominantly located at the rear of the parcel.

(22) Storage yards shall be screened from adjacent parcels and highways.

(23) Auxiliary storage uses must be related to a principal use on the same parcel.

(24) Fencing shall not be of a barb wire construction below the height of 2.0 metres.

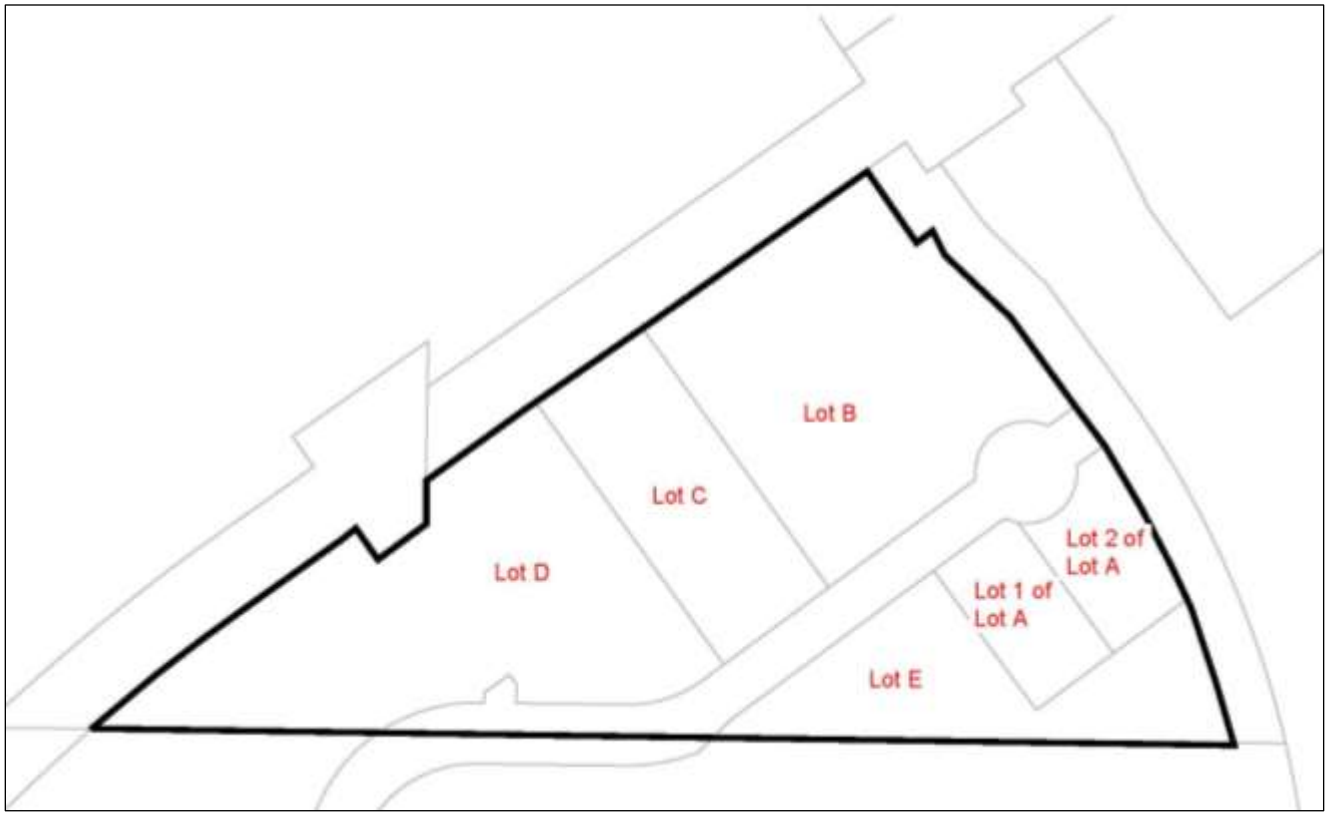
(25) All roof top apparatus shall be screened from public view at ground level and from Highway 99 and the railway.

(26) Any storage vessel with a liquid capacity exceeding 7570 liters (2000 gallons) capable of storing liquefied fuels under pressure shall:

(a) be sited at least 15 metres from any parcel line; and

(b) be sited at least 120.0 metres away from any building that may be used for public assembly such as schools, hospitals, theatres, tourist accommodations, and campgrounds and from any residential buildings.

Key Plan – CTI1 Zone



RESORT MUNICIPALITY OF WHISTLER
ZONING AND PARKING AMENDMENT BYLAW NO. 2191, 2018

A BYLAW TO AMEND THE WHISTLER ZONING AND PARKING BYLAW NO. 303, 2015

WHEREAS Council may, in a zoning bylaw pursuant to Section 479 of the *Local Government Act,* divide all or part of the area of the Municipality into zones, name each zone and establish the boundaries of the zones, regulate the use of land, buildings and structures within the zones, and require the provision of parking spaces for uses, buildings and structures;

NOW THEREFORE the Council of the Resort Municipality of Whistler, in open meeting assembled, ENACTS AS FOLLOWS:

1. This Bylaw may be cited for all purposes as "Zoning Amendment Bylaw (Bunbury Lands) No. 2191, 2018".

2. The Land that is the subject of this bylaw is located at 2501, 2505 and 2509 Gondola Way and more particularly described as: PID: 006-984-801, District Lot 2291, Plan 19602, and is referred to in this bylaw as the "Subject Land".

3. Resort Municipality of Whistler Zoning and Parking Bylaw No. 303, 2015 is amended by changing the zoning designation of the Subject Land as follows:

    3.1 The area labelled RS1 on the map attached to this bylaw as Schedule A is rezoned from RS-E1 Zone (Residential Single Estate One) to RS1 Zone (Single Family Residential One);

    3.2 Both of the areas labelled PAN1 on the map attached to this bylaw as Schedule A are rezoned from RS-E1 (Residential Single Estate One) to PAN 1 Zone (Protected Area Network One Zone).

4. For clarity, the zoning designation of the area labelled RR1 on the map attached to this Bylaw as Schedule A is unaffected by this bylaw and will remain RR1 Zone (Rural Residential One).

GIVEN FIRST AND SECOND READING this 19th day of June, 2018.

Pursuant to Section 464 of the *Local Government Act*, a Public Hearing was held this 10th day of June, 2018.

GIVEN THIRD READING this __ day of _____, 2018.

Approved by the Minister of Transportation and Infrastructure this __ day of _____, 2018.

ADOPTED by the Council this __ day of _____, 2018.

Nancy Wilhelm-Morden,
Mayor

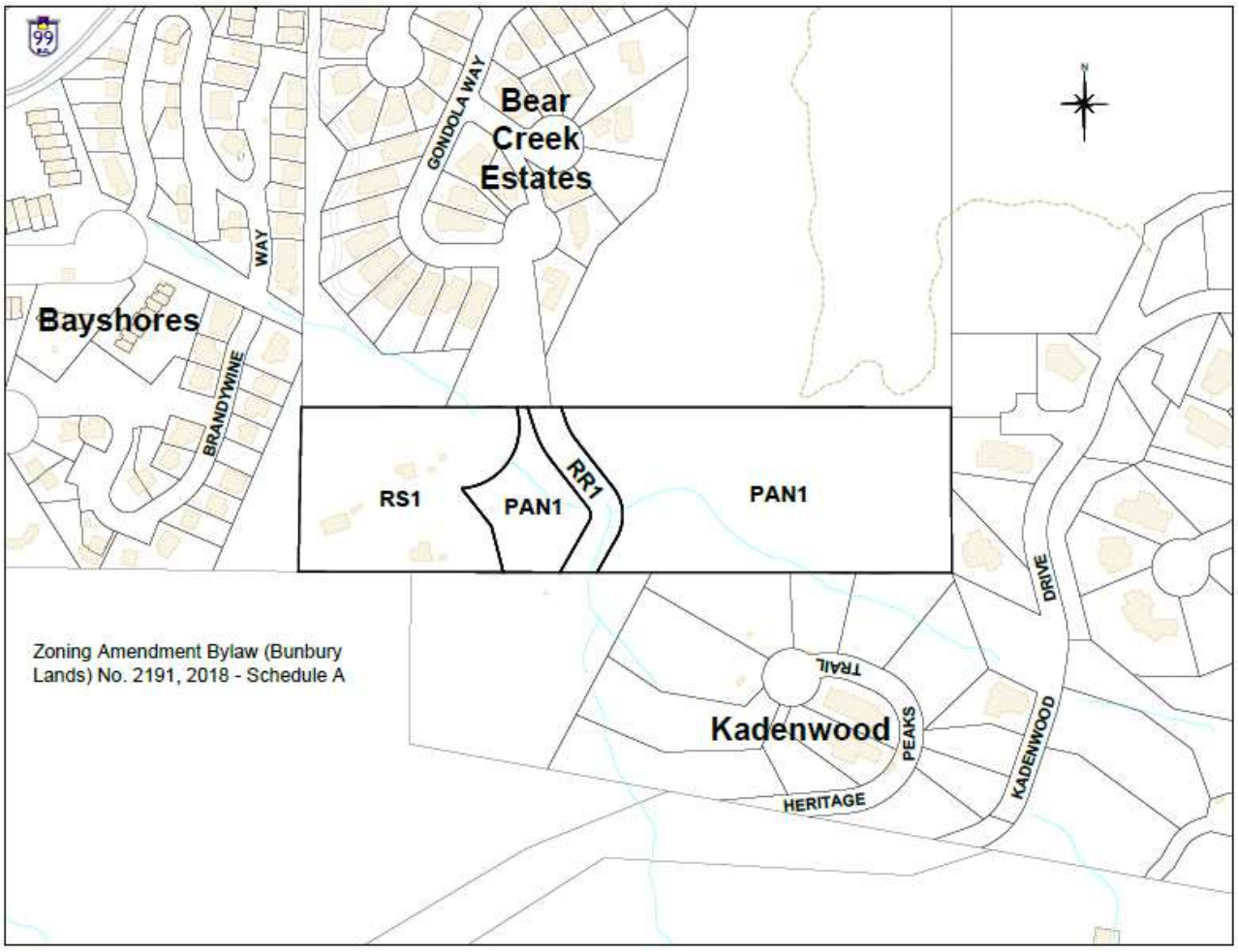
Brooke Browning,
Municipal Clerk

I HEREBY CERTIFY that this is a true copy of “Zoning Amendment Bylaw (Bunbury Lands) No. 2191, 2018.”

_____

Brooke Browning,
Municipal Clerk

Zoning Amendment Bylaw (Bunbury Lands) No. 2191, 2018 – Schedule A



RESORT MUNICIPALITY OF WHISTLER
ZONING AND PARKING AMENDMENT BYLAW NO. 2195, 2018

A BYLAW TO AMEND THE WHISTLER ZONING AND PARKING BYLAW NO. 303, 2015

WHEREAS Council may, in a zoning bylaw pursuant to Section 479 of the *Local Government Act,* divide all or part of the area of the Municipality into zones, name each zone and establish the boundaries of the zones, and regulate the use of land, buildings and structures within the zones;

NOW THEREFORE the Council of the Resort Municipality of Whistler, in open meeting assembled, **ENACTS AS FOLLOWS**:

1. This Bylaw may be cited for all purposes as "Zoning Amendment Bylaw (Personal Cannabis Home Cultivation) No. 2195, 2018".

2. Resort Municipality of Whistler "Zoning and Parking Bylaw No. 303, 2015" is amended in "Part 4 General Prohibitions" by replacing section 1(8) with the following:

   "No person shall use any land or building for the retail sale of cannabis, and except as specifically permitted by this Bylaw no person shall use any land or building for the production of cannabis other than the personal growing of cannabis in accordance with section 56 or 58 of the *Cannabis Control and Licencing Act*, or for the distribution of cannabis."

3. This Bylaw comes into force on the latter of the date the *Cannabis Control and Licencing Act* is enacted or the date the *Cannabis Act* is enacted.

GIVEN FIRST AND SECOND READINGS this 5th day of June, 2018.

Pursuant to Section 464 of the *Local Government Act*, a Public Hearing was held this 10th day of July, 2018.

GIVEN THIRD READING this __ day of _____, 2018.

Approved by the Minister of Transportation and Infrastructure this __ day of _____, 2018.

ADOPTED by the Council this __ day of _____, 2018.

Nancy Wilhelm-Morden,
Mayor

Brooke Browning,
Municipal Clerk

I HEREBY CERTIFY that this is a true copy of "Zoning Amendment Bylaw (Personal Cannabis) No. 2195, 2018."

Brooke Browning,
Municipal Clerk

RESORT MUNICIPALITY OF WHISTLER
LAND USE CONTRACT TERMINATION BYLAW (ALPINE MEADOWS) NO. 2166, 2017

A BYLAW TO TERMINATE A LAND USE CONTRACT AND AMEND THE RESORT MUNICIPALITY OF WHISTLER ZONING AND PARKING BYLAW NO. 303, 2015

WHEREAS Council may, by bylaw, terminate a land use contract; and

WHEREAS Council must not adopt a bylaw to terminate a land use contract unless it has adopted a zoning bylaw that will apply to the land on the date the termination bylaw comes into force,

NOW THEREFORE the Council of the Resort Municipality of Whistler, in open meeting assembled, **ENACTS AS FOLLOWS:**

1. This Bylaw may be cited for all purposes as "Land Use Contract Termination Bylaw (Alpine Meadows) No. 2166, 2017".

2. Schedule "A"-Zoning Maps of Part 24 of Zoning and Parking Bylaw No. 303, 2015 is amended by assigning the RS1 Zone (Single Family Residential One) designation to the following parcels:

Legal Description	PID
LOT 29, EXCEPT PART IN PLAN 17958, DISTRICT LOT 7301 PLAN 15206	007-689-705
LOT 30, EXCEPT THAT PART INCLUDED IN PLAN 17941 DISTRICT LOT 7301 PLAN 15206	004-677-099
LOT 31, EXCEPT PART IN PLAN 17941, DISTRICT LOT 7301 PLAN 15206	007-689-756
LOT 32, EXCEPT PART IN PLAN 17999, DISTRICT LOT 7301 PLAN 15206	007-689-764
LOT G BLOCKS 30 AND 31 DISTRICT LOT 7301 PLAN 17941	007-267-495
LOT H BLOCKS 30 AND 31 DISTRICT LOT 7301 PLAN 17941	007-267-517
LOT I OF LOTS 30 AND 31 DISTRICT LOT 7301 PLAN 17941	005-142-784

3. Part 12, Section 1 to Zoning and Parking Bylaw No. 303, 2015 is amended by:

   3.1 inserting the following as a new section to be numbered section (10A):

   "Despite the minimum parcel area set out in section 10, above, the minimum parcel area for the following parcels, or any parcels into which any of them may be subdivided, is 12,265 square metres:

Legal Description	PID
LOT 29, EXCEPT PART IN PLAN 17958, DISTRICT LOT 7301 PLAN 15206	007-689-705
LOT 30, EXCEPT THAT PART INCLUDED IN PLAN 17941 DISTRICT LOT 7301 PLAN 15206	004-677-099
LOT 31, EXCEPT PART IN PLAN 17941, DISTRICT LOT 7301 PLAN 15206	007-689-756
LOT 32, EXCEPT PART IN PLAN 17999, DISTRICT LOT 7301 PLAN 15206	007-689-764.”

and,

3.2 replacing section 11 with the following:

“11 (a) Where a detached dwelling is sited on a parcel having a frontage of less than 24 metres the maximum permitted gross floor area of the dwelling is 325 square metres; and

(b) Where a detached dwelling is sited on a parcel having a frontage of 24 metres or more, or, despite subsection 11(a), on any parcel identified in section 10A, the maximum permitted gross floor area of the detached dwelling is 465 square metres, subject to compliance with the other requirements of this Bylaw regarding permitted gross floor area.”

4. The Land Use Contract registered in the Land Title Office under charge No. G2065 is terminated.

5. Section 4 of this bylaw comes into force one year after the day the bylaw is adopted.

6. The Municipal Clerk shall notify:

6.1 the Land Title Office in accordance with Section 548 of the *Local Government Act*; and,

6.2 owners of land subject to the Land Use Contract, in accordance with section 549 of the *Local Government Act*.

GIVEN FIRST AND SECOND READING this 23rd day of January, 2018.

Pursuant to Section 464 of the *Local Government Act,* a Public Hearing was held this 20th day of February, 2018.

Pursuant to Section 464 of the *Local Government Act,* a Public Hearing was held this 24th day of April, 2018.

GIVEN THIRD READING this 5th day of June, 2018

Approved by the Minister of Transportation and Infrastructure this 19th day of June, 2018.

ADOPTED by the Council this __ day of _____, 2018.

Nancy Wilhelm-Morden
Mayor

Brooke Browning
Municipal Clerk

I HEREBY CERTIFY that this is a true copy of "Land Use Contract Termination Bylaw (Alpine Meadows) No. 2166, 2017".

Brooke Browning
Municipal Clerk

Langley City
THE PLACE TO BE

City Hall 20399 Douglas Crescent, **Langley**, BC Canada V3A 4B3
T 604.514.2800 **F** 604.530.4371 **www.city.langley.bc.ca**

File: 0410-02

June 13, 2018

Metro Vancouver municipalities
Via Email

Re: Strategic Community Investment Fund - Traffic Fine Revenue Sharing

At its June 11, 2018 Regular Council meeting, the Council for the City of Langley considered a report of the City's Director of Corporate Services regarding the Provincial Government's intent to amend the Strategic Community Investment Fund Agreement between the City and the Provincial Government. The report is enclosed for reference. Council subsequently passed the following resolution:

> WHEREAS the City of Langley acknowledges the receipt of $472,123 from the Provincial government to help fund the salary of three RCMP officers from traffic fine revenues received in 2017;
>
> WHEREAS the Provincial Government has advised that it intends to amend the Traffic Fine Revenue Sharing agreement that has provided municipalities unconditional grants since 2004, returning 100% of the net provincial traffic fine revenues;
>
> WHEREAS 45% of the property tax revenues collected in the City of Langley are require to pay for the escalating policing service costs in the community, creating a significant burden for the local taxpayer;
>
> THEREFORE BE IT RESOLVED THAT the Province continue to provide 100% of the traffic fine revenues to municipalities including fines generated by the proposed speed enforcement cameras located at high risk intersections.

Council further resolved:

> THAT Council's Provincial Traffic Fine Revenue Sharing resolution be forwarded to all Metro Vancouver municipalities and they be encouraged to also lobby the Provincial Government with respect to this issue.

Yours truly,
CITY OF LANGLEY

Kelly Kenney
Corporate Officer

Enclosure

REPORT TO COUNCIL

To: **Mayor Schaffer and Councillors**

Subject **Strategic Community Investment Fund - Traffic Fine Revenue Sharing**

Report #: 18-31

File #: 1610.00

Doc #: 156939

From: Darrin Leite, CPA, CA
Director of Corporate Services

Date: May 14, 2018

RECOMMENDATION:

THAT Council endorse the following motion to be sent to the Provincial government to express the City of Langley's concern about the Province's intent to amend the Traffic Fine Revenue Sharing (TFRS) agreement:

WHERE AS the City of Langley acknowledges the receipt of $472,123 from the Provincial government to help fund the salary of three RCMP officers from traffic fine revenues received in 2017;

WHERE AS the Provincial Government has advised that it intends to amend the Traffic Fine Revenue Sharing agreement that has provided municipalities unconditional grants since 2004, returning 100% of the net provincial traffic fine revenues.

WHERE AS 45% of the property tax revenues collected in the City of Langley are require to pay for the escalating policing service costs in the community, creating a significant burden for the local taxpayer.

THEREFORE BE IT RESOLVED THAT the Province continue to provide 100% of the traffic fine revenues to municipalities including fines generated by the proposed speed enforcement cameras located at high risk intersections.

PURPOSE:

The Strategic Community Investment Fund Agreement between the City and the Provincial Government requires the City to annually report on the traffic fine revenues

received in the prior year. As well, the City wants to discourage the Provincial Government from changing the 100% share municipalities have received in the past from the Traffic Fine Revenue Sharing program.

POLICY:

None.

COMMENTS/ANALYSIS:

The Provincial Government requires the City to publicly report on the amount of traffic fine revenues received under the Strategic Community Investment Fund Agreement. In 2017, $472,123 in traffic fine revenues was received from the Province.

In 2004, the Province began returning 100% of the traffic fine revenues to municipalities and the City used the increase traffic fine revenues for that year to hire three RCMP officers The annual grant continues to provide funding for these three RCMP officers.

The Provincial Government has indicated that they want to expand the traffic fine revenue by installing cameras at intersection that not only ticket drivers who go through on a red light but also clock the speed of the driver to determine if they are speeding through an intersection. Previously, red light cameras traffic fine revenue was allocated 100% to the municipalities. The Province has indicated that it would like to withhold some of the revenues realize by adding the speeding component, to be used to fund ICBC road safety programs. The concern is that municipalities who rely on the traffic fine revenue will receive less revenue once the Province amends the program retaining some of the traffic fine revenues generated in the Province.

BUDGET IMPLICATIONS:

The City's adopted 2017 Financial Plan anticipated $498,200 in traffic fine revenue. The actual funding received of $472,123 was $26,077 lower than the budget based on the actual traffic fine revenues generated in the Province during the period. This revenue was generated between April 2015 to March 2016 as there is a lag time between when the revenue is generated and when it is disbursed to the municipalities.

ALTERNATIVES:

City Council could just acknowledge the traffic fine revenues generated in 2017 itemized in the first Whereas clause.

Respectfully Submitted,

Darrin Leite, CPA, CA
Director of Corporate Services

Attachments:

1. April 5, 2018 letter to the UBCM from the Minister of Municipal Affairs and Housing
2. April 30, 2018 response letter to the Minister of Municipal Affairs and Housing from the UBCM

CHIEF ADMINISTRATIVE OFFICER'S COMMENTS:

I support the recommendation.

Francis Cheung, P. Eng.
Chief Administrative Officer

Province Intends to Amend Traffic Fine Agreement

May 2, 2018

The provincial government has advised UBCM of its intention to amend the Traffic Fine Revenue Sharing (TFRS) agreement. This was communicated to UBCM in correspondence from the Honourable Selina Robinson, Minister of Municipal Affairs and Housing. The current agreement provides an unconditional grant to local governments, returning 100% of net provincial traffic fine revenue.

Minister Robinson, in accordance with s. 276 of the *Community Charter* and the 2004 Consultation Agreement between the Province and UBCM, has indicated that the Province would like to immediately begin consultation regarding potential changes to the TFRS agreement. The Province would like to complete the consultation process by the end of July 2018.

UBCM has responded to the Minister with a letter that outlines concerns regarding the Province's rationale for seeking changes to the current TFRS agreement, while also providing examples of new policing cost pressures faced by local governments.

The Province's rationale for amending the agreement is largely based on the expansion of automated traffic enforcement, which has the potential to generate additional traffic fine revenue. However, the overall state of policing in B.C. is one where local governments continue to face escalating costs, and stand to absorb a number of new policing costs (e.g. RCMP unionization, new Auxiliary Program, etc.).

Background

The TFRS agreement is an unconditional grant that returns 100% of net provincial traffic fine revenue (violation ticket fines minus provincial recovery costs) to local governments. While local governments over 5,000 in population receive a percentage of traffic fine revenue from the Province, local governments under 5,000 in population receive traffic fine revenue through a reduction in the Police Tax. Traffic fine revenue is not allocated based on the jurisdiction where a ticket is issued, but rather the ratio of a local government's policing costs to aggregate local government policing costs in BC.

There is a two-year delay from when violation tickets are issued to when traffic fine revenue is distributed to local governments. For example, in 2017/18, local governments received $53.4 million in traffic fine revenue, based on violation tickets issued in 2015/16. While the intention is for TFRS grants to be spent on enhancing community safety, ultimately it is up to the discretion of the local government.

BRITISH COLUMBIA

April 5, 2018

Ref: 235064

Wendy Booth, President
Union of British Columbia Municipalities
60-10551 Shellbridge Way
Richmond BC V6X 2W9

Dear President Booth:

Thank you for our recent phone conversation regarding the Traffic Fine Revenue Sharing (TFRS) program. As a follow-up to that conversation, I thought it would be helpful to outline some of the key issues we discussed.

Under the terms of a January 2005 provincial letter of understanding from then-Minister Murry Coell, the Province of British Columbia agreed to provide 100 percent of net traffic fine revenue back to local governments through the TFRS program. This acknowledged local governments' role and costs in both the manual issuing of traffic tickets and the promotion of community safety.

While this arrangement has historically worked well for all parties, there are some fundamental current and proposed changes underway related to traffic enforcement that may impact the TFRS program.

One example is the ongoing expansion of automated traffic enforcement (i.e., intersection safety and targeted speed activation cameras). This includes the full, 24/7 activation of the 140 existing red-light safety cameras that are located across 26 communities in British Columbia, as well as plans for some of these cameras to be used for speed enforcement at specific high-risk intersections.

Unlike violation traffic tickets issued by a police officer, this expansion in automated enforcement and its associated traffic fine revenue does not require additional local government or law enforcement resources. In fact, the Province hopes that these changes will provide police agencies in British Columbia with greater flexibility in choosing how and where to deploy officers based on the public and road safety needs within their individual communities.

The Province wants to better leverage traffic fine revenue for initiatives that improve road safety and driver behaviour at high risk locations – leading to reduced collisions – which will be critical in both decreasing claims costs for the Insurance Corporation of British Columbia (ICBC), and reducing injuries and saving lives in communities around the province. This is timely as ICBC is facing significant financial losses.

.../2

Ministry of Municipal Affairs and Housing

Office of the Minister

Mailing Address:
PO Box 9056 Stn Prov Govt
Victoria BC V8W 9E2
Phone: 250 387-2283
Fax: 250 387-4312

Location:
Room 310
Parliament Buildings
Victoria BC V8V 1X4

http://www.gov.bc.ca/mah

As these new sources of traffic fine revenue, and associated expenses, were not contemplated when the TFRS program was first established, the Province now hopes to update the TFRS program to better reflect these changes and address public safety pressures experienced throughout British Columbia, including improvements to high-risk municipal and provincial roads and intersections.

On behalf of my colleagues at the Ministry of Attorney General and the Ministry of Public Safety and the Solicitor General, and in accordance with s. 276 of the *Community Charter* and the 2004 Consultation Agreement between the Province and Union of British Columbia Municipalities, I am formally notifying you that the Province would like to commence a consultation regarding potential changes to the TFRS program. Provincial representatives would like to begin the consultation process with UBCM in short order, and have it completed before the end of July 2018.

The Attorney General's Office and the Ministry of Public Safety and Solicitor General will lead this consultation on behalf of the Province and will contact UBCM staff in the near future to formalize timing and details of a consultation plan. If you or your staff have any questions about this work, please contact Jeff Groot, Executive Director, Corporate Priorities and Strategic Engagement, Attorney General's Office, at: 778 698-5200, or by email at: Jeff.Groot@gov.bc.ca.

I hope this consultation will be productive and ultimately result in public safety benefits for local governments, the Province and the citizens of British Columbia.

Sincerely,

Selina Robinson
Minister

pc: Honourable David Eby
Attorney General

Honourable Mike Farnworth
Minister of Public Safety and Solicitor General

Honourable Claire Trevena
Minister of Transportation and Infrastructure

Jeff Groot, Executive Director
Corporate Priorities and Strategic Engagement
Ministry of Attorney General

April 30, 2018

The Honourable Selina Robinson
Minister of Municipal Affairs and Housing
Parliament Buildings
Victoria, B.C.
V8V 2C2

Re: Traffic Fine Revenue Sharing Program

Dear Minister Robinson,

I write to you in response to your April 5, 2018 letter regarding the Traffic Fine Revenue Sharing (TFRS) program and intention to change the current agreement. While UBCM is open to hearing your concerns and rationale for considering amendments, we wish to register our concerns regarding your intention to change the TFRS agreement.

Suggesting that the TFRS program should be changed because of the expansion of automated traffic enforcement and other unnamed changes is a one-sided perspective that ignores the state of policing in British Columbia. According to provincial data, in 2014, 75 B.C. local governments spent $1.08 billion on policing services. By 2016, that number rose to $1.19 billion, an increase of over $100 million per year in policing costs borne by local governments. In comparison, local governments received only $58.1 million in traffic fine revenue in 2016/17.

Much of the substantial increase in annual policing costs from 2014-2016 can be attributed to rising costs for independent police departments who face significant cost pressures from arbitrated settlements. With RCMP Members currently seeking a bargaining agent, RCMP unionization could have a similar effect on policing costs for the majority of B.C. local governments that pay for RCMP policing. Local governments also face rising policing costs related to outstanding/unresolved issues (e.g. costs associated with the new RCMP 'E' Division Headquarters), opioid response, cadet training, the new Auxiliary Program, and other necessary training and equipment. These are just some of the many areas of policing that are experiencing rising costs.

Should electronic roadside ticketing be fully implemented, the provincial government has projected an increase of $44 million to traffic fine revenue over the first 10 years. While this would be welcomed, it would not come close to the increase in policing costs that local governments are expected to manage through limited sources of income.

60-10551 Shellbridge Way, Richmond, BC V6X 2W9
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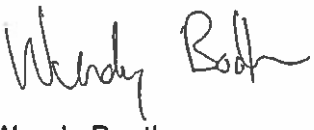
525 Government Street, Victoria, BC V8V 0A8
t. 250.356.5133 | f. 250.356.5119 | ubcm.ca

In 2015/16, UBCM's membership expressed significant concern with the provincial decision to transfer DNA analysis costs to local governments. Given our history, and the fact that the TFRS program represents a much larger financial impact to local governments, it is likely that our membership will have concerns with the Province's intent.

This request comes at a difficult time when many local governments are already spending upwards of 30% of their budgets on protective services, with other major enforcement cost pressures looming. I have asked our staff to make this a priority issue for our Board to discuss with you at the May 18, 2018 UBCM Executive meeting. I look forward to further discussion at that time.

Kind Regards,



Wendy Booth
UBCM President

cc: *The Honourable Mike Farnworth, Minister of Public Safety and Solicitor General*

The Honourable David Eby, Attorney General

Jeff Groot, Executive Director, Corporate Priorities and Strategic Engagement, Attorney General's Office

Mayor and Council:

I am writing to express my shock and outrage at the actions of staff and the quiet agreement of Council that has led to the resignations of the board of the Whistler Development Corporation.

Eric Martin enjoyed a successful, 24-year career in real estate development, retiring as vice-president of Bosa Development Corp. In retirement he worked for $1 a year steering the development of Cheakamus Crossing and has continued in the capacity as chair of Whistler Development Corporation. The mayor has this to say about Mr. Martin, ""Staff have shared that while you are highly-respected in the development world, you are also one of the most approachable, sincere and generous people they have had the pleasure of working with. We thank you for all that you have done to make Whistler a better place to live, work and play."

Jim Moodie has also been honoured with the Freedom of the Municipality. In 1977, Jim, along with Doug Sutcliffe and Neil Griggs, was part of the project management team hired to prepare a development plan for Whistler's non-existent town centre. While substantially tweaked by Eldon Beck, much of what you see today was contemplated in that original development plan. Jim also worked right along side Eric to bring Cheakamus Crossing into existence. And, of course, Jim is the man responsible for bringing the Audain Art Museum to Whistler, a move the mayor termed "mind-boggling."

Jim Godfrey completes the hat trick of people on the WDC board who hold the Freedom of the Municipality. In his role as liaison between the RMOW and VANOC, it was Jim who was largely responsible for the 300 acre legacy lands we look to for a solution to Whistler's affordable housing crisis. Jim also has continued to work in a largely volunteer capacity on the board of WDC.

Steve Bayly played midwife to the Whistler Housing Association and was fundamental in creating the structure and strategy that has made it the envy of affordable housing enthusiasts across the country. He's been a successful developer all his life and stands second to no one in his support of and contribution to what Whistler has become. He was honoured by being named Whistler's Citizen of the Year last month.

WDC was created to deliver the Athlete Village and repurpose it into Cheakamus Crossing. The board has worked tirelessly to steer Whistler's affordable housing strategy and, not inconsequentially, retire the debt taken on to do so, a debt not, apparently, totally appreciated by some in the RMOW management. While the RMOW is the sole shareholder of WDC, it is a separate entity with no political connection to the local government, according to the RMOW's own information.

So how is this the considerable array of talent and volunteerism and forward-looking planning being honoured. By ignoring their recommendations for, one can only surmise, political and/or personal reasons.

And so they have now tendered their resignations. Why? Because political decisions were made to move their functions in-house and have them undertaken by RMOW staff. Having perused the

development experience of staff, I'm left wondering where the knowledge, experience and depth of talent is going to come from to successfully accomplish those roles.

While having delivered a comprehensive business plan to embrace the next phase of development in Cheakamus Crossing and build sufficient market housing to retire the outstanding debt, Mr. Martin sums up the reception that work as received by the RMOW thusly: " From recent presentations to Council by staff and the WHA, it appears that the RMOW wants to move in a different direction... (and) there appears to be no active ongoing role for WDC and its directors."

As a resident, taxpayer and long-time advocate for the WHA and affordable housing in Whistler, I am outraged at the hubris of staff and the acquiescence of Council that has brought about this decision. Thus far, the "strategy" of staff seem to hinge on the ill-advised recommendation of the Mayor's Task Force on Resident Housing to pursue private development of "affordable" housing which has, thus far, produced laughably unsuitable proposals.

If this is the direction the RMOW plans to head in, let's strike up the band while the good ship Whistler sinks below the surface.

Sincerely,

G.D. Maxwell

From: Jim Horner [mailto:jhorner@shaw.ca]

Sent: Friday, June 15, 2018 13:28

To: Mayor's Office <mayorsoffice@whistler.ca>

Cc: Clare Ogilvie <edit@piquenewsmagazine.com>

Subject: Noise Pollution

Dear Mayor and Council,

I would like to echo my old friend Susanne Kay's request for a no fly zone over Whistlers sub divisions.

A few years ago I re-visited New Zealand's Fox Glacier, the constant non stop loud air traffic overhead harshed a mellow walk.

A scenic flight is a must for every Asian tourist there now and the planes and helicopters parade one after another all day long.

Is this Whistlers fate too?

As Harbour Air is now applying to double its dock space please consider asking them to re think their flight paths.

Thank you for reading my letter,

Jim Horner

From: Jim Horner [mailto:jhorner@shaw.ca]
Sent: Wednesday, July 04, 2018 20:34
To: Mayor's Office <mayorsoffice@whistler.ca>
Cc: Sue Maxwell <smaxwell@whistler.ca>; Jack Crompton <jcrompton@whistler.ca>; Steve Anderson <sanderson@whistler.ca>; Jen Ford <jford@whistler.ca>; Cathy Jewett <cjewett@whistler.ca>; John Grills <jgrills@whistler.ca>
Subject: Land Act: Notice of Intention to Apply for a Disposition of Crown Land

Dear Mayor and Councillors,

As I have not received a reply from my June 15 letter I will try again. Councillors, please let me know if this business expansion request for Crown Land foreshore in our Municipality is or is not of any concern to you? Will you be making any recommendations to the Ministry of Forests, Lands and Natural Resource Operations regarding this file # 2411998? The deadline for comments is July 15.

As I see it, dock space is the only future governor limiting the number of short flight-seeing flights overhead. Does DOT regulate such traffic? If so...

1: What is the capacity # of planes per hour, “PPH", that can possibly embark from the present dock size?

2: What is the maximum PPH if they expand their present permitted facility footprint to its full potential?

(I am told that they can expand out to the North and to the West?)

3: What will be the maximum PPH, if they are granted this new lease expansion proposal to the East.

Harbour Air is a fine upstanding company and I would not be at all anti dock space expansion if there was a cap on the number of PPH cycling overhead.

As the south end of the lake is a slow zone the planes taxi in and out so do not pose a noise issue there.

Unfortunately these planes are very loud over Emerald and Alpine Meadows, especially while they are gaining altitude.

This is a logical time to discuss flight-seeing paths, re: Glacier tours versus Over Whistler Community tours, etc.

Please let me know if any of you share my concerns.

Thank you again,

Jim Horner
8624 Fissile Lane

CN

www.cn.ca

Corporate Services

Stephen Covey
Chief of Police
and Chief Secuirty Officer

935 de La Gauchetière Street West
15th Floor
Montreal, Quebec H3B 2M9
Canada

Services corporatifs

Chef de la Police
et de la sécurité du CN

935 rue de La Gauchetière Ouest
15e étage
Montréal (Québec) H3B 2M9
Canada

June 18, 2018

Office of the Clerk
Resort Municipality of Whistler
4325 Blackcomb Way
Whistler BC V0N 1B4

Dear Sir / Madam:

At CN, we are on a journey to become the safest railroad in North America. In addition to reinforcing safety as a core value among our 25,000 employees, we collaborate with communities and local authorities to help prevent injuries and accidents and ensure everyone's safety.

This year, **Rail Safety Week** will be held in Canada and the United States from **September 23-29.** Hand in hand with ***Operation Lifesaver,*** CN's Police Service and employees will be in communities conducting hundreds of safety initiatives throughout the week. As proud partners, our commitment is to keep communities safe by raising rail safety awareness year round.

Safety is a shared responsibility
Last year, your council joined the safety efforts of many other Canadian and U.S. municipalities by adopting a resolution in support of Rail Safety Week. Rail safety is everyone's responsibility and by looking out for each other and working together, we can help keep our communities safe and prevent fatalities and injuries on or near railway property.

Your council can be a powerful ally in this effort to save lives by adopting the enclosed draft resolution. Please send a copy of your resolution by mail or e-mail to josee.magnan@cn.ca and let us know how you will be promoting rail safety in your community this year.

For additional information about Rail Safety Week 2018, please consult: www.cn.ca/railsafety , www.operationlifesaver.ca or www.oli.org .

Yours sincerely,

Stephen Covey
Encl.

CN all aboard for safety

OPERATION LIFESAVER

(Draft Resolution)

RESOLUTION IN SUPPORT OF PUBLIC - RAIL SAFETY WEEK

Whereas ***Public - Rail Safety Week*** is to be held across Canada and the United States from September 23 to 29, 2018

Whereas it is in the public's interest to raise citizens' awareness on reducing avoidable accidents, injuries and damage caused by collisions at level crossings or incidents involving trains and citizens;

Whereas Operation Lifesaver is a public/private partnership whose aim is to work with the rail industry, governments, police services, the media and other agencies and the public to raise rail safety awareness;

Whereas CN has requested City Council adopt this resolution in support of its ongoing effort to save lives and prevent injuries in communities, including our municipality;

It is proposed by Councillor _____

seconded by Councillor _____

It is hereby **RESOLVED** to support national ***Public - Rail Safety Week***, to be held from September 23 to 29, 2018.

House of Commons
Chambre des communes
CANADA

Pamela Goldsmith-Jones

Member of Parliament
West Vancouver - Sunshine Coast - Sea to Sky Country

June 20, 2018

Dear Mayor and Council, Chairs and Board of Directors, and community leaders in affordable housing,

Re: National Housing Co-Investment Fund Applications are Welcome

As you know, on May 2nd the Honourable Jean-Yves Duclos, Minister of Families, Children and Social Development announced the launch of the National Housing Co-Investment Fund (NHCF). These funds are intended to flow directly to municipalities, as we strive to support dynamic local partnerships. The fund is intended to apply to unique housing circumstances and need.

Further details on the application process can be found here: https://www.nhs-snl.ca/en/national-housing-co-investment-fund-new-construction-stream. We are here to help you at all times in preparing an application.

Here are your contacts for further information or assistance:

In Ottawa, Morgan McCullough: pam.goldsmith-jones.a2@parl.gc.ca

For West Vancouver-Sea to Sky Corridor, Ravneet Minhas: pam.goldsmith-jones.c1c@parl.gc.ca

For the Sunshine Coast, Lucie McKiernan: pam.goldsmith-jones.c1b@parl.gc.ca

It is very helpful to us if you could please copy our office on your application submission.

Sincerely,

P. Goldsmith-Jones

Pamela Goldsmith-Jones, M.P.
West Vancouver-Sunshine Coast-Sea to Sky Country

Confederation Building, Room 583
Ottawa, ON K1A 0A6
Tel: 613 947 4617 Fax: 613 947 4620

6367 Bruce Street
West Vancouver, BC V7W 2G5
Tel: 604 913 2660 Fax: 604 913 2664

pam.goldsmith-jones@parl.gc.ca
www.pgoldsmithjones.ca

From: Ken Melamed [mailto:kamelamed@gmail.com]
Sent: Thursday, June 21, 2018 09:42
To: Mayor's Office <mayorsoffice@whistler.ca>
Cc: Scott Rogers <srogers@whistler.ca>; Fire <fire@whistler.ca>
Subject: Firesmart innitiatives

Dear Mayor and Council,

I want to thank the RMOW for the positive efforts of the Firesmart Program. We have taken advantage of the site assessment and the residential chipping service. As an avid mountain biker, it is hard not to notice the amount of tree thinning that has been taking place throughout the valley in the past few years.

The option to have branches chipped onsite is a great service and seems very efficient.

The threat of wildfire is frightening and the combined efforts of this program are much appreciated.

Thank you,

Ken

Ken Melamed
Whistler, BC
604-932-5327

From: marine grandin [mailto:marine.grandin@gmail.com]
Sent: Wednesday, June 20, 2018 14:01
To: Wanda Bradbury <WBradbury@whistler.ca>
Subject: Housing and minimum wage crisis in Whistler

Resort Municipality of Whistler
4325 Blackcomb Way
Whistler, BC, V0N1B4

Her Worship Mayor Nancy Wilhelm-Morden,

I am writing to you regarding the housing and wage issue in Whistler which I feel has reached a crisis level. People in our community are currently living in our community parks parking lots, our ski and day lots and on the streets in our subdivisions.

As you must already know, Whistler is a very expensive place to live. It is mainly an expensive area because it is primarily a tourist resort which means that the prices you see are designed for tourists and not the average Canadian. This directly affects the local workforce as it is the average Canadian who is working a minimum wage job of 12.65 which in no way will be able to pay for housing

- 1-bedroom Apartment – $1,000 to $2,200
- Private Room in a house – $700 to $1,400
- Shared Room in a house – $500 to $1,000

In an article written by Natalie Obiko Pearson, she mentioned that a man named Phil Bonham, a 31 year old patroller which has been living out of a camper van for 4 years, unable to afford the surging cost of housing. This man was only supposed to live in his van for one season but ended up having to live out of his van for 4 years. He also mentions that he makes a decent wage in comparison to many other jobs in Whistler.

Low wages have been stable for the past several years while real estate has stayed extremely high. Much of the youth are struggling with their housing situations because of the unrealistic low wages that the youth are being paid. This year Canada is increasing minimum wage to about $12.65/hour, however, this still remains low for people around Whistler. Over the years, Whistler has seen a decrease in the amount of people living here annually. People no longer have the tools and the money to live comfortably without being concerned about what tomorrow has to offer.

To conclude my letter, I think that our municipal government should find ways to solve our minimum wage and housing crisis in order for everyone in our community to live well and be able to have money aside to enjoy all the wonderful activities Whistler has to offer.

Sincerely,

Marine Grandin
5448 Stonebridge Place
Whistler, BC, V0N1B5
604-698-6722
marine.grandin@gmail.com

Mayor and Councillors,

My family has been at whistler as a property owner since 1972. As the second generation I am currently a home owner and a part time employee of Whistler Blackcomb. I love the area and am very interested in it's growth and longevity. I felt obligated to send you a letter outlining what I view is very poor practice by some of the retailers in the village. I was in a store on Saturday when a US customer was purchasing a few hundred dollars worth of goods. She asked what the exchange rate was and was told that it was 1:1. As the current rate is 1:1.33 I was astounded. I inquired about it as I was curious and was told several of the retailers are the same. I did a little digging and there was a range. Some were at 1:1.15 and several were at 1:1. I'm not even sure there is anything that the council can do but Whistler has a number of US visitors and to tell them that we essentially are going to keep the entire F/X benefit is very poor practice and unprofessional. This is not about politics but how we as a community treat our neighbors and customers. I'm sure council will have the data as to how many US visitor's we have every year. My guess it is very substantial. If we want it known that this is standard practice it could very well influence how and where US visitors spend their money. Again this might not be something that council can or wants to influence or even be aware of but I wanted to bring it to your attention. I was not aware of it because I don't use US money here. If I was an American I would not spend money at a place that does not give me some kind of exchange better than 1:1. I simply think it is a blight on our retailers that have this kind of practice and I wouldn't want it to have an adverse effect on our municipality as a whole. I also found it interesting that the exchange rate is not posted at the cash. Most is not all, post it in Vancouver. As I mentioned, I felt obligated to bring this to the councils attention if you are not already aware of it.

Regards,

Michael Fahy

UBCM Union of BC Municipalities

June 27, 2018

Mayor Wilhelm-Morden and Council
Resort Municipality of Whistler
4325 Blackcomb Way
Whistler, BC, V0N 1B4

RE: Application for 2018 Community Excellence Awards

Dear Mayor Wilhelm-Morden and Council,

Thank you for submitting the following application(s) for the 2018 Community Excellence Awards:

- Excellence in Governance: Affordable Housing Program

The Selection Committee will review all applications and the winners will be announced at the Community Excellence Awards reception held during UBCM's 2018 Convention.

This year, the award presentation and reception will take place from 5:00 to 6:00 pm on the evening of Tuesday, September 11, in the Emerald Ballroom of the Westin Hotel in Whistler, BC.

The award presentation and reception will be open to all UBCM delegates. There will be reserved seating for five representatives from each applicant community, however no RSVP is required.

We look forward to seeing you at the awards presentation and reception. If you have any questions, please contact 250 356-5193 or awards@ubcm.ca.

Sincerely,

Danyta Welch
Manager, Local Government Program Service

cc: Amelia Mitchell, Communications Officer

To: “Mayor and Council”

From: Adam Miller on behalf of Stand Up To Cancer

Re: Fitzsimmons Covered Bridge Lighting Request

Date: 6/26/18

Stand Up To Cancer (SU2C) will broadcast its sixth biennial telecast on Friday, September 7, 2018. This is an especially significant year for SU2C, as it marks 10 years of raising awareness and funds for groundbreaking cancer research and therapies.

As part of our efforts, we are once again looking for iconic buildings and landmarks across the U.S. and Canada to light up the week leading up to the telecast (week of September 4) and/or the night of the telecast (Friday, September 7). Respectfully, we ask for your support in illuminating the Fitzsimmons Covered Bridge in any of SU2C’s colors: red, yellow or orange. In 2016, more than 90 historic buildings across the U.S. and Canada were illuminated in honor of Stand Up To Cancer.

As in previous years, we will issue a press release announcing participating buildings and landmarks, and will highlight images on the SU2C website and social channels to recognize supporters like you. By illuminating the Fitzsimmons Covered Bridge you will help raise awareness for SU2C and drive tune-in to the one-hour, commercial-free fundraising telecast, which will air live from Los Angeles on over 50 broadcast and cable networks across the U.S. and Canada. As always, the telecast will feature performances and appearances from top recording artists and celebrities, as well as powerful stories of the remarkable progress being made by SU2C-funded research. In 2016, more than $111 million was pledged in connection to the telecast.

Since its founding in 2008, SU2C has garnered more than $481 million in pledges for groundbreaking research, and its scientists have planned, initiated and completed over 180 clinical trials involving more than 12,000 participating patients.

We would be so grateful for any support you are able to provide to help us keep this momentum going and make this year’s telecast bigger (and brighter!) than ever.

WHISTLER

Landmark Lighting Request Form

Please complete the form and scan/email to corporate@whistler.ca .

This application does not guarantee that your event lighting request will be approved or your date is available.

We will contact you to confirm the status of your request.

Contact Name	Adam Miller
Organization	Stand Up To Cancer
Business Address	825 Eighth Avenue
City/Province/Postal Code	New York, NY 10019
Business Phone Number	212-843-8032
Business Email	amiller@rubenstein.com
Website Address	www.standuptocancer.org
Brief description of the event associated with your request *(Information here will be used for communications and the sign on the bridge. Max 75 words. RMOW will edit copy if necessary.)*	On Sept, 7, 2018, Stand Up To Cancer will hold its sixth biennial roadblock televised fundraising special, supporting urgently needed research and new treatments for cancer. The telecast will air on more than 50 broadcast and cable networks across the U.S.and Canada
Optional: Social Media Campaign Title *(include hashtags)*	
Landmark Choice	☒ **Fitzsimmons Covered Bridge**
Date of Event	Sept. 7, 2018
Colour Request	red, orange or yellow

Signature: Adam Miller

Date: 6/26/18

June 29, 2018

Resort Municipality of Whistler
4325 Blackcomb Way
Whistler, BC V0N1B4

Dear Mayor and Council,

The Community Foundation of Whistler is pleased to provide you with the enclosed fund statement for the Environmental Legacy Fund. This statement reflects the contributions to your fund, income generated, and grants distributed for the period from January 1, 2017 through December 31, 2017.

Our investment rate of return for 2017 was 9.5% (net of fees). Our fund managers at Cypress Capital Management shared this perspective on the markets:

> *"The fundamental question all long-term investors must ask themselves is 'which asset class offers the highest likelihood of protecting and growing the purchasing power of the invested capital over the contemplated holding period? For those investors that can look through the inevitable short-term volatility of the equity markets the answer is undoubtedly a diversified basket of equities. Long-term investors have been, and should continue to be, generously rewarded for living with the short-term volatility of the equity market."*

Our portfolio currently is made up of 74% equities and 26% fixed income. We hold 3 years of estimated cash disbursements in very short term fixed income securities.

We invite you to view our 2017 Audited Financial Statements on our website at www.whistlerfoundation.com.

In 2017 we continued our work with the Whistler Vital Signs initiative, exploring growth and change and how it relates to peoples' sense of belonging in Whistler. Vital Signs enhances our understanding of the community and how the Foundation can contribute to community development.

As a fund holder with the Foundation, you are able to make contributions to your fund at any time. **By growing your fund, you will help to grow impact in the community.**

If you have any questions about your fund statement, please feel free to contact me at ccoffey@whistlerfoundation.com. We are happy to meet with you to provide more information about your fund.

Thank you for investing in a thriving community through your community foundation.

Yours truly,

Carol Coffey
Executive Director

Community Foundation of Whistler

2017 Annual Fund Statement - Environmental Legacy Fund

Principal Endowed to Date:	2,405,805.00
Opening Fund Balance- Current Year:	3,433,899.27
Contributions in the year:	100.00
Investment Income:	160,008.53
Unrealized Gains (Losses) in the year	178,176.93
Investment Management Fees:	-13,010.20
Administration Fees:	-53,427.09
Annual Grants:	-119,830.00
Closing Fund Balance:	3,585,917.44

Details Grants:

Grantee	Date	Amount
AWARE	**April 19, 2017**	**$15,000**
AWARE	**April 19, 2017**	**$ 3,500**
AWARE	**June 20, 2017**	**$15,000**
AWARE	**June 20, 2017**	**$16,000**
AWARE	**June 20, 2017**	**$ 2,000**
Get Bear Smart Society	**May 18, 2017**	**$2,100**
Get Bear Smart Society	**June 2, 2017**	**$2,100**
Whistler Museum and Archives	**April 19, 2017**	**$8,000**
Whistler Museum and Archives	**April 19, 2017**	**$2,000**
Sea to Sky Invasive Species Council	**April 19, 2017**	**$16,000**
Sea to Sky Invasive Species Council	**April 19, 2017**	**$3,000**

PO Box 1184, Whistler, B.C. V0N 1B0
Ph: 604-935-8080 www.whistlerfoundation.com

Sea to Sky Invasive Species Council	**April 19, 2017**	**$13,000**
Board of Education for School District No. 48	**April 19, 2017**	**$15,000**
Stewardship Pemberton Society	**April 19, 2017**	**$7,425**
Stewarship Pemberton Society	**April 19, 2017**	**$2,575**
Grant Adjustments to prior year grants		**($2,870)**
***** Total Grants:**		**$119,830**

To: Mayor Wilhelm-Morden & Council

June 29th, 2018
Dear Mayor & Council.

RE: Time to re-focus on Priorities

I am very disappointed in some of the decisions made by Mayor and Council during the past couple of years. For example, the recent takeover of the job done by the Whistler Development Corporation, the ridiculously expensive roof at Gateway Loop, the Artificial Turf soccer field just to name a few.

The recent approval of $2.7 million for an artificial turf soccer field is a blatant example of misallocation of our tax dollars with disregard of other more urgent needs and priorities. Yes, artificial turf might be nice to have and might extend the soccer season for a few days each year. However, if grass fields are good enough for World Cup Soccer then why is grass not good enough for Whistler kids?

If artificial turf is needed that badly, what is wrong with a user pay system or fundraising by the soccer club??? Further, the way this expenditure was passed by council smacks of conflict of interest – if not technically, then morally. Councillors who have ties to the soccer club and/or children on soccer teams should have recused themselves form voting. I assure you I will not vote for any of these council or mayoral candidates in the November election.

Given the loss of direction of the current Mayor and Council and their lack of spending priorities, we should all reflect on this before we vote in the next election. I think it's time for some serious housecleaning.

Robert Cessford
4611 Montebello Pl.
Whistler V0N 1B4

COMMUNITIES ON THE MOVE DECLARATION: CREATING SMART, FAIR AND HEALTHY TRANSPORTATION OPTIONS FOR ALL BC COMMUNITIES

VISION

We envision that in 10 years, across BC - in communities small and large, it will be easy, safe and enjoyable to get around, whether by walking, biking, ride-sharing, by public transit or in a wheelchair. We want to see the provincial government making progressive investments that support active, connected and healthy communities.

This vision is guided by the following VALUES:

- Healthy Communities: Safe biking and walking routes, good street design and regular transit should be available to all British Columbians so that it's easy to be active and healthy. This can also make it easier for people to be socially connected which is important for good mental health.

- Mobility for All: A range of transportation options should be available to all British Columbians – including those who live in smaller communities, and vulnerable groups such as children, older adults and those with disabilities or low incomes, as well as non-drivers – so that everyone can have access to education, employment, shopping, healthcare, recreation, cultural events and social connections.

- Clean Air and Environment: Public transit and active modes of transportation should be available to all British Columbians as these can reduce local air pollution and carbon emissions that contribute to climate change.

- Economic Opportunities and Cost Savings: Active and public transportation facilities are smart investments as they can stimulate local business and tourism in communities of all sizes. These investments can also control rising healthcare costs because regular physical activity keeps people healthier and out of the healthcare system.

- Consideration of Community Needs: All BC communities should have a range of convenient, affordable transportation options that are tailored to their context – whether urban or remote, dense or dispersed, small or suburban.

- Safety for All Road Users: The design and rules of the road should ensure that all British Columbians can arrive at their destination safely.

How do we get there?

- **A Provincial Active Transportation Strategy**
  - Invest $100M per year over the next 10 years to support the development of local cycling and walking infrastructure within a larger provincial network. Prioritize the completion of connected cycling and walking transportation networks.
  - Develop an Active Transportation unit within the Ministry of Transportation and Infrastructure to provide professional planning and policy expertise at the provincial level.
  - Invest in Active School Travel Planning and standardized cycling education for healthy, active children.

- **Investment in Transit**
  - Invest in the full implementation of the BC Transit Strategic Plan 2030 and local governments' 'Transit Future Plans' to grow transit service and meet local needs.
  - Ensure a fair share of capital funding and secure, predictable revenue tools for the full implementation of the TransLink Mayors' Council 10-Year Vision.
  - Continue and expand the universal bus pass (UPASS) program to students and employees of post-secondary institutions.
  - Invest in public transportation systems that serve small, rural, remote and isolated communities such as the use of school buses and bus services that feed into regional centres.

- **Commitment to Equity**
  - Ensure transit accessibility for people on disability assistance by increasing the affordability of transit passes.
  - Improve handyDART service to meet demand and to expand accessibility to evenings, Sundays and holidays.
  - Ensure funding is allocated geographically and equitably across the province. Recognize infrastructure deficits for pedestrian, cycling and transit modes as well as limitations faced by rural, remote, geographically isolated and small communities as part of funding criteria.

- **Consideration of Regional Needs**
  - Work with local governments to establish a Rural Transportation Strategy. Develop and invest in innovative community transportation systems, ride-sharing, tele-services and telecommuting options that can serve rural and remote British Columbians.
  - Develop and support the implementation of Winter City Guidelines that give residents the opportunity to be active all year long. This should include operational measures such as snow-clearing for active transportation networks and improved winter road maintenance.
  - Support the Metro Vancouver Mayor's Council to pursue alternative funding mechanisms.

- **Commitment to Safety**
  - Support the BC Road Safety Strategy Vision Zero: work with partners to create safer streets and to eliminate fatalities and serious injuries on the roads of BC. Speed limits should be reduced and strictly enforced, including through the use of cameras and other proven safety measures.
  - Prioritize safety measures for vulnerable road users such as pedestrians, cyclists and those in wheelchairs and mobility devices.

From: Legacy Brands Advertising [mailto:info@legacybrands.ca]
Sent: Saturday, June 30, 2018 2:58 PM
To: corporate <corporate@whistler.ca>
Subject: letter to council re National Beerhall Inc.

Dear Mayor and Council,

I support the proposed bowling alley development, bar et al as proposed from National Beerhall Inc., a division of Concorde Entertainment Group.

My family enjoys bowling, and we are not gangsters. Gangs and bowling alleys. Right. Last gangster in a bowling alley was Al Capone who was a teenage bowling alley pinboy before automation.

Competition is good. Let the market decide if it any business will survive.

Regards

Patrick Smyth

P A T R I C K S M Y T H

L e g a c y B r a n d s

Legacy Brands

Richard P. Gibbons

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Mayor and Council
Resort Municipality of Whistler
4325 Blackcomb Way
Whistler, B.C. VON 1B4

Dear Mayor and Council: **Re: National (Whistler) Beerhall Liquor Licences Applications**

By way of introduction, I am a long time Whistler resident, having purchased my first residential property in 1968. In the late seventies, I was involved in the first stage development of the Whistler Village, with the construction of the building that now is occupied by La Bocca and Max Fish. In the early eighties, together with partners, I took on the construction of the Carleton Lodge, after it was abandoned by the insolvent Whistler Village Land Company. I later purchased Buffalo Bills, which had been in receivership and Tapley's. Presently, I have no ownership or operational interest in any Whistler business; however, I continue to have strong feelings about the continued success of this community.

On a personal level, my wife, four children and I became full time residents of Whistler in the very early 1990s. Our three younger children all graduated from Whistler High School (our eldest, Joey, having graduated from Pemberton High, prior to the opening of Whistler High School). I have served, as a volunteer on many community boards, including being a director and president of the Whistler Mountain Ski Club, Chair of the first board of directors of Whistler High PAC, Chair of the World Cup Committee and, at the provincial level, I served many years as a director and chair of the liquor committee of the B.C. Hotels Association. In 1986-87, I was president of that association. I represented the hoteliers of B.C. in all the major liquor licensing reviews.

I apologize for my rather lengthy introduction, but I think it important for you to know that I have a long history of being involved in the development of this community and the evolution of and the impact of liquor licencing, in B.C. and, most importantly, in Whistler.

It is important to fully understand that, with respect to these liquor licence applications, Whistler Council has the final say in whether the licences will be issued. This is not about zoning, which is merely a preliminary condition that must be met, but, rather, "what is good for the community of Whistler". Section 38(4) of the Liquor Control & Licensing Act states: "...if the local government or first nation recommends that the licence not be issued or amended the general manager must not issue or amend the licence." Attached is the relevant page from the Act.

This provision was introduced into legislation following the Surich Liquor Review, in 1999, and is based on the obvious conclusion that local government is best suited to make these important decisions that will have deep and lasting effects on their communities.

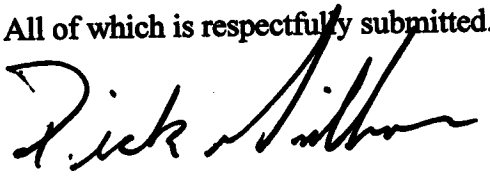
I urge you to recommend to the General Manager of the Liquor Control & Licensing Branch that the licences, which are the subject of the above application, not be issued. It has taken us decades to build Whistler into the top mountain resort, in the world, and the probable negative results that would follow from the issuing of these licences will undermine the position we have attained. Negative results that will include:

1. The food and beverage industry is struggling with many difficult issues such as shortage of staff, increased minimum wages and increased taxes and rents. There will be no

increase in hotel rooms or other forms of accommodation, which increase demand, so the logical result of any new large-scale F &B operation will be pulling some of the customers out of existing operations. As we know, profit is always in the top portion of gross sales, so losing even a relatively small percentage of gross sales can be devastating. The result will be a deterioration in the quality of what is now being provided, as cutbacks in staffing and maintenance of the premises takes place. This will not be good for Whistler. This precious resort has always been and was intended to be a planned community, which is particularly true of the village. Council support of this proposed new facility will certainly result in considerable harm being visited on existing F&B operators, most of whom live here, raise their families here and involve themselves in a variety of volunteer community activities, all of which makes Whistler a special place.

2. Finding **accommodation for staff at the proposed establishment would be very difficult.** And, the suggestion that it would employ a maximum of 73 people is a gross under estimation. My experience tells me that the actual number will be more than double that amount. The competition for the limited available staff accommodation will present serious problems for existing operators.
3. With respect to the issues of security, noise, etc., please do no compare the current Food Primary licence with the previous licence relating to restaurants, which was called a Class B licence, which required establishments operating, under that licence to act, look and carry on business as restaurants. Today, the Food Primary licence allows for the facilities holding that licence to carryon business that is almost indistinguishable from pubs and nightclubs, operating under the Liquor Primary licence. **The proposed development is not about bowling, recreation and dining. It about the sale of liquor, with some recreation and food available.**
4. Whistler and the F&B operators are about to feel the negative effects from the legalization of cannabis, including the forecasted 15-20% reduction in the retail sale of liquor.

All of which is respectfully submitted.



Dick Gibbons

.cc. Mike Furey, Chief Administrative Officer
Mike Kirkegaard, Director of Planning
Jan Jansen, General Manager of Resort Experience
Frank Savage, Planner

38 (1) Subject to subsection (2), a licence of a prescribed class of licences must not be issued or amended unless, in the prescribed circumstances, the applicant has given the local government or first nation for the area in which the establishment is proposed to be located or is located notice of the application in accordance with the regulations.

(2) A local government or first nation may indicate in writing to the general manager that it does not wish to receive notice under subsection (1) of applications or a class of applications.

(3) A local government or first nation that receives notice under subsection (1) must, if it wishes to provide comments and recommendations under this section with respect to the application,

(a) take into account the prescribed criteria before providing the comments and recommendations,

(b) provide the comments and recommendations to the general manager

(i) in accordance with the regulations, and

(ii) within the prescribed time period, or any further period authorized by the general manager, and

(c) in the prescribed circumstances, gather the views of residents of an area determined by the local government or first nation in respect of the application by

(i) receiving written comments in response to a public notice of the application,

(ii) conducting a public hearing in respect of the application,

(iii) holding a referendum, or

(iv) using another method the local government or first nation considers appropriate.

(4) Subject to section 39, if the local government or first nation recommends that the licence not be issued or amended, the general manager must not issue or amend the licence.

(5) Subject to section 39, if the local government or first nation recommends that the licence be issued or amended, the general manager must take that recommendation into account in deciding whether or not to issue or amend the licence.

SEC. 39 IS NOT REL