WHISTLER

AGENDA

REGULAR MEETING OF MUNICIPAL COUNCIL
TUESDAY, JANUARY 24, 2017, STARTING AT 5:30 P.M.

In the Franz Wilhelmsen Theatre at Maury Young Arts Centre – Formerly Millennium Place
4335 Blackcomb Way, Whistler, BC V0N 1B4

ADOPTION OF AGENDA

Adoption of the Regular Council agenda of January 24, 2017.

ADOPTION OF MINUTES

Adoption of the Regular Council minutes of January 10, 2017.

PUBLIC QUESTION AND ANSWER PERIOD

MAYOR'S REPORT

INFORMATION REPORTS

Cheakamus Crossing District Energy System - Energy Study Program
Report No. 17- 002
File No. 420.2

A presentation by municipal staff.

That Information Report No. 17- 002 regarding the Cheakamus Crossing District Energy System - Energy Study Program be received.

RMOW Wildfire Protection Strategy
Report No. 17- 004
File No. 8337

A presentation by municipal staff.

That the RMOW Wildfire Protection Strategy be received by Council.

ADMINISTRATIVE REPORTS

LLR 1271 – Bar Oso New Liquor Primary Patio
Report No. 17- 003
File No. LLR 1271

A presentation by municipal staff.

That Council pass the resolutions attached as Appendix "A" to Administrative Report to Council No. 17-003 providing Council's recommendation to the Liquor Control and Licensing Branch regarding an Application from Bar Oso for a Structural Change to Liquor Primary Licence No. 162781 to add a new outdoor patio with an occupant load of eight persons; and further

That Council pass the resolutions attached as Appendix "B" to Administrative Report to Council No. 17- 003 providing Council's recommendation to the Liquor Control and Licensing Branch regarding an Application from Bar Oso for a Structural Change to Liquor Primary Licence No. 162781 to increase the upper floor interior occupant load from 28 to 30 persons and to decrease the lower floor occupant load from 70 to 62 persons.

FireSmart Grant Application
Report No. 17 – 006
File No. 8337.01

That Council support the UBCM FireSmart grant application to further develop the FireSmart program in Whistler. The FireSmart program, delivered by the FireSmart Coordinator, will include delivering public education, conducting site visits and community assessments, make recommendations on FireSmart plans for specific a and assist property owners in coordinating FireSmart activities.

RMOW Appointments to Whistler Valley Housing Society
Report No. 17- 005
File No. 7224

That Council of the Resort Municipality of Whistler (RMOW), re-appoints Jonathan Decaigny, Cheryl Skribe, Gord Low and Marla Zucht as the four RMOW appointees to the Whistler Valley Housing Society (WVHS).

MINUTES OF COMMITTEES AND COMMISSIONS

Liquor Licence Advisory Committee (LLAC)

Minutes of the Liquor Licence Advisory Committee meeting of November 10, 2016.

Transportation Advisory Group Workshop (TAG)

Minutes of the Transportation Advisory Group Workshop 6 meeting of November 8, 2016.

BYLAWS FOR THIRD READING

Zoning Amendment Bylaw (In-Ground Basement GFA Exclusion) No. 2132, 2016

That Council consider giving third reading to Zoning Amendment Bylaw (In-Ground Basement GFA Exclusion) No. 2132, 2016.

OTHER BUSINESS

Kinder Morgan Pipeline Expansion Correspondence

Correspondence from Angela Mellor, dated January 2, 2017, requesting that Council consider making a motion to declare opposition to the Kinder Morgan pipeline expansion.

This correspondence was postponed at the January 10, 2017 Regular Council meeting.

CORRESPONDENCE

Compost Bins in Whistler File No. 3009	Correspondence from Ben Brownlie dated January 12, 2017, requesting that Council consider putting compost bins throughout Whistler Village.
Recycling Bins in Whistler File No. 3009	Correspondence from Jade Quinn-McDonald and Camie Matteau Rushbrook dated January 12, 2017, requesting that donation bins be placed around Whistler to make donating more accessible.
Bear Awareness File No. 3009	Correspondence from Kaitlyn Hill and Erin Wilson dated January 12, 2017, requesting that signs and brochures with bear awareness information be put up and distributed around Whistler.
Heating Bus Stations File No. 3009	Correspondence from Luana Kodato dated January 12, 2017, requesting that heaters be installed inside bus shelters to make transportation users more comfortable during the winter months.
Transportation Observations File No. 3009	Correspondence from Mike Suggett dated January 12, 2017, regarding his observations around Whistler Transportation.
Earthquake Early Warning System File No. 3009	Correspondence from Iain Weir Jones, President Weir-Jones Engineering Consultants Ltd. dated January 12, 2017, regarding their earthquake advanced warning systems.
Whistler Pride Week 25th Annual Proclamation File No. 3009.1	Correspondence from Dean Nelson dated January 17, 2017, requesting that Council proclaim January 22 – 29, 2017 “Pride Week” and to help celebrate 25 years of Pride in Whistler and full equal human rights for all Canadians.
Kinder Morgan Pipeline Expansion Opposition File No. 3009	Correspondence from Hal Mehlenbacher dated January 18, 2017, requesting that Council support not backing the Kinder Morgan mandate.

ADJOURNMENT

WHISTLER

MINUTES

REGULAR MEETING OF MUNICIPAL COUNCIL
TUESDAY, JANUARY 10, 2017, STARTING AT 5:30 P.M.

In the Franz Wilhelmsen Theatre at Maury Young Arts Centre – Formerly Millennium Place
4335 Blackcomb Way, Whistler, BC V0N 1B4

PRESENT:

Mayor: N. Wilhelm-Morden

Councillors: S. Anderson, J. Crompton, J. Ford, J. Grills, A. Janyk, S. Maxwell

Chief Administrative Officer, M. Furey
General Manager of Infrastructure Services, J. Hallisey
General Manager of Corporate and Community Services, N. McPhail
Acting General Manager of Resort Experience, M. Kirkegaard
Director of Finance, K. Roggeman
Municipal Clerk, L. Schimek
Recording Secretary, M. Kish
Deputy Fire Chief, C. Nelson
RCMP Officer In Charge, Inspector K. Triance
RCMP Inspector, N. Cross

ADOPTION OF AGENDA

Moved by Councillor A. Janyk
Seconded by Councillor J. Grills

That Council adopt of the Regular Council agenda of January 10, 2017.

CARRIED

ADOPTION OF MINUTES

Moved by Councillor A. Janyk
Seconded by Councillor J. Ford

That Council adopt the Regular Council minutes of December 20, 2016 as amended by removing the duplicated words “be received” under Squamish Lillooet Regional District (SLRD) Letter to the Province – Regional Growth Strategy (RGS) and Garibaldi at Squamish Project in the correspondence section.

CARRIED

PUBLIC QUESTION AND ANSWER PERIOD

There were no questions from the public.

PRESENTATIONS/DELEGATIONS

Fireplace and Heating Safety

A presentation was given by Chris Nelson, Deputy Fire Chief regarding Fireplace and Heating Safety.

New Year's Eve Activities

A presentation by Inspector, Kara Triance, Officer In Charge for the Sea to Sky RCMP Detachment regarding Whistler's New Year's Eve Activities.

Mayor Wilhelm-Morden called a five minute recess at 5:46 p.m.
Mayor Wilhelm-Morden reconvened the meeting at 5:48 p.m.

MAYOR'S REPORT

On behalf of Council and the Resort Municipality of Whistler Mayor Wilhelm-Morden acknowledged outgoing Inspector Neil Cross' years of service with the Royal Canadian Mounted Police as the Officer in Charge for the Sea to Sky Detachment and presented him with a certificate of service. Mayor Wilhelm-Morden thanked Neil for his leadership, for his community service and congratulated him on his promotion wishing him luck and all the best in his new area of practice.

Mayor Wilhelm-Morden informed that in the Closed meeting of Council earlier in the day, Council made several committee appointments. The following members have been appointed to the Advisory Design Panel:

- Zora Katic, Tony Kloepfer and Brigitte Loranger as the three professional architects
- Julian Pattison and Kristina Salin and as the two professional landscape architects
- Dale Mikkelsen as the professional land developer
- Ryley Thiessen and Pat Wotherspoon as the two regular public-at-large members

Mayor Wilhelm-Morden informed that members have also been selected to the Technology Advisory Committee, which is a new committee created late in 2016. These members have been appointed by their organizations:

- Jamie Clark, Whistler Blackcomb
- Tim Bonnell, Tourism Whistler
- Andrew Wilson, Whistler Sports Legacies Society
- Heather Paul, Arts Whistler
- Nick Papoutsis, Whistler Chamber of Commerce
- Kerry Ing, RMOW

Kirk Hulse has been appointed by Council as the member-at-large representative. Mayor Wilhelm-Morden on behalf of the RMOW thanked everyone who serves on our committees providing invaluable insight, expertise and contributions to municipal plans and initiatives.

Mayor Wilhelm-Morden updated that initiatives of the Mayor's Task Force on Resident Housing have continued to move forward. Mayor Wilhelm-Morden informed that the Whistler 2020 Development Corporation is transferring a lot in Cheakamus Crossing to the Whistler Housing Authority to develop a third rental housing project. There is currently one Whistler Housing Authority rental building under construction on Cloudburst Drive, which will be completed in

2017. Designs are underway for a second rental building beside it. Mayor Wilhelm-Morden commented that it is hoped that with a third building, Whistler Housing Authority will add a total of two hundred and fifty new beds to Whistler's employee housing inventory. Mayor Wilhelm-Morden informed that the Home Run program is a new program that matches property owners with business owners to secure housing for their teams. Home Run now has fourteen interested property owners and twenty-eight applications from business owners. Mayor Wilhelm-Morden commented that it is a significant uptake in a short period of time. The properties range from single bedrooms to studio condos to a five-bedroom single family house. Businesses require housing for their employees ranging from management to seasonal team members. Mayor Wilhelm-Morden encouraged property owners to sign up for a portion of a season or longer. It is a simple, hassle free way to lease direct to business. The Mayor's task force has also increased investigations and enforcement of property owners who illegally use their residential homes for tourist rentals and there will be more moving forward.

Mayor Wilhelm-Morden observed that Whistler had a busy holiday season. The Whistler Presents New Year's Eve event sold over one thousand, five hundred wristbands to the Maury Young Arts Centre and Whistler Conference Centre indoor venues that held family friendly programming. Skating at Whistler Olympic Plaza was popular too. Mayor Wilhelm-Morden informed that almost eight hundred and fifty pairs of skates were rented during the 12 hours skating was available and a large number of skaters brought their own skates. Mayor Wilhelm-Morden informed that thousands of people attended the free special edition Fire and Ice show with fireworks at midnight.

Mayor Wilhelm-Morden updated that traffic control personnel were used on Sunday and will be used again this Sunday to reduce congestion south-bound from 2:00 p.m. to 7:00 p.m. The RMOW and Whistler Blackcomb have partnered to station these personnel along Highway 99 at the Lake Placid Road, Bayshores Drive, and Alta Lake Road intersections. The public is advised to be aware that this is a busy time on the roads and to plan accordingly.

Mayor Wilhelm-Morden informed that the community is invited to a Transportation Community Forum on Tuesday, January 17 from 5:00 p.m. to 8:00 p.m. in the Grand Foyer of the Whistler Conference Centre. The forum will cover:

- upcoming transportation plans
- review the research on Whistler's highways, roads, parking and transit; and
- allow the community to share input

Mayor Wilhelm-Morden informed that RMOW employees and Transportation Advisory Group Select Committee of Council members will be available to answer questions. Mayor Wilhelm-Morden mentioned that this is an excellent opportunity to be part of the conversation about Whistler's transportation future. Activities for children and refreshments will be provided throughout the evening. Find out more details at whistler.ca/movingwhistler.

Mayor Wilhelm-Morden updated that two of Whistler's Council-appointed committees are searching for new volunteers. The Whistler Bear Advisory

Committee is looking for one member to serve for a two-year term. Interested volunteers should have an interest and background in bear or wildlife management. The application deadline is before 12:00 p.m. on January 13. The Measuring Up Select Committee of Council is looking for volunteers to advise on accessibility and inclusion in Whistler. Interested candidates should have a first-hand knowledge of the issues and challenges facing persons with disabilities living and visiting Whistler, such as individuals with disabilities, caregivers and professionals who specialized in inclusion and accessibility. To find out more visit whistler.ca/committees.

Mayor Wilhelm-Morden on behalf of council and the Resort Municipality of Whistler shared condolences with the family and friends of John Halstead following his passing on December 21. In particular John's wife of 60 years, Kaye, his daughter Karen Playfair and son-in-law Geoff, as well as grandchildren Brooke and Raine. Mayor Wilhelm-Morden informed that John was one of Vancouver's skiing pioneers and a competitive ski jumper. He skied at Hollyburn Mountain from the 1940s until the 1960s, and then moved to skiing Whistler Mountain when it first opened. Mayor Wilhelm-Morden noted that John was also an active member of Whistler's Alta Lake Ski Club in the 1980s and that he served the West Vancouver fire department for 30 years before retiring in 1990 and moving to Whistler full time to live in Alpine Meadows.

Councillor Janyk thanked and congratulated the employees and residents of Whistler for supporting a very busy Christmas season. Councillor Janyk commented that what she hears from guests is that Whistler is outstanding and that the service and friendliness is something they have never seen before.

At 6:00 p.m. a Public Hearing was held for Zoning Amendment Bylaw (In-Ground Basements GFA Exclusion) No. 2132, 2016.
At 6:05 p.m. the meeting resumed.

INFORMATION REPORTS

Q3 Financial Report
Report No. 17-001
File No. 4527

Moved by Councillor J. Grills
Seconded by Councillor J. Ford

That Council receive Information Report No. 17- 001 Quarterly Financial Report for the six months ended September 30, 2016.

CARRIED

MINUTES OF COMMITTEES AND COMMISSIONS

Whistler Bear Advisory Committee

Moved by Councillor S. Maxwell
Seconded by Councillor S. Anderson

That minutes of the Whistler Bear Advisory Committee meeting of November 9, 2016 be received.

CARRIED

Forest and Wildland Advisory Committee

Moved by Councillor S. Anderson
Seconded by Councillor S. Maxwell

That minutes of the Forest and Wildland Advisory Committee meeting of November 9, 2016 be received.

CARRIED

BYLAWS FOR THIRD READING

Zoning Amendment Bylaw (In-Ground Basements GFA Exclusion) No. 2132, 2016

No action was taken regarding Zoning Amendment Bylaw (In-Ground Basements GFA Exclusion) No. 2132, 2016.

OTHER BUSINESS

There were no items of Other Business.

CORRESPONDENCE

Mons Valley Trail Tree Buffer and Senior Help
File No. 3009

Moved by Councillor A. Janyk
Seconded by Councillor J. Grills

That correspondence from Jim Horner, dated December 15, 2016, requesting that a buffer of trees be planted in front of the Rainbow Sub-Station up to Mons and that funding be considered to help seniors be received and referred to staff.

CARRIED

Bullying Canada Financial Donation Request
File No. 3009

Moved by Councillor A. Janyk
Seconded by Councillor J. Grills

That correspondence from Rob Benn-Frenette, Co-Executive Director and Co-Founder of Bullying Canada dated December 19, 2016 requesting that Council consider making a donation to Bullying Canada to support flagship programs be received.

CARRIED

Artificial Turf Field Cost Concerns
File No. 3009

Moved by Councillor J. Grills
Seconded by Councillor A. Janyk

That correspondence from Daniel Jonckheere, dated December 21, 2016, regarding the high cost of a proposed artificial turf field be received and referred to staff.

CARRIED

Feedback Invitation for Rural Education Strategy
File No. 9004

Moved by Councillor J. Ford
Seconded by Councillor A. Janyk

That correspondence from Deputy Minister Jacqueline Dawes, Ministry of Community, Sport and Cultural Development and responsible for TransLink dated December 21, 2016, seeking public input on rural education to better understand the needs of students, parents, schools and communities in rural British Columbia be received and referred to staff.

CARRIED

Spearhead Huts Project Support
File No. 3009

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

That correspondence from Herbert Vesely, dated December 29, 2016, regarding his endorsement of the Spearhead Huts Project be received.

CARRIED

Kinder Morgan Pipeline Expansion Motion Request
File No. 3009

Moved by Councillor A. Janyk
Seconded by Councillor J. Grills

Correspondence from Angela Mellor, dated January 2, 2017, requesting that Council consider making a motion to declare opposition to the Kinder Morgan pipeline expansion be tabled in order for Council to receive more information for consideration.

CARRIED

Spearhead Huts Project Opposition
File No. 3009

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

That correspondence from Craig Havas, dated January 3, 2017, regarding his opposition to the RMOW providing support and funding to the Spearhead Huts Project be received.

CARRIED

ADJOURNMENT

Moved by Councillor J. Crompton

That Council adjourn the January 10, 2017 Council meeting at 6:22 p.m.

CARRIED

Mayor, N. Wilhelm-Morden

Municipal Clerk, L. Schimek

WHISTLER

REPORT | INFORMATION REPORT TO COUNCIL

PRESENTED:	January 24, 2017	**REPORT:**	17- 002
FROM:	Infrastructure Services	**FILE:**	420.2
SUBJECT:	CHEAKAMUS CROSSING DISTRICT ENERGY SYSTEM - ENERGY STUDY PROGRAM		

COMMENT/RECOMMENDATION FROM THE CHIEF ADMINISTRATIVE OFFICER

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

RECOMMENDATION

That Information Report No. 17- 002 regarding the Cheakamus Crossing District Energy System - Energy Study Program be received.

REFERENCES

Appendix A - Cheakamus Crossing District Energy System - Energy Study Program (ESP).

PURPOSE OF REPORT

The Energy Study Program (ESP) was designed to measure the energy consumed within several Cheakamus Crossing townhomes and analyze the ownership and operating costs of a heat pump system. The findings on energy consumption, equipment replacement and operating costs were then compared to “business- as-usual” (BAU) scenarios, assuming conventional electric heating systems.

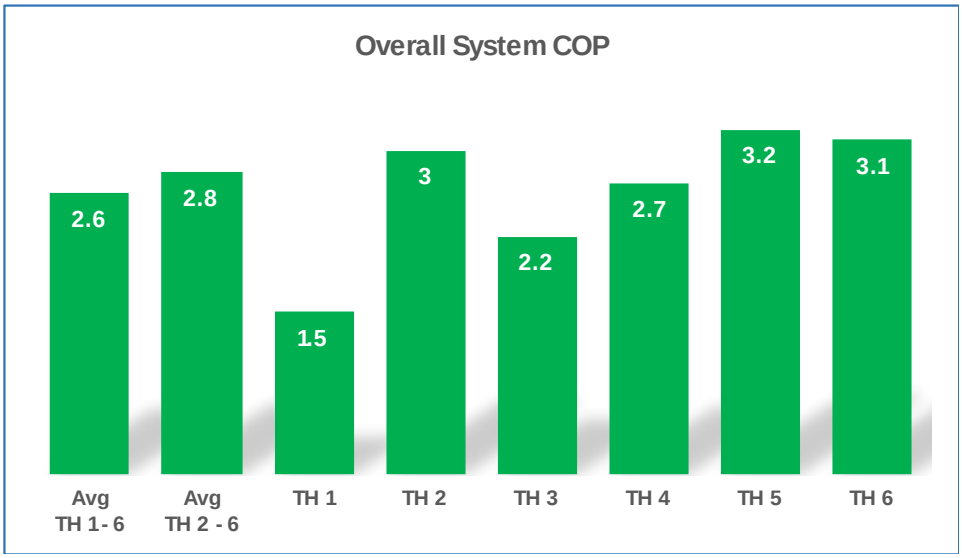
DISCUSSION

In December 2015, RMOW conducted a campaign seeking Cheakamus Crossing homeowners to volunteer for participation in the ESP. From the applications received, eleven candidate homes were shortlisted representing a cross section of the original development phases. The heating systems in these homes underwent a technical inspection to verify that they hadn’t been modified from the original design, and that they would meet the operating requirements of the six month study. The list was further reduced to meet the desired target of six homes. Note that one of the Townhomes (TH 1) did not use the heat pump for their Domestic Hot Water (DHW) needs. DHW heating function was turned off by the homeowner during the study period. Therefore all DHW heating in TH 1 was provided by the backup electric element rather than by the DES and heat pump.

In early January 2016, the digital monitoring equipment was installed on the heating systems within the six sample townhomes. Nine points of data were monitored and measured at fifteen minute intervals for the six month long monitoring period (January through to June).

This monitoring program showed that the Heat Pump (HP) systems in these townhomes have an average Coefficient of Performance (COP) value of 2.8. COP is the ratio of energy produced over energy consumed. A COP of 3.0 indicates that the HP system is producing 3 kW of heat energy for every 1 kW of electricity consumed, or 300% efficiency. Electric baseboard heat is only 100% efficient with a COP of 1.0. The COP values for the ESP study group, based on the monitored data and analysis, are compared in the following chart.

COP VALUES DURING THE MONITORING PERIOD



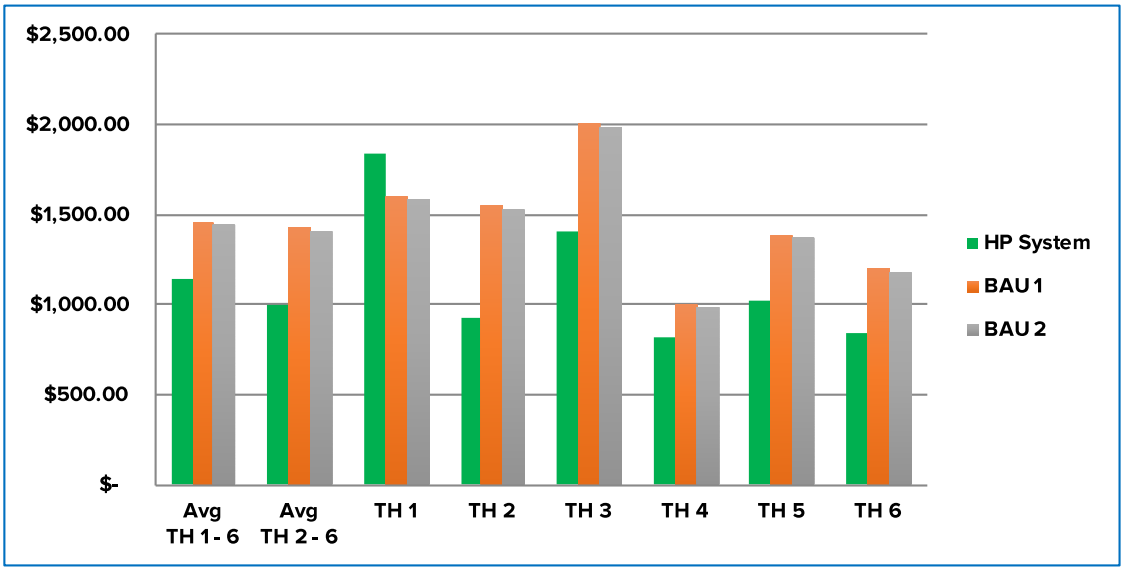
TH 1 had an overall system COP value of less than 2.0. This is due to their HP system only being used to provide space heating. All of the DHW heating in TH 1 is being provided by the electric DHW tank elements, which only have a COP value of 1.0.

The monitoring data also indicated that the DHW tank elements in TH 3 were activated for part of the monitoring period, which contributed to its lower overall COP. Five out of six sample group HP systems were operating within the energy efficiency ranges they were designed to.

ANNUAL ENERGY COST COMPARISON

Annual energy costs were then compared under two “Business-As-Usual” (BAU) scenarios. The BAU1 heating system consists of a standard electric DHW tank and an electric hydronic boiler to provide hot water to the hydronic in-floor heating and fan coil system. BAU 2 consists of electric baseboard heaters and an electric DHW tank. It is important to note that a factor not considered in the BAU 2 scenario is the difference in thermal comfort between radiant floor heating and electric baseboards. This added comfort value is typically found in more expensive homes.

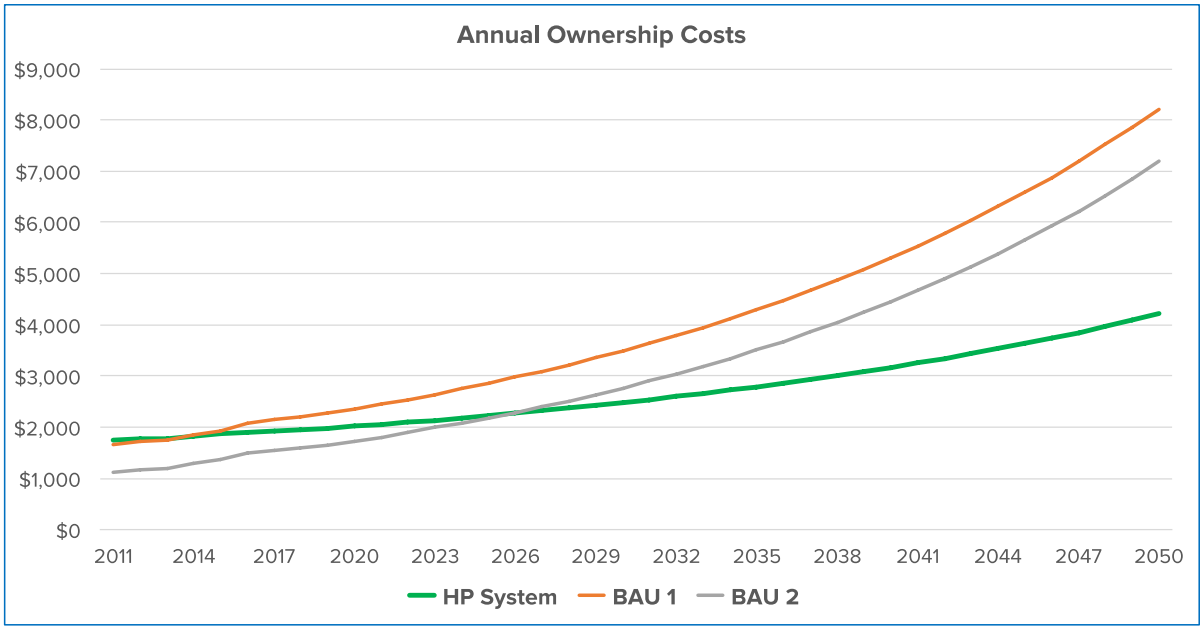
ANNUAL ENERGY COST COMPARISON



The HP systems in TH 2, 3, 4 and 5 have much lower annual energy costs to produce the same levels of heat energy output, compared to the BAU 1 and BAU 2 scenarios. The HP systems' annual energy costs were 17% to 40% less than the BAU systems, with an average annual savings of $428.00. Multiplying the average annual savings over a typical service life expectancy of 20 years equates to cost savings of $8,560.00 (in 2016 dollars). The analysis of the monitored data indicates that the more the heat pump is utilized the greater the savings are. TH 1 was the exception, with annual energy costs much higher than the other townhouses in the sample group, and also higher than the BAU scenarios.

Total ownership costs include the cost of energy, the cost of routine maintenance, DES utility fees, and the cost of equipment replacement at the end of its normal service life. The study estimated the average annual ownership costs of the HP systems in the sample group and compared them to the BAU 1 and BAU 2 systems. Costs were developed for 2016 and then discounted back to 2011 and projected forward to the year 2050.

ANNUAL AVERAGE OWNERSHIP COST COMPARISON



The chart above shows the HP system ownership cost increasing at a slower rate than the BAU 1 and BAU 2 systems. This is primarily due to the HP systems requiring less electricity to operate than the BAU systems. Consequently, their ownership costs are not impacted as much by BC Hydro rate increases over time.

The BAU 1 electric boiler system is expected to have slightly lower maintenance and replacement costs than the HP systems, however, these savings were more than offset by the much lower energy costs of the HP systems.

The BAU 2 electric baseboard system has basically no maintenance cost and only a small replacement cost allowance for the DHW tank. Future increases in BC Hydro rates account for the majority of the increases in BAU 2 ownership costs over time. As the chart indicates, the lower energy costs of the HP system allow the BAU 2 ownership costs to catch up by the year 2026. After which time the HP systems' ownership costs begin to trend below BAU 2.

Based on an average annual energy savings of **7,878 kWh,** the potential annual savings from the 174 Cheakamus Crossing townhouses is **1,370,772 kWh**. This represents enough electricity to completely power **52** average Whistler houses every year.

WHISTLER 2020 ANALYSIS

W2020 Strategy	TOWARD Descriptions of success that resolution moves us toward	Comments
Resident Affordability	Income and innovative benefits help make it affordable to live in Whistler.	The DES provides annual energy savings to residents of Cheakamus Crossing. No increase in fees in six years of operation.
Energy	The energy system is continuously moving towards a state whereby a buildup of emissions and waste into the air, land and water is eliminated	HP systems are consuming on average 65% less electricity per year. This corresponds to an average 65% reduction in GHG emissions.
Energy	Whistler's energy system is transitioning to renewable energy sources.	The DES's primary energy source is renewable.
Energy	Whistler's energy system is supplied by a mix of sources that are local and regional wherever possible.	The DES is an entirely local (neighborhood) energy source.

W2020 Strategy	AWAY FROM Descriptions of success that resolution moves away from	Mitigation Strategies and Comments
None.		

OTHER POLICY CONSIDERATIONS

None.

BUDGET CONSIDERATIONS

None.

COMMUNITY ENGAGEMENT AND CONSULTATION

None.

SUMMARY

Five of the six HP systems in the study group are achieving the energy efficiency levels they were originally designed for. The one HP system in the study group that did not, had its HP DHW heating disabled and therefore all of the DHW heating is being provided by the electric DHW tank elements. These results indicate that the HP systems are capable of meeting the energy and environmental performance targets they were designed to. The HP systems are significantly more energy efficient than other conventional BAU electric heating systems. The study results indicate the HP systems are consuming on average 65% less electricity per year than either BAU scenario, to provide space and water heating needs. This corresponds to an average 65% reduction in GHG emissions.

The system COP for these homes (including all pumping and backup electric element energy) averaged 2.8 during the study period.

Electric baseboard heating (BAU2) was evaluated with significantly lower ownership cost primarily due to the negligible maintenance and replacement costs. However, future increases in BC Hydro's electricity rates estimate that these savings will be nonexistent within 9 years from the date of this report or 2026. It's important to note that the Whistler 2020 Development Corp (WDC) is currently undertaking a number of steps to improve the operations and address concerns within the home heating systems. WDC's program of review and optimization can be expected to increase the COP beyond the 2.8 average as determined in the ESP. An increased COP will further reduce operating costs of the HP system, releasing savings earlier than forecasted.

A factor not considered in the BAU 2 scenario is the difference in thermal comfort between radiant floor heating and electric baseboards. This added comfort value is typically found in more expensive homes.

Based on an average annual energy savings of 7,878 kWh, the potential annual savings from the 174 Cheakamus Crossing townhouses is 1,370,772 kWh. This represents enough electricity to completely power 52 average Whistler houses every year.

Respectfully submitted,

Jeff Ertel
Manager Development Services
for
James Hallisey
GENERAL MANAGER, Infrastructure Services

Appendix "A"

ENERGY STUDY PROGRAM

Prepared for:

Resort Municipality of Whistler, Engineering Department

January 16, 2017

DEC

engineering sustainability

DEC ENGINEERING
309-713 COLUMBIA STREET,
NEW WESTMINSTER, B.C. CANADA V3M 1B2
TEL. 604 525-3341

211-957 LANGFORD PARKWAY
VICTORIA, B.C. CANADA V9B 0A5
TEL. 250 381-9622

ENGINEERINGSUSTAINABILITY.COM

STATEMENT OF LIMITATIONS

This Energy Study Program report has been prepared for the Resort Municipality of Whistler (RMOW) based on the heat pump heating system observations and measurements taken at six townhouses connected to the District Energy System in the Cheakamus Crossing community over a six month period, as well as other related energy analysis and data that was sourced through other agencies as noted in the references.

DEC Engineering's analysis and this report are intended to provide an overview and a representative comparison of these heat pump based heating systems efficiency and ownership costs compared to more conventional electric based heating systems in similar residential applications. This study and report is not intended to be a comprehensive and detailed assessment of every heating system operating in Cheakamus Crossing. Homeowners not participating in this study may experience different results than what are reported herein and should not use the conclusions of this study and report as indications of the quality of operation of their heating systems.

The conclusions presented in this report are based on the measured data that was collected and the professional opinions of DEC Engineering, subject to the terms of reference, scope of work, and any other limitations as noted. Any use of this report by a third party for any reason, is the responsibility of that third party and they bear all liability associated with that use, unless authorized in writing by DEC Engineering.

DEC Engineering makes no guarantees, representations or warranties with respect to the contents of this report, either express or implied, arising by law or otherwise, including, but not limited to effectiveness, completeness, accuracy, or fitness for purposes beyond the scope and limitations of this report. In no event will DEC Engineering be liable for any indirect, special incidental, consequential or other similar damages or loss, whether in contract, tort, breach of warranty, or otherwise, or for any loss of data, use, profits, or goodwill as related to the contents of this report being used for purposes beyond the specific scope and limitations of this report.

This page left intentionally blank.

EXECUTIVE SUMMARY

The 2010 Whistler Athlete's Village was originally designed and constructed with several key sustainability goals in mind. These goals included the achievement of new standards in renewable thermal energy use and efficiency, along with the corresponding reduction in GHG emissions for the residential buildings in the Village. These aspects were to remain as a proud legacy post Olympic games for the Resort Municipality of Whistler (RMOW) and the residents and homeowners that would call Cheakamus Crossing home. Energy systems were chosen and new energy systems were developed to enable the community to capture and use the heat energy contained in the clean effluent leaving the Cheakamus Crossing Waste Water Treatment Plant (WWTP). Heat pump (HP) technologies were used to both extract heat at the WWTP and to transform the extracted heat into space and water heating in the residential dwellings. To distribute the extracted, low temperature, heating energy to the buildings in the Village a new type of district energy system (DES) was developed.

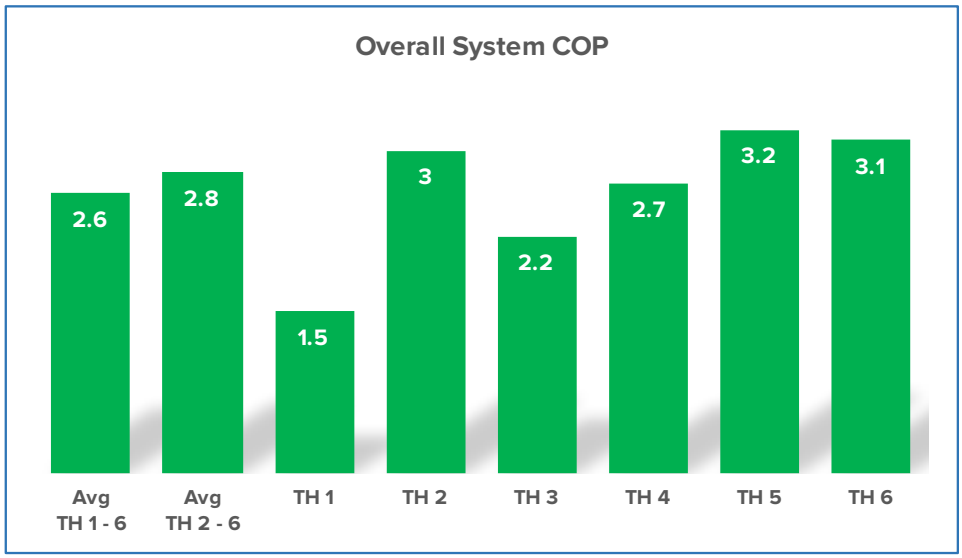
In 2015, approximately six years after the original energy systems were built and activated, the RMOW believed it was important to confirm if the typical DES connected residential HP system in Cheakamus Crossing was actually achieving the energy goals it was meant to. The decision was made to conduct the Energy Study Program (ESP) to measure, analyze and report on actual energy use within a sample group of townhouses and how it compares to townhouses using more conventional electric heating systems.

DEC Engineering, the original design firm of the DES and HP systems, in collaboration with the Engineering staff at the RMOW, developed the criteria and methodology of the ESP. A volunteer sample group of six townhouses (TH) were chosen for the ESP. Each HP system passed a technical inspection to ensure their HP systems were operating in good condition and hadn't been modified. Next, each HP system was equipped with an energy monitoring system that was used to record key amperages and temperatures needed to estimate the energy being used to produce space heating and DHW heating during the study period. The study period was set up to allow for six months of monitoring, beginning in January 2016 and lasting through to July 2016. The collected data was used by DEC Engineering personnel to analyze the energy efficiency and operating costs of the monitored systems, and to provide a comparison to more conventional electric heating scenarios. The following is a summary of the results.

ENERGY EFFICIENCY

When HP systems are working well they should achieve coefficient of performance (COP) values greater than 2.0. COP is the ratio of energy produced over energy consumed. A COP of 3.0 indicates that the HP system is producing 3 kW of heat energy for every 1 kW of electricity consumed. The COP values for the ESP study group, based on the monitored data and analysis, are compared in the following chart.

COP Values During the Monitoring Period



In five of the six homes in the study group the HP systems achieved overall system COP values well above 2.0, with the highest being 3.2. Overall system COP calculations include the ancillary energy used by the circulating pumps and backup heating elements.

TH 1 had an overall system COP value of less than 2.0. This is due to their HP system only being used to provide space heating. All of the DHW heating in TH 1 is being provided by the electric DHW tank elements, which only have a COP value of 1.0.

The monitoring data also indicated that the DHW tank elements in TH 3 were activated for part of the monitoring period, which contributed to its lower overall COP. TH 3 also utilized the electric heating element in the buffer tank, but only for a very brief time during the monitoring period.

Five out of six sample group HP systems were operating within the energy efficiency ranges they were designed to. The HP systems in TH 2, TH 4, TH 5 and TH 6 utilized the DES supplied renewable energy for 100% of their space and DHW heating; no backup heating element activation was recorded.

ENERGY AND OWNERSHIP COSTS

The cost analysis compared the energy and ownership costs of the HP systems in the study group to a more conventional electric hydronic heating system, which represent the first “business-as-usual” (BAU 1) alternative. A further general comparison to electric baseboard heating (BAU 2) was done as well.

ENERGY COSTS

Energy cost calculations were based on the following factors:

For the HP System:

- The cost of electricity to run the HP, the backup tank elements in both the DHW tank and the buffer tank, and the circulating pumps.
- A blended BC Hydro rate: $0.1036/kWh (assumption: HP system electricity use is billed based on 50% Step 1 and 50% Step 2).
- DES utility charges - $4.58/m^2/year

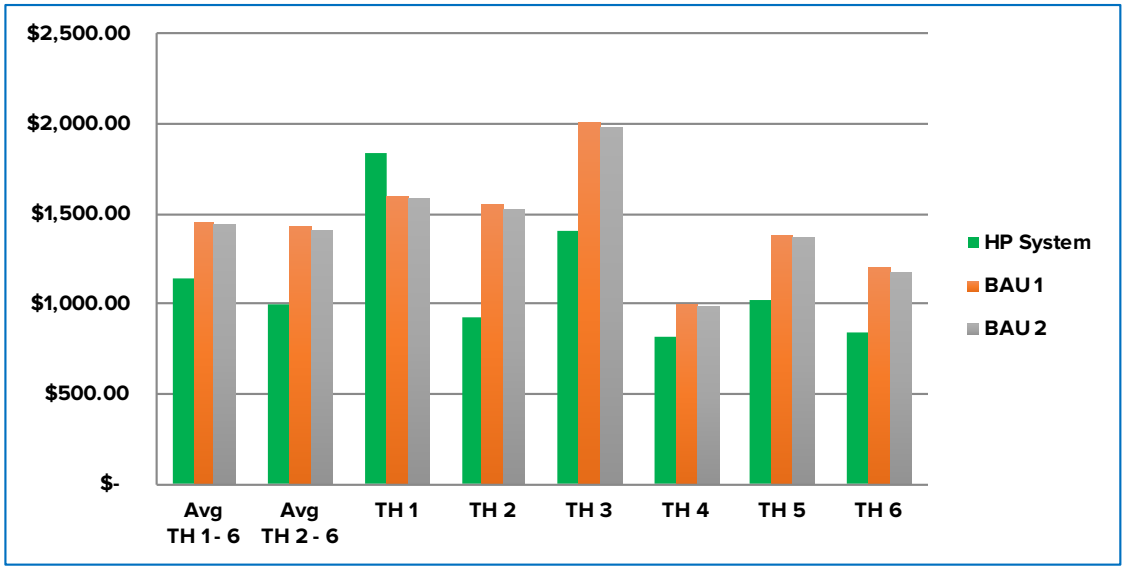
For the BAU 1 system:

- The cost of electricity to run an electric boiler (COP 1.0), in place of the HP, an electric DHW tank, and circulating pumps.
- A blended BC Hydro rate: $0.1166/kWh (assumption: electric boiler system electricity use is billed based on 37% Step 1 and 63% Step 2, due to the greater electricity consumption.)

For the BAU 2 system:

- The cost of electricity to run electric baseboards and an electric DHW tank.
- A blended BC Hydro rate: $0.1166/kWh (assumption: electric baseboard electricity use is billed based on 37% Step 1 and 63% Step 2, due to the greater electricity consumption.)

Annual Energy Cost Comparison



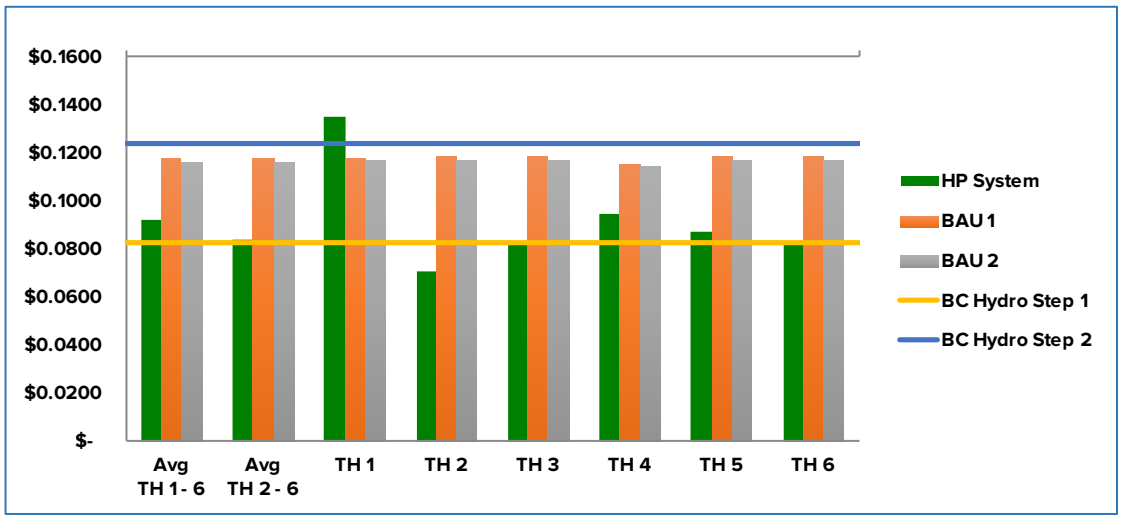
The HP systems in TH 2, 3, 4 and 5 have much lower annual energy costs to produce the same levels of heat energy output, compared to the BAU 1 and BAU 2 scenarios. The HP systems' annual energy costs were 17% to 40% less than the BAU systems, with an average annual savings of 30%. Annual energy cost savings ranged from $172 to $622. The average annual savings was $428 compared to BAU 1, and $408 compared to BAU 2. A typical service life expectancy for a HP is

roughly twenty years. Multiplying the annual savings over that time equates to cost savings that range from $3,440 to $12,440 (in 2016 dollars). The analysis of the monitored data indicates that the more the heat pump is utilized the greater the savings are.

TH 1 was the exception, with annual energy costs much higher than the other townhouses in the sample group, and also higher than the BAU scenarios. As with the COP results, this exemplifies another impact of utilizing the HP system and the DES energy only for space heating. TH 1 continues to pay monthly DES charges even when space heating is not being used. During these periods, the monthly DES charge is an additional energy cost on top of the cost of electricity to operate the electric DHW tank elements. Added together this greatly inflates the cost of energy the customer pays for when they only require DHW production. Subsequently increasing their annual energy cost to a level well above the other townhouses and the BAU scenarios.

Another useful comparison is the cost per kWh of the systems' delivered heating energy, or energy outputs, versus BC Hydro's standard residential electricity rates.

Delivered Energy Cost - $/KWH



Other B.C. DES utility energy rates are typically benchmarked to be plus or minus 10% of BC Hydro's Step 2 energy rate: $0.1243/kWh. Their customers still have to take that energy and convert it to space and DHW heating. So their final delivered energy rate will be higher. The delivered energy rates for customers of the Cheakamus Crossing DES, which includes their DES utility charges plus the operating costs of their HP systems, are well below BC Hydro Step 2. Most are actually very close to the BC Hydro Step 1 rate: $0.0829. Based on this, the HP systems are quite energy and cost efficient compared to other DES systems in B.C., when they are operating as they were designed to.

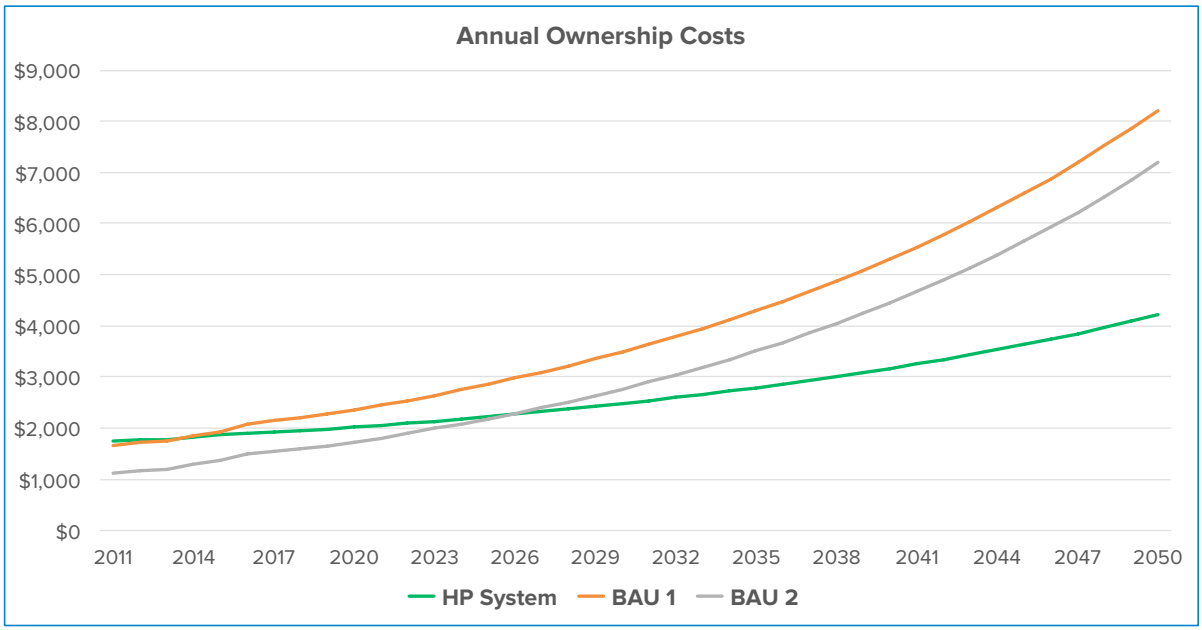
TH 1 is the obvious exception for the same reasons noted previously.

Compared to the BAU systems, the cost of the HP systems delivered energy ranges from being 17% to 40% less.

OWNERSHIP COSTS

Ownership costs include the cost of energy, the cost of routine maintenance, and the cost of equipment replacement at the end of its normal service life. The study estimated the average annual ownership costs of the HP systems in the sample group and compared them to the BAU 1 and BAU 2 systems. Costs were developed for 2016 and then discounted back to 2011 and projected[i] forward 2050.

Annual Average Ownership Cost Comparison



The chart above shows the HP system ownership cost increasing at a slower rate than the BAU 1 and BAU 2 systems. This is primarily due to the HP systems requiring less electricity to operate than the BAU systems. Consequently, their ownership costs are not impacted as much by BC Hydro rate increases over time. The associated cost of the DES utility rate was not escalated for this analysis, as per the recommendations of RMOW staff.

The BAU 1 electric boiler system is expected to have slightly lower maintenance and replacement costs than the HP systems, however, these savings were more than offset by the much lower energy costs of the HP systems.

The BAU 2 electric baseboard system has basically no maintenance cost and only a small replacement cost allowance for the DHW tank. Future increases in BC Hydro rates account for the majority of the increases in BAU 2 ownership costs over time. As the chart indicates, the lower energy costs of the HP system allow the BAU 2 ownership costs to catch up by year 16 (2026). After that the HP systems' ownership costs to trend below BAU 2, electric baseboard heating.

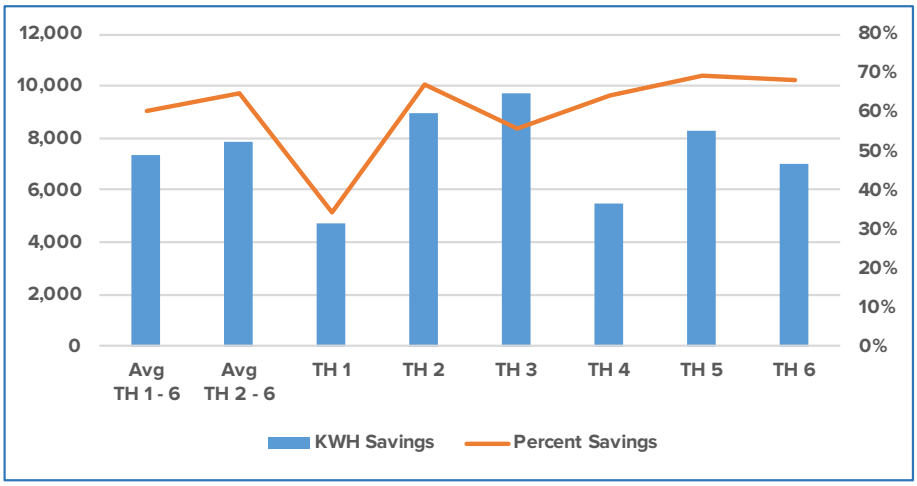
[i] *Based on published BC Hydro rate increases up to 2018 and 5.0% increase per year thereafter, and 1.29% annual Canadian inflation rate, and a 6% discount rate.*

ENERGY CONSUMPTION AND GHG EMISSIONS

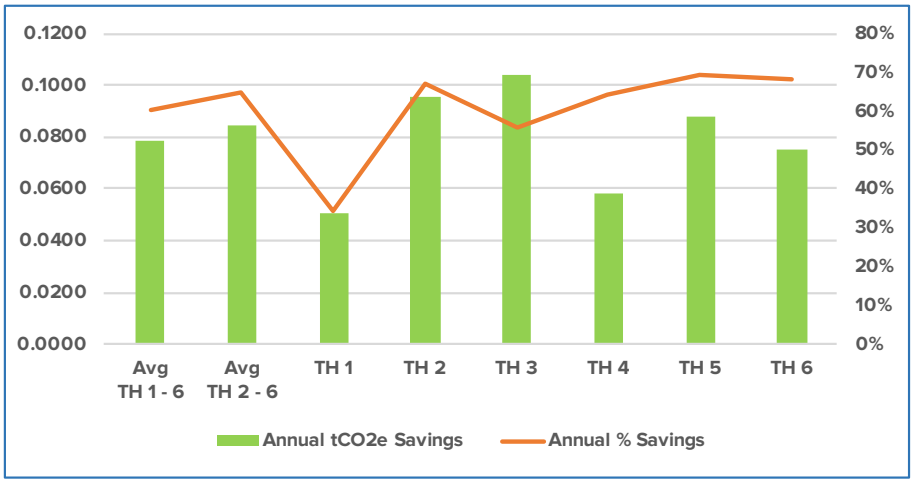
Comparing the HP systems to both the BAU 1 and BAU 2 scenarios demonstrates a major difference in energy consumption. Looking at this on an annual and a twenty-year projected basis shows the HP systems have substantial energy consumption savings, along with the associated reductions in GHG emissions. Savings in both electricity consumption and related GHG emissions range from 34 percent to 69 percent. The average savings for TH 2 – 6 was significant at 65%. Although TH 1 again had the lowest performance, it still achieved a 34% savings compared to the BAU systems.

Note: BAU 2 doesn't use any circulating pump energy, but this represents only a very minor energy use. For this reason, we considered BAU 1 and 2 energy use to be equivalent for the following comparison values:

HP SYSTEM vs BAU 1 & 2: ANNUAL ENERGY SAVINGS



HP SYSTEM vs BAU 1 & 2: ANNUAL GHG EMISSION REDUCTIONS



20 YEAR ENERGY CONSUMPTION AND GHG EMISSIONS

	Avg TH 1 - 6	Avg TH 2 - 6	TH 1	TH 2	TH 3	TH 4	TH 5	TH 6
KWH Consumption								
HP System	**103,114**	**87,775**	179,807	87,203	150,326	62,368	73,337	65,640
BAU 1 & 2	**250,103**	**245,337**	273,932	266,612	344,244	171,908	238,081	205,842
20 Year Savings	**146,990**	**157,563**	94,125	179,409	193,918	109,539	164,744	140,202
Percent savings	**60%**	**65%**	34%	67%	56%	64%	69%	68%
GHG Emissions - tCO2e								
HP System	**1.1002**	**0.9366**	1.9185	0.9305	1.6040	0.6655	0.7825	0.7004
BAU 1 & 2	**2.6686**	**2.6178**	2.9229	2.8447	3.6731	1.8343	2.5403	2.1963
20 Year Savings	**1.5684**	**1.6812**	1.0043	1.9143	2.0691	1.1688	1.7578	1.4960
Percent savings	**60%**	**65%**	34%	67%	56%	64%	69%	68%

Based on an average annual energy savings of **7,878 kWh**, every 3.7 years each townhouse HP system could potentially save enough electricity to completely power an average Whistler house for a full year[ii]. The potential average annual savings from the 174 Cheakamus Crossing townhouses is **1,370,772 kWh**. This represents enough electricity to completely power **52** average Whistler houses each year.

[ii] *Based on 26,500 kWh per average house per year. Pique News Magazine. "Price of Power" by Andrew Mitchell published June 16, 2013.*

KEY CONCLUSIONS OF THE ENERGY STUDY

- Five of the six HP Systems in the study group are achieving the energy efficiency levels they were originally intended to and designed for. The one HP system in the study group that did not, had its HP DHW heating disabled and therefore was not being operated as it was designed to be. These results indicate that the HP systems are capable of meeting the WDC 2020 energy and environmental performance targets they were designed to. They also indicate that the HP system's performance is sensitive to how it's being operated.
- The HP systems are significantly more energy efficient than other conventional (BAU) electric heating systems. The study results indicate they are consuming on average 65% less electricity per year, to provide space and water heating. This corresponds to an average 65% reduction in related GHG emissions.
- The HP systems average 40 year estimated ownership cost NPV is $10,740 less than the NPV cost for an equivalent electric boiler hydronic system (BAU 1), and $698 less than the NPV cost for an electric baseboard and DHW system (BAU 2).
- After 16 years, or by 2026, the electric baseboard ownership costs are projected to be higher than the HP system. This is primarily due to the projected increase in BC Hydro electricity rates and the much lower energy consumption of the HP systems.
- The HP systems average 20 year savings in electrical energy compared to both BAUs is 157,563 KWh, or 65%.
- The added value of the greater thermal comfort provided by radiant floor heating was not included in this analysis.
- Based on an average annual energy savings of 7,878 kWh, every 3.7 years each townhouse HP system could potentially save enough electricity to completely power an average Whistler house for a full year[iii]. The potential average annual savings from the 174 Cheakamus Crossing townhouses is 1,370,772 kWh. This represents enough electricity to completely power 52 average Whistler houses each year.

[iii] *Based on 26,500 kWh per average house per year. Pique News Magazine. "Price of Power" by Andrew Mitchell published June 16, 2013.*

This page left intentionally blank.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

BAU.....Business as Usual
COP..... Coefficient of Performance
DES.....District Energy System
DHW.....Domestic Hot Water
ESP.....Energy Study Program
EUI.....Energy use intensity
Gpm.....Gallons per minute
HP.....Heat Pump
Htg.....Heating
NPV.....Net Present Value
PV.....Present Value
ROE.....Return on Equity
ROI.....Return on Investment

LIST OF REFERENCES

BC Hydro Residential Tariffs: 2011 - 2014

BC Hydro. Residential Tariff. Effective 03 March 2016. *www.bchydro.ca*

https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/regulatory-planning-documents/revenue-requirements/FY17-FY19-rra-application-technical-briefing-deck-20160728.pdf

Resort Municipality of Whistler. *Cheakamus Crossing District Energy System Fee Bylaw No. 1951.* (2010)

Ministry of Energy, Prov of B.C. *2016/17 B.C. Best Practices Methodology For Quantifying Greenhouse Gas Emissions*

Pique News Magazine. *"Price of Power" by Andrew Mitchell published June 16, 2013.*

http://www.inflation.eu/inflation-rates/canada/historic-inflation/cpi-inflation-canada.aspx

This page left intentionally blank.

1.0 OBJECTIVE

On behalf of the Resort Municipality of Whistler (RMOW), DEC Engineering (DEC) has completed the Energy Study Program (ESP) for townhouses in the Cheakamus Crossing District Energy Sharing System (DES) service area. The purpose of the ESP was to measure the energy efficiency of a sample of townhouse heat pump systems and analyze the ownership and operating costs of using the heat pump systems for space and domestic hot water (DHW) heating in these townhouses. The findings on energy consumption, efficiency and operating costs are compared to "business-as-usual" (BAU) scenarios, assuming conventional electric heating.

2.0 HEAT PUMP SYSTEM OVERVIEW

Each townhouse connected to the DES is equipped with a Climatemaster Tranquility water-to-water heat pump to provide space and DHW heating. The heat pump extracts low-grade heat (10-15C) from the DES and upgrades the energy to create high-temperature water (50-60C). The high temperature water can

This page left intentionally blank.

provide heating energy to the space heating buffer tank or to the DHW storage tank. The heat pump switches between "space heating mode" and "DHW heating mode" based on the temperatures and setpoints of the two tanks. Typically, DHW heating mode is the priority.

Both tanks are equipped with backup electric resistance heating elements, that can operate to maintain tank temperature if the heat pump is unable to meet the demand, or is offline.

Most townhouses also have two electric baseboard heaters; one in the storage room and one in the second floor washroom. The usage of these electric heaters varies from resident to resident. This heating energy use was not measured as a part of this study, and it is unrelated to the performance of the HP systems. Heating provided by the electric baseboard heaters is expected to be minimal and is not included in the following results.

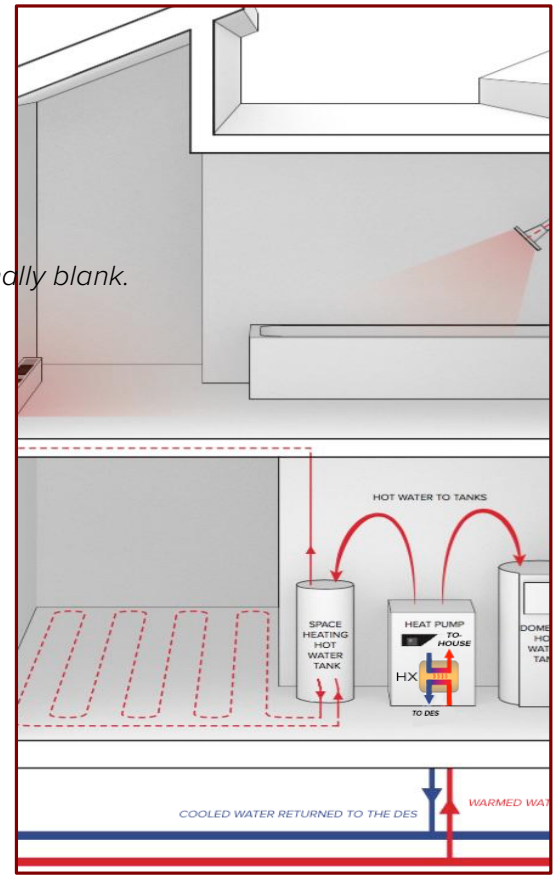


Figure 1: Typical Townhouse HP System

3.0 SAMPLE GROUP AND DATA COLLECTION

In December 2015, RMOW conducted a campaign seeking Cheakamus Crossing townhouse homeowners to volunteer for participation in the ESP. From the applications received, eleven candidate homes were shortlisted representing a cross section of the original development phases. The heating systems in these homes underwent a technical inspection to verify that they hadn't been modified from the original design, and that they would meet the operating requirements of the six month study. This resulted in a final list of seven homes that met all of the ESP requirements.

Six homes were needed for the ESP sample group and the seventh qualified home provided some redundancy in case a participant had to withdraw unexpectedly. This unfortunately did happen to one of the selected candidates before the study commenced, but the ESP six home sample group was maintained.

In early January 2016, the digital monitoring equipment was installed on the heating systems in the six home sample group. Nine points of data were monitored for the ESP:

- Heat pump compressor current (amps)
- DHW tank electric element current (amps)
- Space buffer tank electric element current (amps)
- DES (source) supply and return temperatures
- DHW heat exchanger loop supply and return (to the HP) temperatures
- Space heating supply and return (to the HP) temperatures

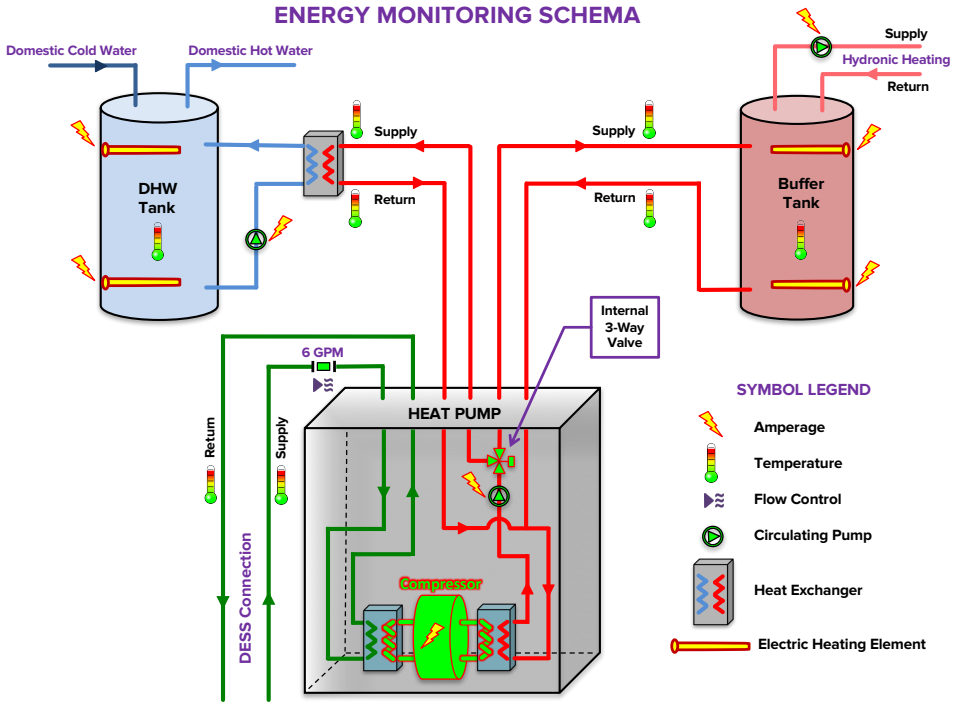


Figure 2: Energy Monitoring Schema

The data was measured at fifteen (15) minute intervals over the duration of the six month monitoring period.

4.0 ENERGY DATA ANALYSIS

4.1 HEAT PUMP RUNTIME

From the monitored data, heat pump runtime, electricity consumption, and thermal energy delivery have been calculated. Runtime of the heat pump has been categorized into Space Heating and DHW Heating. The following table presents the runtime data for each house in the study group.

Table 1: Heat Pump Runtime Results

	Units	**Avg TH 1 - 6**	**Avg TH 2 - 6**	TH 1	TH 2	TH 3	TH 4	TH 5	TH 6
HP DHW Runtime	hrs	160	192	0	294	172	133	211	150
HP Space Htg Runtime	hrs	460	479	364	602	662	221	492	420
TOTAL Runtime	hrs	620	671	364	895	833	353	703	570
Monitoring Period	days	186	183	199	208	204	104	192	208
Percent Runtime		14%	15%	8%	18%	17%	14%	15%	11%

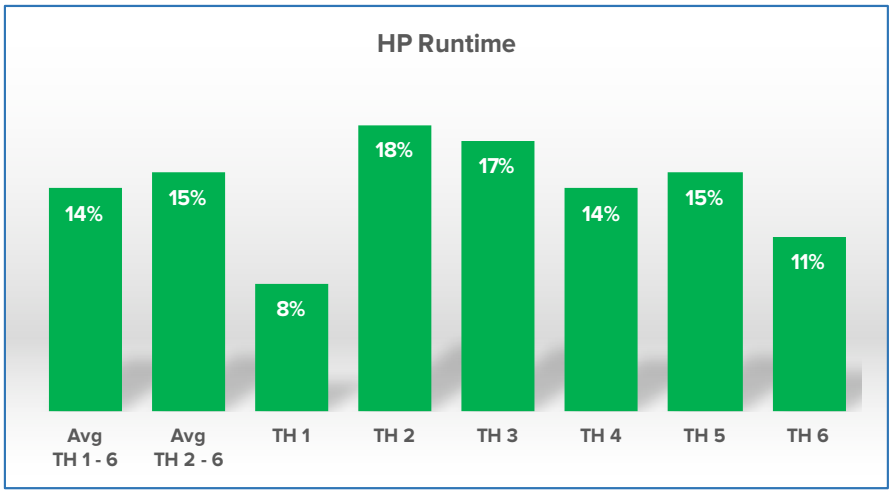


Figure 3: Heat Pump Runtime

As can be seen above, each heat pump ran for a varying number of hours during the study period. Heat pump runtime ranged from 8% - 18%. This is most likely due to variations in thermostat settings and different heating demands in each of the townhouses. Townhouses with higher thermostat settings, northern or shaded exposures, and less internal heat gains (from occupants, cooking, appliances, etc.) would be expected to experience higher percent runtimes than units with lower thermostat settings, tighter building envelope construction, and large solar heat gains from south facing exposures.

Note that the TH 1 HP system did not run in DHW heating mode during the study period. The HP DHW function is turned off, so all DHW heating in this townhouse is provided by the backup electric tank element rather than by the DES and heat pump.

To mitigate the effects of varying runtime on the results of this analysis, each townhouse is analyzed individually, and compared to an identical townhouse using all electric heat and no DES energy, for the business case analysis.

4.2 SPACE AND DHW HEATING DELIVERY

Using the DES (source) supply and return temperatures and the pre-set, fixed, source side flow rate of 6.0 gpm, the total DES energy utilized by the HP in each 15 minute measurement interval can be determined. Compressor amperage and the equipment voltage can be used to determine the electricity consumed by the heat pump in each measurement interval. From this data, the delivered space or DHW heating energy can be calculated as well as the efficiency of the heat pump system.

The following table presents the heating energy delivered and the electricity consumed by the HP compressor, circulation pumps, and tank backup heating elements for DHW and Space heating during the study period for each townhouse system. The coefficient of performance (COP)[4] is calculated for space heating, DHW heating, and an overall system COP (including backup electric elements and pump electricity).

Table 2: Space and DHW Heating, Energy Use, and COP

	Units	Avg TH 1 - 6	Avg TH 2 - 6	TH 1	TH 2	TH 3	TH 4	TH 5	TH 6
HP DHW Heating	kWh	**N/A**	**1,824**	0	2,566	1,622	1,354	1,982	1,594
DHW HP Electricity Used	kWh	**N/A**	**610**	0	899	595	459	585	514
DHW Heating COP		**N/A**	**3.0**	N/A	2.9	2.7	2.9	3.4	3.1
DHW Pump Elec. Used	kWh	**N/A**	**46**	0	71	41	32	49	35
Backup Element Heating	kWh	**N/A**	**200**	2,371	0	1,000	0	0	0
HP Space Heating	kWh	**3,955**	**4,100**	3,232	4,443	6,248	1,938	4,090	3,779
Space HP Elec. Used	kWh	**1,200**	**1,278**	810	1,266	2,167	676	1,169	1,114
Space Heating COP		**3.4**	**3.2**	4.0	3.5	2.9	2.9	3.5	3.4
Space Pump Elec. Used	kWh	**87**	**90**	69	104	126	44	98	80
Backup Element Heating	kWh	**263**	**14**	1,512	0	68	0	0	0
Total Heating	kWh	**6,300**	**6,137**	7,115	7,009	8,938	3,292	6,072	5,374
Heating from Heat Pump	kWh	**5,475**	**5,923**	3,232	7,009	7,871	3,292	6,072	5,374
HP Utilization		**89%**	**98%**	45%	100%	88%	100%	100%	100%
Total Source Energy Used	kWh	**3,892**	**4,125**	2,727	4,935	5,199	2,204	4,502	3,783
Overall System COP		**2.6**	**2.8**	1.5	3.0	2.2	2.7	3.2	3.1

[4] *Coefficient of performance (COP) is a measurement of heat pump efficiency. COP is calculated as (heat output) ÷ (electricity input). A COP of 3.0 means that for 1 kWh of electricity consumed, 3 kWh of heat is produced.*

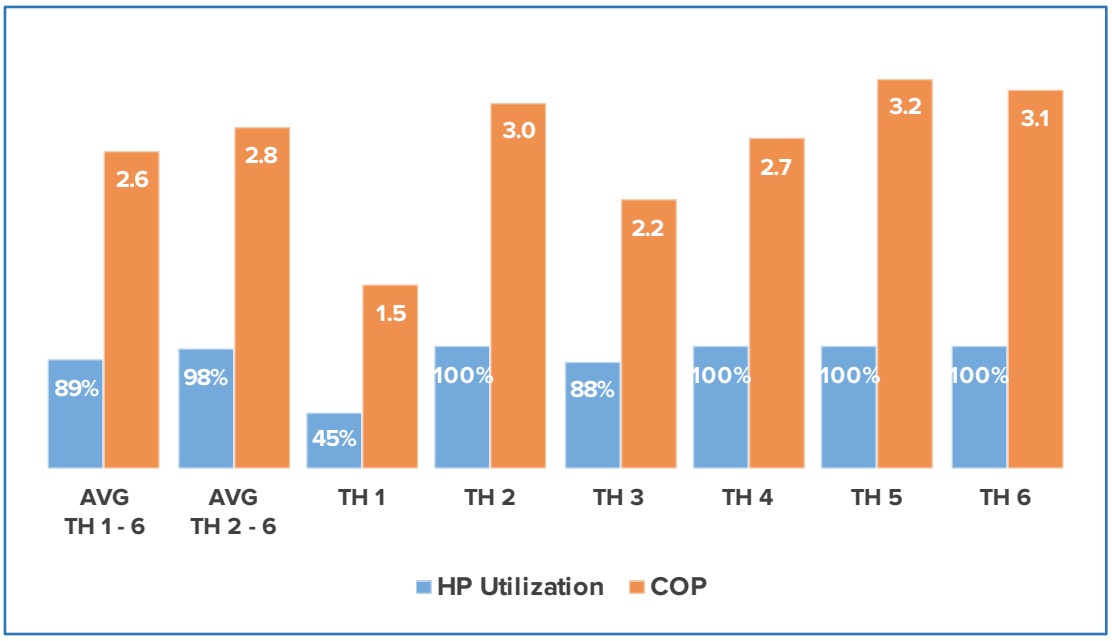


Figure 4: HP Utilization & COP

The above shows that five out of six townhouses use the HP for 88%-100% of their space and DHW heating needs[5] and the overall heating system COP ranges from a low of 1.5 to a high of 3.2 for the homes in the study program.

TH 1 shows the lowest overall COP because the DHW tank electric elements are ON and the HP isn't being used for DHW heating. The DHW heating COP for TH 1 (on full electric) is only 1.0, which reduces this homeowner's average COP. Excluding TH 1, the other homeowners are using the HP for nearly all their space and DHW heating needs and have an average overall system COP of 2.8 (including pumping energy and minor backup electric element heating loads). TH 3 is also a little below the COP average at 2.2 overall. The monitored data shows that a 1,000 kWh of electricity was used by their DHW electric tank elements during the monitoring period. Similar to TH 1, the extended use of the DHW elements reduced the overall system efficiency.

The following table shows the townhouse space and DHW heating loads on a per square meter basis. This metric, referred to as "energy use intensity" (EUI), is an indication of how much space and water heating energy each house is demanding from the heating system. Variations between customers is normal and expected due to the differences in resident life styles, that is reflected in thermostat settings, hot water use, and heating demands of each customer.

Table 3: Space and DHW Heating EUI

	Units	Avg	TH 1	TH 2	TH 3	TH 4	TH 5	TH 6
Townhouse Floor Area	m^2	**133**	198	105	136	109	140	109
DHW EUI	$kWh/m^2/year$	**33**	22	43	35	44	27	26
Space Heating EUI	$kWh/m^2/year$	**63**	47	82	90	35	57	68

[5] *Excluding upstairs washroom and garage electric resistance heat.*

Most customers in the study group had EUIs for space and DHW heating that are within the range expected for townhouses in Whistler BC. Houses 5 and 6 had very low DHW EUIs which may be due to low numbers of occupants, or behavior patterns that reduce DHW demand such as vacations, dining out, or showering off-site (e.g. at the gym).

The variation in energy use displayed in Table 3 is beneficial to the results of this study as it means the study group included a diverse range of occupants who have varying lifestyles and family sizes.

5.0 COST ANALYSIS

The cost to meet the heating loads of each townhouse have been calculated for the DES connected HP systems and compared to the cost to meet the same heating loads to the same townhouses under a "business-as-usual" electric heating system scenario (BAU1). The BAU1 heating system consists of a standard electric DHW tank and an electric hydronic boiler to provide hot water to the hydronic heating system. The hydronic bedroom fan coils and in-floor radiant system and the envelope heat loss are assumed to be identical in both the HP system and BAU 1 scenarios. These assumptions maintain a consistent quality and demand of energy delivery between the scenarios. In-floor radiant systems are typically recognized for providing greater thermal comfort at lower temperatures and are often featured in expensive luxury homes.

5.1 ENERGY COST ANALYSIS

The following table presents the energy costs to the DES customers to provide the space and DHW heating loads summarized in Table 2. Electricity charges are based on measured electricity consumption and the average of BC Hydro Step 1 and Step 2 rates posted as of March 2016[6]. Annual DES utility charges are based on the published DES utility rates of $4.58/m^2/year multiplied by the townhouse floor area. DES utility charges are prorated based on the number of days in the study period for each townhouse.

Table 4: HP System Annual Energy Costs

	Units	Avg TH 1 - 6	Avg TH 2 - 6	TH 1	TH 2	TH 3	TH 4	TH 5	TH 6
DHW Heating Electricity	$	**$115**	**$89**	$246	$100	$170	$51	$66	$57
Space Heating Electricity.	$	**$161**	**$143**	$248	$142	$244	$75	$131	$124
DES Utility Charges	$	**$313**	**$277**	$494	$274	$348	$142	$337	$284
Total HP System Energy Cost	$	**$589**	**$509**	$988	$517	$762	$267	$534	$464
per square meter	$/m^2	**$4.35**	**$4.22**	$4.99	$4.92	$5.60	$2.46	$3.82	$4.28
per kWh delivered	$/kWh	**$0.092**	**$0.083**	$0.139	$0.074	$0.085	$0.081	$0.088	$0.086

Energy costs per meter square range from a low of $2.46 to a high of $5.60 and are largely influenced by the individual space and DHW EUIs of each townhouse. Customers that use more energy per square meter, pay a higher cost per square meter.

Energy costs per kWh of thermal energy delivered is a better way to compare the performance of the HP systems. Delivered energy costs range from $0.074 to $0.139 /kWh. Because the DES

[6] *BC Hydro Step 1: $0.0829 /kWh Step 2: $0.1243 /kWh. Annual heat pump system electricity is assumed to be 50% in Step 1, 50% in Step 2. Blended electricity rate of $0.1036 /kWh is used.*

utility connection charge is fixed (based on floor area) and doesn't vary with consumption, those customers who use more energy pay less per kWh than customers who use less energy.

The following table summarizes the cost to produce the same space and DHW heating energy - as shown in Table 2 – using the BAU 1 heating system. More electricity is consumed in the BAU 1 scenario, therefore a higher blended electricity rate is used for the BAU 1 calculations[7]. Under the BAU 1 scenario, the DES utility connection is not required so DES Utility charges are not included.

Table 5: BAU1 Energy Costs

	Units	Avg TH 1 - 6	TH 1	TH 2	TH 3	TH 4	TH 5	TH 6
BAU1 DHW Heating Elec.	$	**$243**	$277	$299	$306	$158	$231	$186
BAU1 Space Heating Elec.	$	**$502**	$561	$530	$751	$231	$488	$450
Total BAU Energy Cost	$	**$745**	$838	$830	$1,057	$389	$720	$636
per square meter	$/m2	**$5.75**	$4.24	$7.91	$7.77	$3.58	$5.15	$5.86
per kWh delivered	$/kWh	**$0.118**	$0.118	$0.118	$0.118	$0.118	$0.119	$0.118

On average, energy costs per square meter of floor area were significantly lower in the DES connected HP System than the BAU 1 case ($4.22/ m^2 vs $5.75/ m^2.) during the study period. Average energy cost per kWh of thermal energy delivered was also lower in the DES than the BAU 1 case ($0.083 vs $0.118 /kWh).

The following table compares the energy costs of the HP system to the BAU 1 system, over the study period and over a full year of operation. Expected full year savings are calculated based on projected full-year DHW and space heating loads for each townhouse in the study group.

Table 6: HP System vs BAU 1 Energy Cost

Study Period	Units	Avg TH 1 - 6	Avg TH 2 - 6	TH 1	TH 2	TH 3	TH 4	TH 5	TH 6
HP System Energy Cost	$	**$589**	**$509**	$988	$517	$762	$267	$534	$464
BAU 1 Energy Cost	$	**$745**	**$577**	$838	$830	$1,057	$389	$720	$636
Study Period Savings	$	**$156**	**$218**	-$150	$313	$295	$122	$186	$172
percent savings	%	**22%**	**30%**	-18%	38%	28%	31%	26%	27%
Annual Estimates (2016)									
HP System Energy Cost	$	**$1,141**	**$1,002**	$1,837	$932	$1,402	$820	$1,020	$837
BAU 1 Energy Cost	$	**$1,459**	**$1,431**	$1,597	$1,555	$2,008	$1,003	$1,388	$1,200
Annual Savings	$	**$317**	**$428**	-$240	$623	$606	$182	$369	$363
percent savings	%	**22%**	**29%**	-15%	40%	30%	18%	27%	30%

[7] *Annual BAU space and DHW heating electricity is assumed to be 37% in Step 1, 63% in Step 2. Blended electricity rate of $0.1166 /kWh is used.*

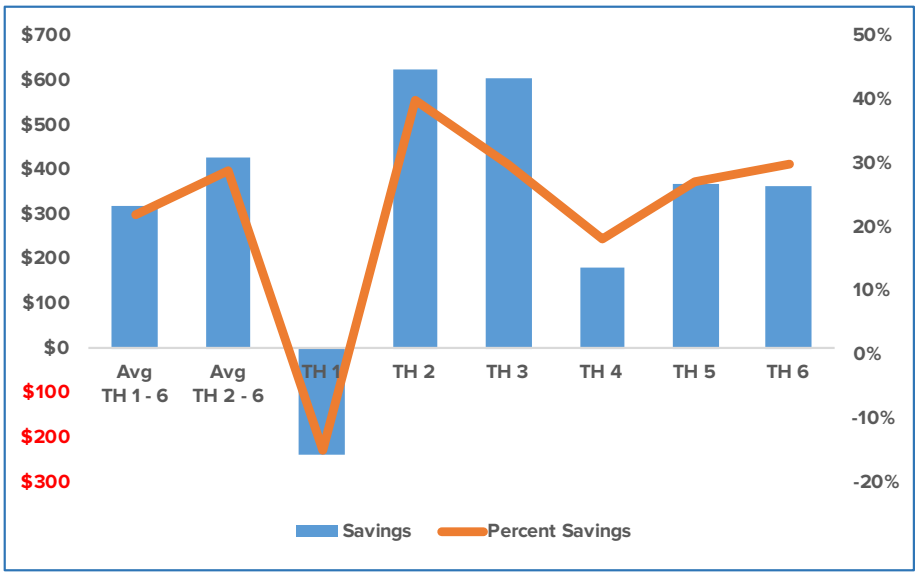


Figure 5: Annual Energy Cost Savings - HP vs BAU 1

Annual energy cost savings of the HP system vs. the BAU 1 system range from negative $240 (a cost premium) to a savings of $623. TH 1 does not have any cost savings because this home uses 100% electric heat for the DHW. Through the year, the TH 1 homeowner is paying their DES utility charges but only using DES energy for space heating. In warmer months when space heat is not required, they are paying electricity costs for their electric DHW heating *plus* the DES utility charge. Those townhouses that use the heat pump for DHW heating use significantly less electricity and therefore pay less per kWh of delivered DHW.

TH 6 has the lowest cost savings compared to BAU 1 amongst the homes in the study group. TH 6 is one of the largest townhouses in the study group, but has the lowest total energy use intensity[8] (63 kWh/m^2 vs. a group average of 90 kWh/ m^2). Since the DES utility charges are fixed (based only on floor area, not varying with energy use), those customers who use less heating energy do not realize as much savings over BAU 1 as those customers who use more heating energy.

Based on an average annual energy savings of 7,878 kWh, every 3.7 years each townhouse HP system could potentially save enough electricity to completely power an average Whistler house for a full year[9]. The potential average annual savings from the 174 Cheakamus Crossing townhouses is 1,370,772 kWh. This represents enough electricity to completely power 52 average Whistler houses each year.

5.2 TOTAL COST ANALYSIS

An analysis of total ownership cost of the HP systems from the homeowner perspective has been completed. Total cost includes: energy costs, regular maintenance costs, and equipment replacement costs.

[8] *Combined space and DHW EUIs.*
[9] *Based on 26,500 kWh per average house per year. Pique News Magazine. "Price of Power" by Andrew Mitchell published June 16, 2013.*

- Energy costs include annual electricity charges for operating the heat pump, circulating pumps, and backup electric heat elements in the tanks, as well as DES utility charges. The average 2016 energy cost of the ESP study group townhouses is used[10].
- Regular maintenance includes the yearly cost of completing the routine annual maintenance described in the *Cheakamus Crossing DES Technical Service Guide* and is based on one service visit per year for a system that is operating normally.
- Equipment replacement costs includes periodic replacement of major components of the system that reach the end of their useful service life. This is presented as an Annual Equipment Replacement Budget, which is a small annual contribution towards the periodically required major equipment replacement costs[11].

Summaries of expected regular maintenance and replacement costs are included in **Appendix A** and the 40 Year Life Cycle Cost Analysis table is included in **Appendix C**.

The average estimated annual cost for the HP system is presented in the following table and is compared to the average annual cost of the all-electric hydronic heating BAU 1 scenario described above.

Table 7: Average Annual Ownership Cost (2016) – BAU 1 Comparison

	HP System	BAU1	Savings
Average (TH 2 – 6) Energy Cost	$1,003	$1,431	**$428**
Routine Maintenance Costs	$350	$300	**- $50**
Equipment Replacement Budget	$543	$354	**- $189**
Total Annual Cost of Ownership	**$1,895**	**$2,085**	**$190**

The above table shows that the HP system has the lowest average annual energy cost, but slightly more expensive costs for maintenance and replacement budgets, compared to the BAU 1 estimates. Altogether, the analysis indicates the HP system will be a little less expensive to own and operate, with an estimated annual ownership cost savings of $190. This is based on the published 2016 BC Hydro electricity rates.

The same total cost analysis has been completed including projections for future BC Hydro rate increases. As BC Hydro electricity rates go up, the annual energy costs for homeowners on all-electric systems will rise. While BC Hydro rates are forecasted to rise on average 5.0% per year over the next twenty years, DES Utility rates are forecast to remain constant. So the energy costs of those homeowners primarily using DES energy should not increase as significantly as those using all-electric heat. The projected total annual ownership cost for year 2036 (BC Hydro forecasted rates, constant DES utility charges, and Canadian average inflation of 1.29% on maintenance and replacement costs) is presented in the following table.

[10] *Excluding TH 1 which was using all electric for DHW heating.*

[11] *Equipment replacement frequency is subject to variation depending on the operation, maintenance, and general wear & tear placed on the component and does not account for above average incidence of failure due to faulty installation, poor water quality, neglect, or misuse.*

Table 8: Projected Annual Ownership Cost (2036) – BAU 1 Comparison

	HP System	BAU1	Savings
Average (TH 2 – 6) Energy Cost	$1,703	$3,636	**$1,933**
Routine Maintenance Costs	$452	$388	**- $64**
Equipment Renewal Budget	$702	$457	**- $245**
Total Annual Cost of Ownership	**$2,857**	**$4,481**	**$1,624**

Total ownership cost of the DES-connected HP system is expected to be substantially lower than the cost of the BAU 1 all-electric hydronic heating system by year 2036. This is due primarily to the impacts of the projected future increases in BC Hydro's electricity rates and the greater electricity consumption of the BAU 1 system. Should actual rate increases be higher than the average 5.0% forecast for BC Hydro, the HP system may provide even greater savings compared to the all-electric BAU 1.

6.0 EVALUATION OF ELECTRIC BASEBOARD

6.1 TOTAL COST ANALYSIS

A comparison of the HP system to a second BAU scenario (BAU 2) consisting of electric baseboard heaters and an electric DHW tank has been completed. The total annual cost of ownership for the HP system was compared to the projected total annual cost of ownership of the electric baseboard (BAU 2) system. The results of this comparison are presented in the following table. Total annual cost of ownership includes energy costs, routine annual maintenance costs, and an annual contribution to an equipment replacement budget designed to cover the cost of periodic replacements of components at the end of their service life. A breakdown of expected annual maintenance and replacement costs is provided in **Appendix A**.

A key factor in comparing electric baseboard heating is the recognition that the heat loss of a townhouse constructed with radiant floor heating may not be the same as a townhouse constructed with electric baseboard heating. The heat loss of a radiant floor heated house is greatly impacted by the performance of the insulation that is applied to the bottom and sides of the concrete slab that is heated. As heat loss analysis was outside of the scope of this study, we have opted to use the same heating demand loads that were used for the study group of townhouses.

Table 9: Average Annual Ownership Cost (2016) – BAU 2 Comparison

	HP System	BAU 2	Savings
Average (TH 2 – 6) Energy Cost	$1,003	$1,399	**$396**
Routine Maintenance Costs	$350	$0	**- $350**
Equipment Replacement Budget	$543	$94	**- $449**
Total Annual Cost of Ownership	**$1,895**	**$1,493**	**- $402**

Annual energy costs are much higher for the electric baseboard BAU 2 compared to the HP System, but the significantly lower maintenance and replacement costs result in a lower overall annual ownership cost. However, as BC Hydro rates increase over time, the annual energy cost of the BAU 2 is projected to rise much faster than the DES connected HP system, eroding the

savings. The estimated total cost of ownership for the electric baseboard BAU 2 in year 2035 is presented in the following table.

Table 10: Average Annual Ownership Cost (2036) – BAU 2 Comparison

	HP System	BAU 2	Savings
Average (TH 2 – 6) Energy Cost	$1,703	$3,386	**$1,683**
Annual Routine Maintenance Costs	$452	$0	**- $452**
Annual Equipment Replacement Budget	$702	$122	**- $580**
Total Annual Cost of Ownership	**$2,857**	**$3,508**	**$651**

The above table shows that the total annual ownership cost of the HP system is expected to be $651 less than the electric baseboard BAU 2 by year 2036. This is due primarily to the forecasted increases in BC Hydro's electricity rates, which will have a greater impact on the energy cost of an all-electric heating option.

The following chart provides a comparison of the 20 year (2016 – 3036) ownership costs for the HP System versus the BAU 1 and BAU 2 scenarios.

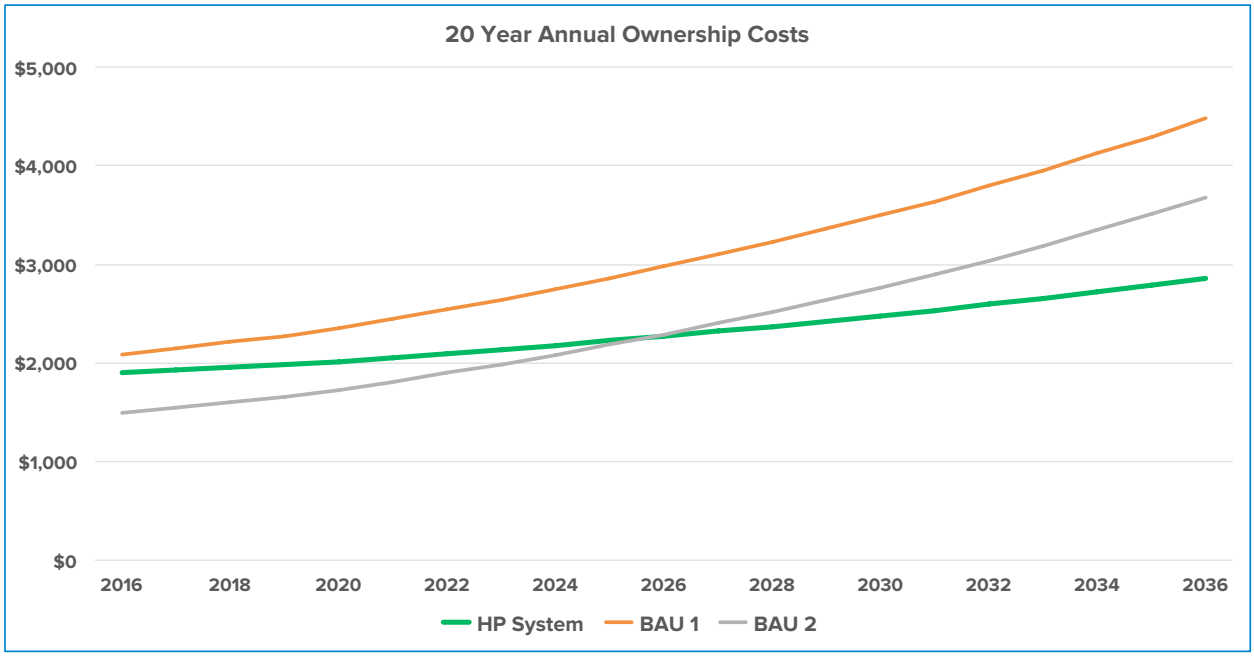


Figure 6: Annual Ownership Costs Over 20 Years

7.0 CONCLUSIONS

1) Of the six townhouses in the study group, the monitored data indicates the HP systems in townhouses 2,3,4,5 and 6 are operating as they were designed to be operated, providing nearly 100% of the DHW and space heating energy. The total system COP for these homes (including all pumping and backup electric element energy) ranged from a low of 2.2 to a high of 3.2, with an average COP of 2.8 during the study period. This performance is in-line with the heat pump manufacturer's data for operation at the observed system temperatures. It also indicates that the HP systems are achieving substantial energy savings compared to conventional electric heating systems.

2) Based on an average annual energy savings of 7,878 kWh, every 3.7 years each townhouse HP system could potentially save enough electricity to completely power an average Whistler house for a full year[12]. The potential average annual savings from the 174 Cheakamus Crossing townhouses is 1,370,772 kWh. This represents enough electricity to completely power 52 average Whistler houses each year.

3) The HP system in Townhouse 1 is operating for space heating only and 100% of the DHW heating is being provided by the electric tank elements. The monitored data for this home indicates much greater electricity consumption compared to the other houses in the sample group. The resulting total system COP is only 1.5, which is significantly lower than the other systems in the sample group. The lower COP indicates Townhouse 1 will consume approximately 87% more electricity per kWh of delivered energy than the average of the other five homes studied.

4) Energy costs per kWh of thermal energy delivered were lower for the HP systems than the all-electric BAU scenarios: $0.083/kWh for the HP system vs. $0.118 for the BAUs. Excluding TH 1, DES energy cost was even lower at $0.070/kWh thermal energy delivered.

5) Excluding TH 1, and based on the results of the monitoring period data, the projected average annual energy cost savings of the HP system over the BAU 1 was $428 per year, which equals 29%. Because of the fixed-rate nature of the DES utility charges, homeowners who use more energy will realize greater savings, compared to BAU 1, than those homeowners who use less energy.

6) Including the maintenance and replacement costs associated with the HP system, the DES customers are expected to have a lower total annual cost of ownership ($1,895/year) compared to the all-electric hydronic heating BAU 1 ($2,085/year). The lower total cost of is due to the lower annual energy cost for the HP system. Maintenance and replacement costs are similar between the heat pump and electric boiler systems.

7) Future increases in BC Hydro electricity rates will have a greater impact on the energy costs for the electric boiler (BAU 1) and the electric baseboard (BAU 2) scenarios, than they will have on the energy costs for the DES-connected HP systems. This is due to the DES customer's energy cost being largely correlated to the fixed DES utility charges. RMOW does not forecast any increases to DES utility rates, at this time. Based on the

[12] *Based on 26,500 kWh per average house per year. Pique News Magazine. "Price of Power" by Andrew Mitchell published June 16, 2013.*

available forecast data, the projected total annual cost of ownership for the DES connected HP systems in year 2036 is significantly lower than it is for the BAU 1 ($2,857/year for the HP system vs $4,481/year for the BAU 1).

8) Electric baseboard heating was evaluated as a second business as usual (BAU 2) scenario. The total annual (2016) ownership cost of electric baseboard heating: $1,493/year - is significantly lower than ownership cost of the HP systems: $2,012/year. This is primarily due to the negligible BAU 2 maintenance and replacement costs. However, future increases in BC Hydro's electricity rates will have a greater impact on the total energy cost for the BAU 2. Based on the available forecast data, in year 2036 the projected total annual cost of ownership for the BAU 2 system rises to $3,508/year, which is $651 more than the projected ownership costs for the HP system: $2,857/year.

   A factor not evaluated in our analysis of the BAU 2 scenario is a measure of the greater thermal comfort of radiant floor heating versus electric baseboards.

   As well, construction practice differences between homes built with hydronic radiant floor systems versus electric baseboard heating can lead to differences in envelope heat loss performance. An accurate determination of this was beyond the scope of the study, therefore identical envelope heat loss values were assumed for all scenarios.

This page left intentionally blank.

APPENDICES

This page left intentionally blank.

APPENDIX A

MAINTENANCE AND REPLACEMENT COST ESTIMATES

The following tables present estimated costs to maintain and replace HP system and BAU system components. These costs are estimates provided for cost comparison between options. Actual costs may vary.

Annual Routine Maintenance Costs	HP System	BAU 1	BAU 2 (Elec BB)	Notes
Hydronic System Maintenance	$350	$350	N/A	Once per year assuming system is operating normally.

Expected Lifecycle Replacement Costs	HP System	Frequency (years)	Annual Budget	BAU 1	Frequency (years)	Annual Budget
Heat Pump						
Compressor Replacement	$2,500	20	$125	N/A		
Coaxial HX Coil Replacement	$1,500	25	$60	N/A		
Refrigerant Recharge	$200	10	$20	N/A		
DHW System						
DHW Tank Replacement (see note 1)	$1000	12	$83	$850	9	$94
DHW Circulator Pump Replacement	$400	12	$33	N/A		
DHW HEX Replacement	$400	20	$20	N/A		
Space Heating System						
Buffer Tank Replacement	$1000	16	$63	N/A		
Electric Boiler Replacement	N/A			$2,200	16	$138
Radiant Circulator Pump Replacement	$400	12	$33	$400	12	$33
Zone Valves	$360	9	$40	$360	9	$40
Controls Transformer	$150	8	$19	$150	8	$19
Make-up-water valve, air relief vent, expansion tank	$450	15	$30	$450	15	$30
DES Connection						
DES (Source) Control Valve Replacement	$250	15	$17	$0		
Annual Equipment Renewal Budget			**$543**			**$354**

Notes:

1. HP System based on 80 USG replacement tank with backup element – slightly oversized tank allows for extended life of tank and HP compressor. BAU 1 & 2 based on 60 USG electric DHW tanks.
2. Lifecycle replacement costs for BAU 2 (electric baseboard) only includes replacement of 60 USG electric DHW tank.

This page left intentionally blank.

APPENDIX B

RATE INPUTS AND ASSUMPTIONS

BC Hydro Fiscal Year (Apr 1)	Step 1 ($/kWh)	Step 2 ($/kWh)	Blended Rate HP Systems 50% Step 1 50% Step 2 ($/kWh)	Blended Rate BAU Systems 37% Step 1 63% Step 2 ($/kWh)	Published / Forecast % Increase	Cumulative factor over April 1 2015 rates.
2010	$0.0627	$0.0878	$0.0753	$0.0785	Published	
2011	$0.0667	$0.0962	$0.0815	$0.0853	Published	
2012	$0.0680	$0.1019	$0.0850	$0.0894	Published	
2013	$0.0690	$0.1034	$0.0862	$0.0907	Published	
2014	$0.0752	$0.1127	$0.0940	$0.0988	Published	
2015	$0.0797	$0.1195	$0.0996	$0.1048	Published	
2016	$0.0829	$0.1243	$0.1036	$0.1090	Published	1.060
2017			$0.1142	$0.1201	4.00%	1.102
2018			$0.1182	$0.1243	3.50%	1.141
2019			$0.1218	$0.1281	3.00%	1.175
2020			$0.1278	$0.1345	5.00%	1.234
2021			$0.1342	$0.1412	5.00%	1.296
2022			$0.1409	$0.1483	5.00%	1.360
2023			$0.1480	$0.1557	5.00%	1.428
2024			$0.1554	$0.1635	5.00%	1.500
2025			$0.1632	$0.1716	5.00%	1.575
2026			$0.1713	$0.1802	5.00%	1.654
2027			$0.1799	$0.1892	5.00%	1.736
2028			$0.1889	$0.1987	5.00%	1.823
2029			$0.1983	$0.2086	5.00%	1.914
2030			$0.2082	$0.2191	5.00%	2.010
2031			$0.2186	$0.2300	5.00%	2.111
2032			$0.2296	$0.2415	5.00%	2.216
2033			$0.2411	$0.2536	5.00%	2.327
2034			$0.2531	$0.2663	5.00%	2.443
2035			$0.2658	$0.2796	5.00%	2.565
2036			$0.2791	$0.2936	5.00%	2.694
2037			$0.2930	$0.3082	5.00%	2.828
2038			$0.3077	$0.3236	5.00%	2.970
2039			$0.3230	$0.3398	5.00%	3.118
2040			$0.3392	$0.3568	5.00%	3.274
2041			$0.3562	$0.3747	5.00%	3.438
2042			$0.3740	$0.3934	5.00%	3.610
2043			$0.3927	$0.4131	5.00%	3.790
2044			$0.4123	$0.4337	5.00%	3.980
2045			$0.4329	$0.4554	5.00%	4.179
2046			$0.4546	$0.4782	5.00%	4.388
2047			$0.4773	$0.5021	5.00%	4.607
2048			$0.5011	$0.5272	5.00%	4.837
2049			$0.5262	$0.5535	5.00%	5.079
2050			$0.5525	$0.5812	5.00%	5.333

BC Hydro Rate Sources:

- *https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/regulatory-planning-documents/revenue-requirements/FY17-FY19-rra-application-technical-briefing-deck-20160728.pdf*
- *BC Hydro Residential Tariffs: 2011 - 2014*
- *RMOW*

Canada 4 year average inflation: 1.29%

- Source*: http://www.inflation.eu/inflation-rates/canada/historic-inflation/cpi-inflation-canada.aspx*

40 YEAR OWNERSHIP COST ANALYSIS

Analysis Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Fiscal Year (Begins Apr 1)	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
BC Hydro Rates: Published / Forecast Change	Pub	Pub	Pub	Pub	Pub	Pub	4.0%	3.5%	3.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Inflation (4 yr avg Bank of Canada) 1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%
DES Utility Rate: Published / Forecast Change	Pub	Pub	Pub	Pub	Pub	Pub	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
DESS HP System																				
Electricity Cost	$357	$373	$378	$412	$437	$455	$473	$489	$504	$529	$556	$584	$613	$643	$676	$709	$745	$782	$821	$862
DESS Utility Cost	$548	$548	$548	$548	$548	$548	$548	$548	$548	$548	$548	$548	$548	$548	$548	$548	$548	$548	$548	$548
Maintenance	$328	$333	$337	$341	$346	$350	$355	$359	$364	$368	$373	$378	$383	$388	$393	$398	$403	$408	$413	$419
Replacement Budget	$509	$516	$522	$529	$536	$543	$550	$557	$564	$571	$579	$586	$594	$602	$609	$617	$625	$633	$641	$650
TOTAL Cost	$1,743	$1,769	$1,785	$1,830	$1,866	$1,895	$1,925	$1,953	$1,980	$2,017	$2,055	$2,095	$2,137	$2,180	$2,225	$2,272	$2,320	$2,371	$2,423	$2,478
Net Present Value **$33,990**																				
BAU 1 - Electric Boiler Hydronic System																				
Energy Cost	$1,046	$1,096	$1,112	$1,212	$1,285	$1,431	$1,488	$1,540	$1,586	$1,666	$1,749	$1,836	$1,928	$2,024	$2,126	$2,232	$2,344	$2,461	$2,584	$2,713
Maintenance	$281	$285	$289	$292	$296	$300	$304	$308	$312	$316	$320	$324	$328	$332	$337	$341	$345	$350	$354	$359
Replacement Budget	$332	$336	$341	$345	$350	$354	$359	$363	$368	$373	$377	$382	$387	$392	$397	$402	$408	$413	$418	$424
TOTAL Cost	$1,660	$1,717	$1,742	$1,850	$1,931	$2,085	$2,150	$2,211	$2,266	$2,354	$2,446	$2,543	$2,644	$2,749	$2,860	$2,975	$3,097	$3,224	$3,356	$3,496
Net Present Value **$44,730**																				
BAU 2 - Electric Baseboard System																				
Energy Cost	$1,031	$1,080	$1,096	$1,195	$1,267	$1,399	$1,455	$1,506	$1,551	$1,629	$1,710	$1,796	$1,886	$1,980	$2,079	$2,183	$2,292	$2,407	$2,527	$2,653
Maintenance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Replacement Budget	$89	$90	$91	$92	$93	$94	$96	$97	$98	$99	$101	$102	$103	$105	$106	$107	$109	$110	$112	$113
TOTAL Cost	$1,120	$1,170	$1,187	$1,287	$1,360	$1,494	$1,551	$1,603	$1,649	$1,728	$1,811	$1,898	$1,989	$2,085	$2,185	$2,290	$2,401	$2,517	$2,638	$2,766
Net Present Value **$34,688**																				

Analysis Year	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Fiscal Year (Begins Apr 1)	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
BC Hydro Rates: Published / Forecast Change	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Inflation (4 yr avg Bank of Canada) 1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%	1.29%
DES Utility Rate: Published / Forecast Change	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
DESS HP System																				
Electricity Cost	$905	$951	$998	$1,048	$1,100	$1,155	$1,213	$1,274	$1,338	$1,404	$1,475	$1,548	$1,626	$1,707	$1,792	$1,882	$1,976	$2,075	$2,179	$2,288
DESS Utility Cost	$548	$548	$548	$548	$548	$548	$548	$548	$548	$548	$548	$548	$548	$548	$548	$548	$548	$548	$548	$548
Maintenance	$424	$430	$435	$441	$447	$452	$458	$464	$470	$476	$482	$488	$495	$501	$508	$514	$521	$527	$534	$541
Replacement Budget	$658	$666	$675	$684	$693	$702	$711	$720	$729	$738	$748	$758	$767	$777	$787	$797	$808	$818	$829	$839
TOTAL Cost	$2,535	$2,594	$2,656	$2,720	$2,787	$2,857	$2,929	$3,005	$3,084	$3,166	$3,252	$3,342	$3,435	$3,533	$3,635	$3,741	$3,852	$3,968	$4,089	$4,216
BAU 1 - Electric Boiler Hydronic System																				
Energy Cost	$2,849	$2,991	$3,141	$3,298	$3,463	$3,636	$3,817	$4,008	$4,209	$4,419	$4,640	$4,872	$5,116	$5,372	$5,640	$5,922	$6,218	$6,529	$6,856	$7,198
Maintenance	$364	$368	$373	$378	$383	$388	$393	$398	$403	$408	$413	$419	$424	$430	$435	$441	$446	$452	$458	$464
Replacement Budget	$429	$435	$440	$446	$452	$457	$463	$469	$475	$482	$488	$494	$500	$507	$513	$520	$527	$534	$540	$547
TOTAL Cost	$3,641	$3,794	$3,954	$4,121	$4,297	$4,481	$4,674	$4,875	$5,087	$5,309	$5,541	$5,785	$6,040	$6,308	$6,589	$6,883	$7,191	$7,515	$7,854	$8,210
BAU 2 - Electric Baseboard System																				
Energy Cost	$2,786	$2,925	$3,071	$3,225	$3,386	$3,556	$3,733	$3,920	$4,116	$4,322	$4,538	$4,765	$5,003	$5,253	$5,516	$5,792	$6,081	$6,385	$6,705	$7,040
Maintenance	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Replacement Budget	$114	$116	$117	$119	$120	$122	$124	$125	$127	$128	$130	$132	$133	$135	$137	$139	$141	$142	$144	$146
TOTAL Cost	$2,900	$3,041	$3,189	$3,344	$3,507	$3,678	$3,857	$4,045	$4,243	$4,450	$4,668	$4,897	$5,137	$5,388	$5,653	$5,930	$6,222	$6,528	$6,849	$7,186

WHISTLER

REPORT | INFORMATION REPORT TO COUNCIL

PRESENTED:	January 24, 2017	**REPORT:**	17- 004
FROM:	Corporate, Economic & Environmental Services	**FILE:**	8337
SUBJECT:	RMOW WILDFIRE PROTECTION STRATEGY		

COMMENT/RECOMMENDATION FROM THE CHIEF ADMINISTRATIVE OFFICER

That the recommendation of the Director of Corporate, Economic and Environmental Services be endorsed.

RECOMMENDATION

That the RMOW Wildfire Protection Strategy be received by Council.

REFERENCES

Appendix A –
RMOW Wildfire Protection Strategy, December 2016, B.A. Blackwell & Associates Ltd.

PURPOSE OF REPORT

The purpose of this report is to summarize and share with Council the recently completed Blackwell & Associates RMOW Wildfire Protection Strategy, December 2016.

DISCUSSION

The RMOW is a provincial leader in wildfire protection and has conducted wildfire fuel management projects and public outreach in the valley for most of the last decade. The 2015 Boulder Creek wildfire and the Fort McMurray disaster, coupled with recent Whistler-specific climate modeling data indicating Whistler is likely to experience longer, hotter, drier summers provides an increased urgency to update the existing Wildfire Protection plans and accelerate the on-the-ground activities required to ensure a high standard of wildfire protection for the community.

There are many values at risk in the event of a wildfire. The most obvious are the risks to residents and visitors, homes, businesses, the Village itself, as well as the ski area and others. Specific critical infrastructure that needs protection include the water, sewer, energy and communications networks. Damage to critical infrastructure could significantly delay Whistler's ability to get back to "business as usual" after a wildfire occurs. For example, Fort McMurray experienced problems after the wildfire with its water quality and supply system resulting in weeks-long boil water advisories and the need to flush the distribution system to remove blockages To protect these values and the ability of our community to function as a resort destination, it is important to implement a strategic plan to systematically reduce and manage the risk.

To accelerate the process and to ensure the efficient use of existing resources, the RMOW retained B.A. Blackwell & Associates Ltd. (Blackwell) to integrate the past RMOW's Community Wildfire Protection Plan (CWPP) and the Landscape Scale Fire Behaviour Model report to develop a single comprehensive, strategic plan to prioritize key recommendations in the RMOW Wildfire Protection Strategy (WPS)

The WPS identifies approximately 4,000 ha of high hazard Crown Land within the municipal boundary (WPS Table 1 and Figure 2). Priority treatment areas were then identified based on the criteria of (a) identified high hazard areas, and (b) located within 500 m of structures in the developed areas of the valley. The total size of priority treatment areas identified within 500m of structures is approximately 1200 ha (WPS Table 1 and Figure 2). The development of the Landscape Scale Fire Behaviour model report identified a further approximately 1500 hectares of high priority areas to create strategic fuel break system to the north and south of Whistler.

To date, fuel treatment projects throughout the RMOW have only addressed a small fraction of the work required to treat the identified wildfire threats. The WPS indicates that the size and scale of the fuel problem cannot be managed within the current available budget and resource capacity – funding needs to increase to address these risks in a meaningful way.

Two provincial programs are available to provide financial assistance. Through the UBCM Strategic Wildfire Prevention Initiative (SWPI), which the RMOW has historically been accessing to complete various thinning projects, the RMOW is eligible to receive up to $400,000/year to fund wildfire mitigation near urban areas at a maximum grant of $20,000 per hectare. Fuel treatment implementation costs are approximately $30,000/ha for the common stand types within the RMOW, so the RMOW is currently funding these interface protection projects at a cost of approximately $10,000 per hectare. Efforts will be made to further reduce per hectare costs through efficiencies that allow more hectares to be treated in a shorter timeframe.

The Provincial Forest Enhancement Society (FES) was formed in 2016 and provides additional potential funding for wildfire management projects in the broader landscape such as the proposed fuel break system. The RMOW applied to FES for funding in November 2016 to complete the Callaghan forest service road fuel break project but has yet to receive a decision. The RMOW Wildfire Protection Strategy includes anticipated annual funding from the FES as well as the UBCM SWPI programs. If the RMOW is unsuccessful with those funding programs in the future, the recommended projects, scale and timeline will need to be revisited.

To achieve WPS objectives RMOW will also optimize existing staff and other resources to mitigate costs and achieve outcomes in the most accelerated timeline possible.

The RMOW will also engage in discussions with other agencies that have control over land management. Whistler Blackcomb is a key tenure holder in the Whistler valley with significant investment and assets at risk to wildfire. To date, the RMOW, supported partially by provincial funding, has completed a number of fuel thinning projects within the WB landbase. The RMOW will seek opportunities to increase WB's role in planning and implementation of wildfire management projects.

Blackwell reviewed the 2011 CWPP, Landscape Scale Fire Behaviour Model and RMOW fuel reduction and public outreach projects to date, as well as the criteria for all relevant sources of available funding. Based on all of this work, as well as the organization's experience with best practices in other jurisdictions, Blackwell's team distilled the strategic approach to the following 17 interrelated and reinforcing recommendations. As recommended, Environmental Stewardship, Protective Services and Fire Rescue Services will all work closely to deliver the overall comprehensive program. Presently, Environmental Stewardship manages the interface and landscape fuel break thinning projects on Crown land, while Protective and Fire Rescue Services will deliver the FireSmart program to Whistler residents as well as on critical municipal assets. Further work will be undertaken in 2017 to achieve increased synergies across Municipal Divisions, reduce costs and accelerated outcomes. The following is a proposed action plan that will be subject

to revision as a result of funding decision by the province and implementation learnings as we move forward.

	Recommendation			
#	**RMOW Infrastructure and Green-Space**	**Lead**	**Partner**	**Year**
1	***Inventory critical municipal infrastructure*** that could be significantly impacted by wildfire. Critical infrastructure not under the responsibility of RMOW (i.e., transmission and communication networks) should be included in this inventory.	Protective Services & Fire Rescue Services	Environmental Stewardship, Infrastructure Services, Parks Ops	2017
2	Work with other key stakeholders to ***identify and prioritize other greenspace infrastructure*** that could be impacted by wildfire and requires protection.	Protective Services & Fire Rescue Services	Parks Planning & Ops	2017
	RMOW Resources			
3	***Secure required personnel resources to manage*** and administer a coordinated ***operational fuel management program*** that includes coordination with key stakeholders and funding programs.	CAO Office/ Environmental Stewardship	Protective Services & Fire Rescue Services	2017
4	Establish a ***3 to 5-year operational fuel management contract*** with the goal of encouraging investment in technologies and equipment to increase efficiencies and reduce treatment costs	Environmental Stewardship		2018
	Stakeholder Coordination and Advance Planning to Collaboratively and Efficiently Plan and Implement Landscape Scale Fuel Management			
5	***Develop a multi-year plan*** that 1) identifies treatment areas and areas requiring maintenance that are linked to the level of funding determined as part of this process and 2) that is widely publicized so all stakeholders are aware of RMOW fuel management planning.	Environmental Stewardship		2017
6	Conduct a high-level meeting with senior staff from the key organizations as the starting point to ***develop a plan*** and cooperatively work together to ***implement a broader landscape level treatment strategy***. While it is recognized that there are barriers to change, determined leadership by the RMOW, CCF and the Province can lead to success.	CAO Office/ Environmental Stewardship	Cheakamus Community Forest, MOFLNRO, Whistler Blackcomb, Fire and Rescue Services	2017+
7	***Partner with CCF*** (memorandum of understanding is required) to advance the application of mechanical treatments to reduce costs.	Environmental Stewardship	Cheakamus Community Forest	2017
8	Invest in a ***comprehensive 10-year action plan***, ideally with a 3-year projection, to ensure projects are shovel-ready and can be implemented quickly as funding opportunities come available.	Environmental Stewardship		2018-2021
9	Explore opportunity for creating prescriptions based on a range of site conditions rather than unique prescriptions for each treatment unit.	Environmental Stewardship		2017
	Funding to Develop the Community Wildfire Protection Program and Stand-Alone Projects			
10	Secure additional funding to ***accelerate the Community Wildfire Protection program***. Options include: capital project funding (10-year cycle),	Environmental Stewardship, Protective		2017

	Recommendation			
	maximization of UBCM funding, and FES funding secured in coordination with MFLNRO and CCF (fuel break projects)	Services & Fire Rescue Services		
11	Secure funding to partner with the BC Wildfire Service to develop a stand-alone project based on 2014 property risk assessments to ***design and implement a web-based tool for homeowners*** to evaluate their relative risk and provide tools to help reduce this risk (Stand-Alone Project 1)	Protective Services & Fire Rescue Services	BC Wildfire Service	2018
12	Secure funding to design a ***pilot project with the CCF*** to coordinate activities and reduce costs (Stand-Alone Project 2).	Environmental Stewardship	CCF	2017
13	Secure funding to develop new ***bylaws and create Wildfire DPA.*** Strike a staff committee involving all coordinating departments and consult externally with realtors, builders and developers (Stand-Alone Project 3)	Planning		2018
14	Seek additional support and funding certainty from the province to accelerate the overall plan outlined in this strategy.	CAO	Environmental Stewardship	2017
	Private Land Wildfire Risk Mitigation			
15	Improve public understanding of fire risk and personal/homeowner responsibility and mitigate wildfire risks on private property through ***increased efforts in public outreach and education.***	Protective Services & Fire Rescue Services		2017+
16	Enforce a comprehensive and consistent standard of development in high hazard wildfire zones through the development ***and implementation of a Wildfire Development Permit Area (DPA).***	Planning		2018+
17	The new ***FireSmart coordinator*** should develop a ***strategic plan*** based on identified risks and priorities including working with stratas.	Protective Services & Fire Rescue Services		2017

These recommendations identify a coordinated approach between the fuel thinning projects managed by Environmental Stewardship and the FireSmart program's outreach to private residences by Fire Rescue and Protective Services. The section below provides a timeline and sequence for the WPS recommendations, and identifies the recommended lead department.

In 2017, the RMOW should plan to:

- Assign personnel to manage a coordinated fuel management operations program;
- Seek additional support and funding certainty from the province to accelerate the overall plan outlined in this strategy.

In 2017, Protective Services and Fire Rescue Services should plan to:

- Inventory critical municipal infrastructure, and identify and prioritize other green space infrastructure for inclusion in the multi-year plan;

- Increase efforts in public outreach and education;
- Develop a strategic FireSmart plan for private homeowners based on identified risks and priorities.

In 2017, Environmental Stewardship should plan to:

- Explore opportunity for creating prescriptions based on a range of site conditions rather than unique prescriptions for each treatment unit;
- Develop a multi-year plan to deliver interface and fuel break treatments along with public outreach;
- Secure additional funding;
- Develop a Memorandum of Understanding with the Cheakamus Community Forest to partner on fuel thinning projects in the CCF tenure and develop a pilot project to identify methods to reduce costs.

In 2018, Environmental Stewardship should plan to:

- Establish a 3 to 5-year operational fuel management contract;
- Begin a four year project to develop a comprehensive 10-year action plan of fuel thinning prescriptions based on the multi-year plan.

In 2018, Protective Services and Fire Rescue Services should plan to:

- Design and implement a web-based tool for homeowners.

In 2018, the Planning department should plan to:

- Create a Wildfire Development Permit Area, revise bylaws and processes as necessary, and then implement over the long term.

The WPS provides a strong strategic foundation to build Wildfire Protection activities on over the next 5 to 10 years. Staff have begun to use the document to prepare budgets and work plans for Council's consideration through the Five Year financial planning process.

WHISTLER 2020 ANALYSIS

W2020 Strategy	TOWARD Descriptions of success that resolution moves us toward	Comments
Health and Social	The resort community is safe for both visitors and residents, and is prepared for potentially unavoidable emergency events	A significant wildfire event would present extremely serious safety issues for both residents and visitors. Reducing risk, and preparing for possible wildfire events is prudent.
Finance	The cost of maintaining the resort community is shared	Accessing grants from provincial sources shares the costs.
Natural Environment	Community members and visitors act as stewards of the natural environment	It is our responsibility to reduce the threat of wildfire and protect the natural environment.

W2020 Strategy	AWAY FROM Descriptions of success that resolution moves away from	Mitigation Strategies and Comments
Finance	Whistler lives within its financial means	Scaling up the wildfire management program means increased municipal expenditures, but trying to recover from a wildfire will be much more expensive.

OTHER POLICY CONSIDERATIONS

The Community Energy and Climate Action Plan (CECAP) identifies increased wildfire and interface fire threats to property, infrastructure, and human health and safety as one of the highest rated risks associated with the anticipated impacts of a changing climate in the Sea to Sky Corridor. Climate modelling projects longer, hotter, drier summers for the Whistler area, with the result being a greater likelihood of wildfires. The CECAP states as Adaptation Objective 1:

> Minimize the threats posed by wildfire and interface fire to human health and safety, private property, infrastructure, wildlife, habitat and biodiversity.

The CECAP then lists nine recommended actions that are closely aligned with the RMOW Wildfire Protection Strategy. More detailed CECAP information is available in Section 8.5.1: https://www.whistler.ca/sites/default/files/related/cecap.0_final.pdf

Reflecting the interest and urgency around this issue, Council identified expanding wildfire protection activities as one of its five priorities at the October 31, 2016 Council retreat. The RMOW Wildfire Protection Strategy provides the delivery framework to strategically and systematically execute on this Council priority.

BUDGET CONSIDERATIONS

To deliver the recommendations from the report, Blackwell prepared draft budget options. Budget Option 1 from the Blackwell report (WPS Table 6, page 33) is being considered within the 2017-2021 RMOW 5 year financial planning process. This budget is based upon completing 30 hectares per year of Wildland Urban Interface (WUI) thinning projects (similar to the projects the RMOW has already completed above Horstman Estates, Brio and Millars Pond), and 40 hectares per year of landscape level fuel breaks. For reference, the RMOW is currently averaging 8 – 15 hectares of WUI thinning projects and 5 – 10 hectares of fuel breaks per year.

Given that there are approximately 1,200 hectares identified as priority treatment WUI areas within 500m of structures, and 1,500 hectares of high priority fuel break areas, Budget Option 1 will only complete approximately 25% of the areas within 10 years. If a more aggressive timeline is desired, the budget will have to be scaled up accordingly. If the grant funding is not received, the RMOW will need to review the project scale, timing and budget to move forward using only RMOW funds.

COMMUNITY ENGAGEMENT AND CONSULTATION

Fire Rescue Services completed more than 3,000 home assessments and continues to provide outreach and assessments to private properties. In addition, the Cheakamus Community Forest has shared information regarding the landscape level fuel breaks at its last three open houses. There is significant information on whistler.ca at www.whistler.ca/fire and www.whistler.ca/firesmart.

An external Community Advisory Group (CAG) was assembled in April 2015 to support the development of the CECAP. Community-wide public input on the plan also was sought through a public Open House and an online public comment period which included a detailed survey. As discussed in the Policy Considerations section, the CAG and public input supported the plan's identification of wildfire as a key impact of climate change and the need to reduce the threat.

A communications plan is currently being developed by Environmental Stewardship, Protection Services, and Fire Rescue Services with assistance from the Communications team to increase and coordinate ongoing outreach to the residents of Whistler.

SUMMARY

The Boulder Creek fire smoke event, and Fort McMurray wildfire underscore the impacts a community can experience when a forest fire gets out of control. In addition, the WPS highlights the fact the Whistler is in need of increased wildfire protection. The RMOW is committed to taking action to protect our community in the face of increasing wildfire risk and the Wildfire Protection Strategy provides clear direction for moving forward in this respect.

Respectfully submitted,

Heather Beresford
ENVIRONMENTAL STEWARDSHIP MANAGER
for
Ted Battiston
DIRECTOR, CORPORATE, ECONOMIC AND ENVIRONMENTAL SERVICES

Resort Municipality of Whistler

Wildfire Protection Strategy

December 2016

Submitted by:

Bruce A. Blackwell
B.A. Blackwell & Associates Ltd.
270 – 18 Gostick Place
North Vancouver, BC V7M 3G3
Phone: 604-986-8346
Email: bablackwell@bablackwell.com

Submitted to:

Heather Beresford
Manager, Environmental Stewardship
Resort Municipality of Whistler
Phone: 604-935-8374
Email: hberesford@whistler.ca

B.A. Blackwell
& Associates Ltd.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

The Resort Municipality of Whistler (RMOW) is a proven leader in strategic wildfire management, fire risk mitigation initiatives, and community involvement and education. The RMOW has demonstrated this leadership through its participation in the Strategic Wildfire Prevention Initiative by completing and implementing recommendations from both the 2007 CWPP and an updated 2011 CWPP. An active fuel treatment program was started in 2008 and has continued annually through 2016 in and around identified high risk neighbourhoods. The Municipality has proactively conducted FireSmart assessments of the large majority of single family residences and undertaken a comprehensive fire behaviour analysis to identify strategic landscape level fuel breaks necessary to protect the community. A pilot area along the Callaghan forest service road was recently treated as a pilot fuel break area to demonstrate and test the concept to evaluate costs of the landscape fuel break strategy.

Whistler Fire Rescue has been active in addressing the issue of interface fires including supporting bylaw changes, promoting neighbourhood FireSmart initiatives, upgrading equipment, and looking at new detection technologies. The department has allocated funds for a FireSmart coordinator to promote FireSmart compliance of private properties. The department participates in and supports the historic and current works on landscape fuel management around the community.

The Municipality has proactively changed bylaws to allow for backyard burning during specified times during the spring and fall to dispose of forest related debris on residential properties. Additionally, the RMOW relaxed burning and smoke control regulations in 2015 to allow for pile burning of slash materials generated from fuel treatment work in the Kadenwood neighbourhood.

While the RMOW has been a provincial leader in wildfire protection and has proactively applied for supporting and matching funding wherever possible, wildfires locally (Boulder Creek in 2015 and on Blackcomb Mountain in 2009) and the recent Horse River wildfire in Fort McMurray have renewed the urgency to accelerate plans and activities required to achieve a high standard of protection to the community. While the protection efforts to date have been significant it is estimated that an additional twenty years will be required, given the present available funding sources, to implement all of the required measures that are available to fully protect the community.

To shorten the timeline and improve efficient use of resources, the RMOW requested B.A. Blackwell & Associates Ltd. integrate the Community Wildfire Protection Plan (2011) and the Landscape Scale Fire Behaviour Model report and develop a comprehensive, strategic plan to prioritize key recommendations.

Recommendations provided in this strategy are summarized below and cross-referenced to the applicable sections in the document.

	Recommendation	Section Reference
	RMOW Infrastructure and Green-Space	
1	Inventory critical Municipal infrastructure that could be significantly impacted by wildfire. Critical infrastructure not under the responsibility of RMOW (i.e., transmission and communication networks) should be included in this inventory.	2.4

	Recommendation	Section Reference
2	Work with other key stakeholders to identify and prioritize other green space infrastructure that could be impacted by wildfire and requires protection.	2.5
	RMOW Resources	
3	Secure required personnel resources to manage and administer a coordinated operational fuel management program that includes coordination with key stakeholders and funding programs.	3.2
4	Establish a 3 to 5-year operational fuel management contract with the goal of encouraging investment in technologies and equipment to increase efficiencies and reduce treatment costs	3.2
	Stakeholder Coordination and Advance Planning to Collaboratively and Efficiently Plan and Implement Landscape Scale Fuel Management	
5	Develop a multi-year plan that 1) identifies treatment areas and areas requiring maintenance that are linked to the level of funding determined as part of this process and 2) that is widely publicized so all stakeholders are aware of RMOW fuel management planning.	3.4
6	Conduct a high-level meeting with senior staff from the key organizations as the starting point to develop a plan and cooperatively work together to implement a broader landscape level treatment strategy. While it is recognized that there are barriers to change, determined leadership by the RMOW, CCF and the Province can lead to success.	4.3
7	Partner with CCF (memorandum of understanding is required) to advance the application of mechanical treatments to reduce costs.	2.7.4 and 4.3
8	Invest in a comprehensive 10-year action, ideally with a 3-year projection, to ensure projects are shovel-ready and can be implemented quickly as funding opportunities come available.	4.3
9	Explore opportunity for creating prescriptions based on a range of site conditions rather than unique prescriptions for each treatment unit.	4.3
	Funding to Develop the Community Wildfire Protection Program and Stand-Alone Projects	
10	Secure additional funding to accelerate the Community Wildfire Protection program. Options include: capital project funding (10-year cycle), maximization of UBCM funding, and FES funding secured in coordination with MFLNRO and CCF (fuel break projects)	4.1
11	Secure funding to partner with the BC Wildfire Service to develop a stand-alone project based on 2014 property risk assessments to design and implement a web-based tool for homeowners to evaluate their relative risk and provide tools to help reduce this risk (Stand-Alone Project 1)	6
12	Secure funding to design a pilot project with the CCF to coordinate activities and reduce costs (Stand-Alone Project 2).	6
13	Secure funding to develop new bylaws and create Wildfire DPA. Strike a staff committee involving all coordinating departments and consult externally with realtors, builders and developers (Stand-Alone Project 3)	6
14	Seek additional support and funding certainty from the province to accelerate the overall plan outlined in this strategy.	3.1
	Private Land Wildfire Risk Mitigation	
15	Improve public understanding of fire risk and personal/homeowner responsibility and mitigate wildfire risks on private property through increased efforts in public outreach and education.	4.2 and 6
16	Enforce a comprehensive and consistent standard of development in high hazard wildfire zones through the development and implementation of a Wildfire Development Permit Area (DPA).	3.5 and 4.4

	Recommendation	Section Reference
17	The new FireSmart coordinator should develop a strategic plan based on identified risks and priorities including working with stratas.	4.2

1 METHODOLOGY

This strategy has been put together following a methodology developed with Resort Municipality of Whistler (RMOW) staff, and based on:

- Phase I: Information Gathering
- Phase II: Policy Research and Development
- Phase III: Identifying Options

1.1 PHASE I: INFORMATION GATHERING

Interviews with key stakeholders were conducted to determine local community needs and the current fuel management direction within the RMOW. Within the Provincial government, the goal was to confirm the direction of the Union of British Columbia Municipalities (UBCM) fuel management program by conducting interviews with:

- Greg Anderson, Executive Director Forest Enhancement Project (FEP);
- Mike Furey, RMOW Chief Administrative Officer;
- Geoff Playfair, RMOW Fire Chief;
- Heather Beresford – RMOW Manager Environmental Stewardship; and
- RMOW General Managers Jan Jansen (Resort Experience Division), Norm McPhail (Corporate and Community Services division), James Hallisey (Infrastructure Services) Ted Battiston (Director, Corporate, Economic, and Environmental Services).

In coordination with land managers we determined how their initiatives are coordinated and identified existing gaps. Interviews were conducted with:

- Frank DeGagne, Stewardship Officer, Sea to Sky Resource District, MFLNRO;
- Jeff Fisher and Tom Cole, Cheakamus Community Forest (CCF).

Historically, local contractors that were involved in fuel management were interviewed to better understand issues such as project timing, standards and implementation, labour availability, and contractor priorities.

1.2 PHASE II: POLICY RESEARCH AND DEVELOPMENT

The work of other jurisdictions throughout the Province and in Alberta was reviewed to better understand how other local governments are tackling the problems associated with interface fuel management and community protection. Policy and by-laws were reviewed, and current taxation and/or funding mechanisms available to local governments were assessed.

More narrowly, this research also focused on requirements to administer and operate fuel management programs, including the roles and responsibilities of the program manager, site supervisors, and staff. Additionally, where and how local government representatives, contractors, volunteers, and community groups can get involved in the program was assessed.

1.3 PHASE III: IDENTIFYING OPTIONS

The work completed in Phases I and II has been drawn into this draft strategy and outlines options for the RMOW with regards to funding and implementing a scaled-up fuels management program that accelerates treatment areas through UBCM funding, and leveraging the operations of the Community Forest and Forest Enhancement Program (FEP) funding to establish landscape fuel breaks and fuel treatment areas that do not meet current UBCM funding criteria.

The work conducted in Phases I and II formed the foundation for identifying options to accelerate wildfire protection in the RMOW and has provided guidance in the following key areas:

- Identifying concerns with wildfire and existing protection and fuel management efforts;
- Documenting issues and concerns with the current program;
- Identifying the scope, mandate, priorities, challenges and options for the RMOW to advance its program expediently;
- Developing direction and implementation strategies to community protection and fuel management specific to the RMOW; and
- Identifying specific areas of the Municipality that are a wildfire concern.

2 STRATEGY BACKGROUND

2.1 HISTORICAL BACKGROUND

Each year BC's forests and the Wildland Urban Interface (WUI) experience wildfire activity. Over the past decade, tens of thousands of residents have been evacuated, communities and their values threatened, homes lost throughout the Province, and annual suppression expenses have typically exceeded $100 million[1]. Based on a 10-year average, approximately 1,800 wildfires affect 130,000 ha of forest each year. On average over this ten-year period approximately 60% of wildfires were caused by lightning, while 40% were human caused. Figure 1 below demonstrates the yearly area burnt (in hectares) and the cost of fire suppression (in millions of dollars) from 2005 to 2014. Considering the extent of annual wildfire activity throughout the Province, many homes and properties within the RMOW are vulnerable in the WUI.

[1] http://www2.gov.bc.ca/gov/content/safety/wildfire-status/wildfire-statistics/wildfire-averages

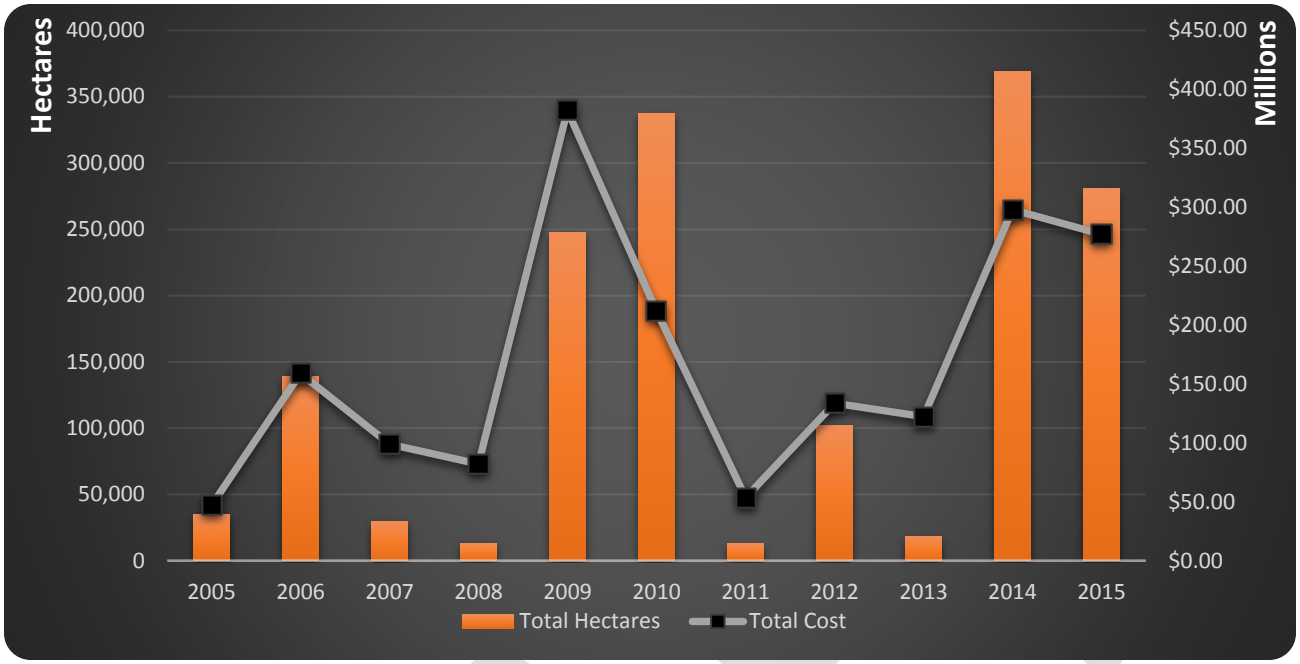


Figure 1. Fire season averages in British Columbia for area burnt (hectares) and cost (millions of dollars) for 2002 to 2014. Derived from data on: http://www2.gov.bc.ca/gov/content/safety/wildfire-status/wildfire-statistics/wildfire-averages

Following the events of the 2003 fire season, Gary Filmon, with the cooperation of the Province, undertook the 2003 Firestorm Review. The review focused its attention on wildfire threat to WUI communities and detailed contributing factors to the catastrophic wildfires of 2003, which included:

- Decades of fire exclusion in fire-adapted ecosystems;
- Forestry and other land-use practices contributing to fuel accumulations;
- Increasing migration of homes and communities into the wildland; and
- Extended periods of drought and weather conducive to extreme fire behaviour.

Of the 42 recommendations put forward by the review team, several dealt specifically with the physical aspect of wildfire threat due to fuel loads and need for the Province to lead strategic wildfire plan development. Part of the Province's response to the implementation of these recommendations was to fund Community Wildfire Protection Plans (CWPPs), fuel treatment prescriptions and operational fuel treatment projects within interface communities.

2.2 RMOW RESPONSE

In 2011, an updated CWPP was completed for the RMOW. This CWPP included the entire community and approximately 4,000 ha of high hazard (Priority 1 and 2) Crown Land within the municipal boundary (Table 1 and

Figure 2). In the municipal boundary priority treatment areas were identified based on hazardous fuels (C2, C3, and C4 complexes) within 500 m of structures in the core build-up area. The total area of Priority 1 treatments identified

within 500m of structures is approximately 1200 ha (Table 1 and Figure 3). The C2 fuel type is characterized by plantations older than 20 years of generally high density with high canopy and low crowns. Wildfires occurring in this fuel type under high wildfire danger level are often crown fires of high to very high fire intensity and rate of spread. The C3 fuel type is characterized by fully stocked, late young forests with crowns separated from the ground. Fires occurring under high wildfire danger levels are generally surface and crown fires with low to very high fire intensity and rate of spread. Finally, the C4 fuel type is characterized by dense pole-sapling forest and young plantations with heavy standing dead and down, dead woody fuel accumulation and continuous vertical crown fuel continuity. Under high wildfire danger level, wildfire behaviour for this fuel type is almost always crown fire with high to very high fire intensity and rate of spread.

Table 1. Summary of hazardous fuel types and priority treatment areas for all administrative areas located within and adjacent to the RMOW.

Administrative Responsibility	Fuel Type (ha)			TOTAL (ha)
	C2	C3	C4	
Total Study Area				
RMOW	2	492	346	840
RMOW/Controlled Recreation Area (CRA)	7	273	294	574
RMOW/Community Forest	218	603	1254	2075
Protection Area*	0	144	16	160
Protection Area/Community Forest	3	89	244	336
TOTAL All Hazardous Fuel Types (Priority 1 and 2)	**230**	**1601**	**2154**	**3985**
Within 500 meters of structures within the core buildup area				
RMOW	2	323	246	571
RMOW/CRA	7	123	169	299
RMOW/Community Forest	2	107	170	279
Protection Area	0	0	0	0
Protection Area/Community Forest	0	0	0	0
TOTAL Priority 1 Treatment Areas	**11**	**553**	**585**	**1149**

* Protection Area refers to the northern-most portion of the Study Area outside of the Municipal boundary as illustrated in Figure 2.

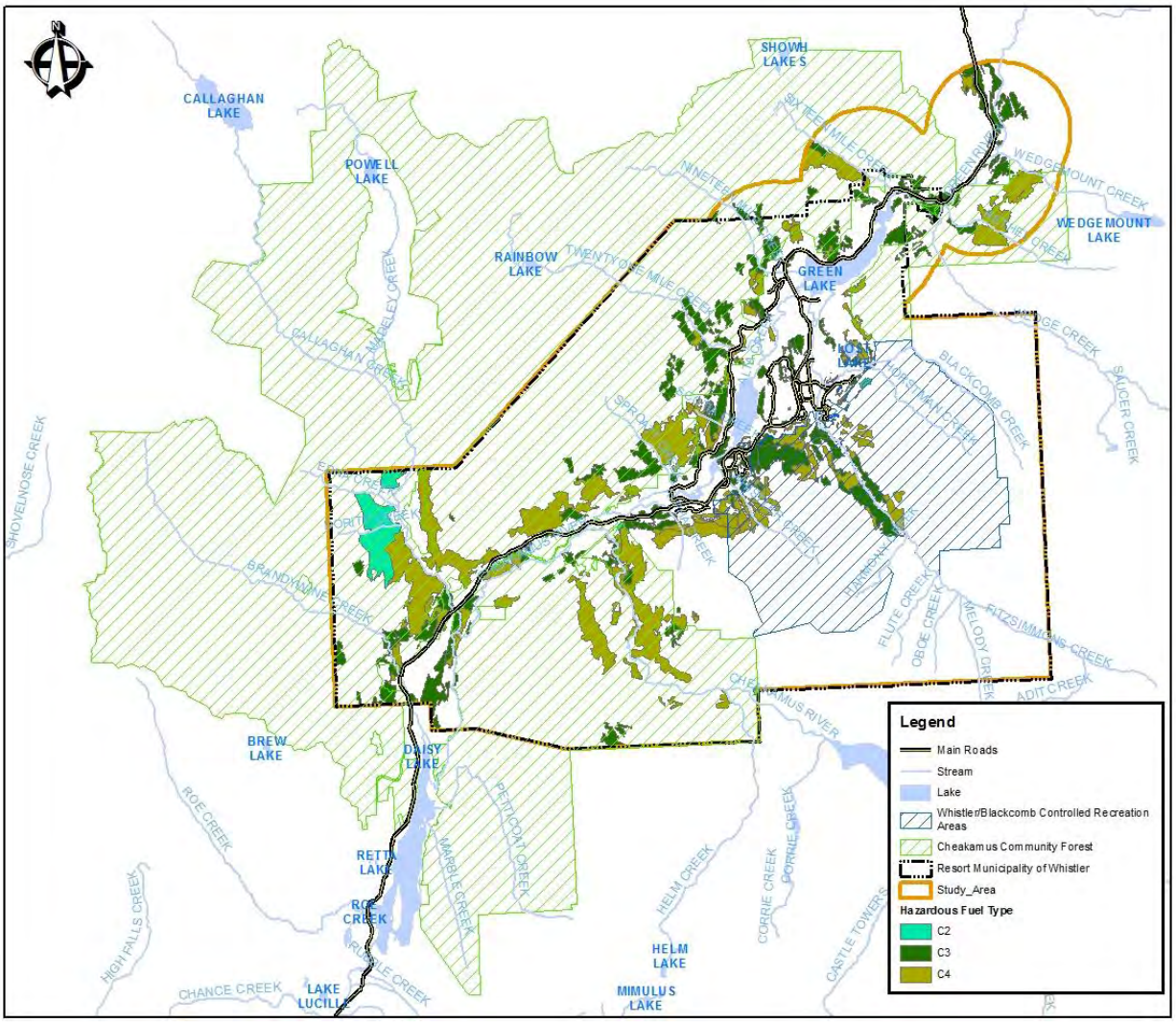


Figure 2. High hazard fuel types (C2, C3, and C4) located within the Study Area on Crown Land.

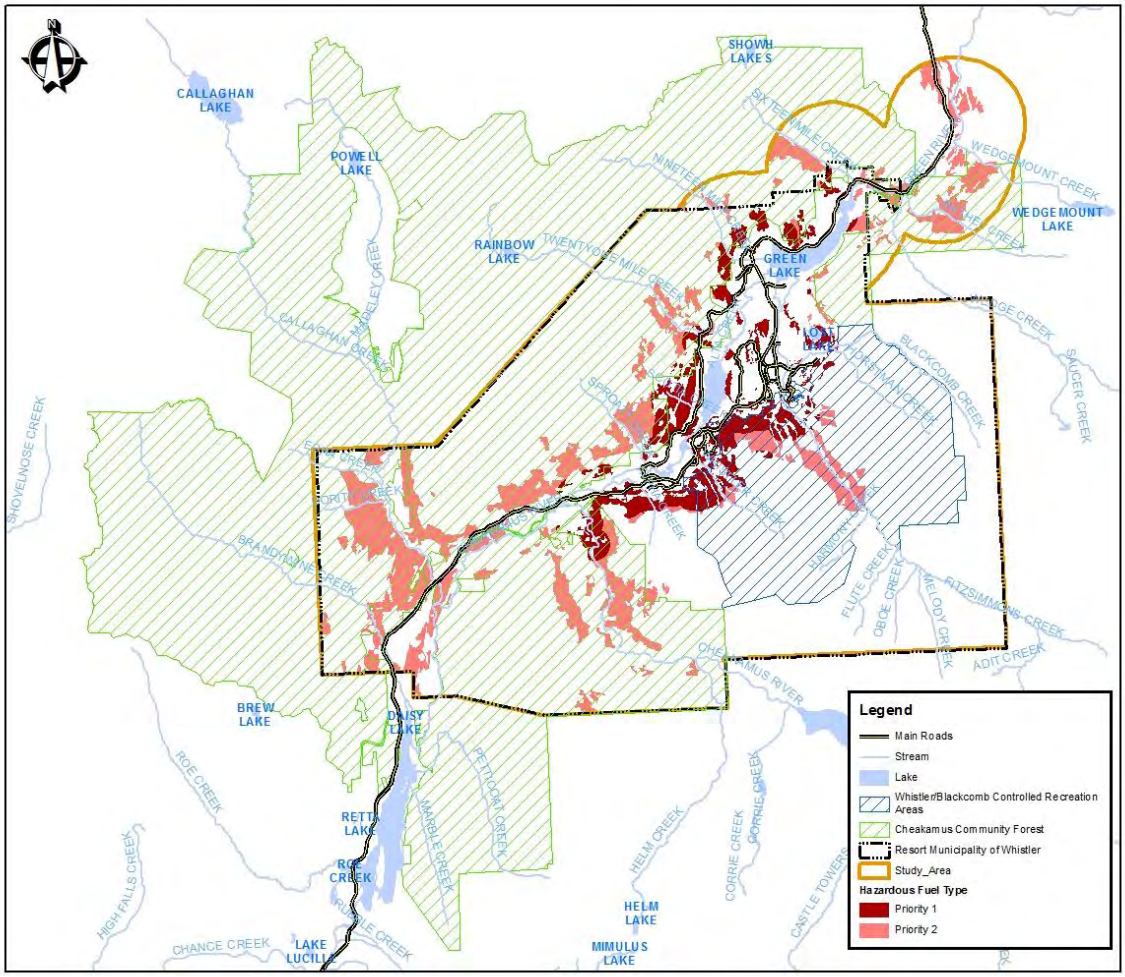


Figure 3. Priority 1 treatment areas (identified as dark red) and Priority 2 treatment areas (identified as pink) located within administrative areas located within and adjacent to the RMOW.

To date, fuel treatment projects throughout the RMOW have only addressed a fraction of the work required to address the known identified wildfire threats. Through the UBCM Strategic Wildfire Prevention Initiative (SWPI), the RMOW is currently eligible to receive $400,000/year to fund wildfire mitigation. Considering fuel treatment implementation costs are approximately $30,000/ha for the common stand types within the RMOW, current funding only allows for treatment of 20 ha/year (assuming a $10,000 per ha RMOW contribution). With approximately 1,200 ha identified as Priority 1, it would take over 60 years to complete fuel management of these areas with the current resources available. This estimate does not include the maintenance activities in treated areas required to reduce the build-up of hazardous fuels, nor does it include priority 2 areas which represent approximately an additional area of 1,155 ha.

The size and scale of the fuel problem cannot be managed within the current available budget and resource capacity – funding needs to increase to address the problem in a meaningful way. Furthermore, the current funding is specifically for fuel treatments and therefore does not allow for important work in areas such as public education and the protection of critical infrastructure. Broadly, the current SWPI funding eligibility criteria for new operational fuel treatments and maintenance programs limit the application of this funding (with some exceptions) to projects in the WUI on Crown or municipal land in areas identified as high or extreme WUI Behaviour Threat Class or overall WUI Threat Class. Furthermore, these areas must either be identified as a high priority in the current CWPP or as priority areas in the MFLNRO Fire Management Plan (FMP) and/or Five Year Fuel Treatment Plan (as available). Another funding stream available for Landscape fuel breaks on Crown land that typically do not qualify for SWPI funding is the Forest Enhancement Society of BC (FESBC) Forest Enhancement Program (FEP). The qualification and prioritization of wildfire risk reduction/mitigation projects for FESBC funding is less restrictive than the SWPI criteria and is based on reduction of wildfire threat to communities, critical infrastructure, First Nation cultural values, timber supply and special features (i.e., parks and protected areas) in consideration of the CWPPs and FMP. Furthermore, selection criteria for FESBC include other potentially related activities including: wildlife habitat enhancement, rehabilitation of fire damaged or low value stands, and recovery of fibre. Prioritization for FESP funding also considers community and First Nation support, opportunities to leverage FESBC funding with other funding sources (i.e., SWPI and others) and opportunities to attain carbon benefits.

The central objective of this strategy is to address the scale of the wildfire threat in the RMOW and to identify the steps needed for program change within both the RMOW and the Province. These changes are required to better mitigate and protect communities from the current and growing risk of wildfire within the community.

2.3 VALUES AT RISK

According to the 2011 Census, a RMOW population of 9,824 permanent residents live within the municipality with annual visitation at approximately 2.5 million. Total property assessment in the Municipality is valued at nearly $9.73 billion. 2015 property tax alone generated approximately $35.2 million (EPIC, 2016) and overall annual tax revenue (federal, provincial and municipal) generated by Whistler spending is approximately $500M per year, or approximately $1.37M per day. The majority of the assessed properties in the RMOW are vulnerable to wildfire because of their proximity to, and or location within, the WUI. The 2014 community FireSmart assessment found that 26% of assessed structures had a structure and site hazard rating of 'extreme' while 50% of assessed homes were rated as 'high' (Blackwell, 2014). The CWPP identifies and prioritizes hazardous fuels that pose high or extreme

fire risk to the community as discussed in the section above. These areas are largely located within the main Whistler valley and are in close proximity to private property.

The large majority of homes within the RMOW on private land are not FireSmart compliant and would be vulnerable to a wildfire. This highlights the need to consider both public and private lands as a threat. The private land wildfire problem emphasizes the priority need for governments to utilize policy and or development tools, such as a development permit area, to manage this problem.

Priority treatment areas on crown land may be managed by the RMOW in order to directly mitigate the wildfire risk to the community. Priority areas on private land are considerably more problematic, as the RMOW influence over activities on, and the state of private land is limited. There are some neighbourhoods in the RMOW where this problem is more pronounced than others. Some example neighbourhoods that meet this description include but are not limited to Emerald Estates, Alpine Meadows, Bayshores, and Brio. While the RMOW may not have control to implement FireSmart on single family residences, the municipality could likely be more effective in dealing with strata corporations, where their councils have more influence on specific management issues likely roofing and landscaping standards that greatly influence a development's fire vulnerability. There are significant properties controlled by strata corporations throughout the municipality and these should be a big focus of any FireSmart initiative.

It is not uncommon in many of these high-risk areas for one or a few private landholders to increase the fire risk for many adjacent structures and residences.

2.4 RMOW INFRASTRUCTURE

Private land assets represent only some of the values at risk from wildfire. The RMOW also has considerable investments in critical infrastructure, such as water delivery and treatment systems, many of which are vulnerable to wildfire. The wastewater treatment plant and system was assessed in 2016 at approximately $69.4 million, sanitation lift stations were valued at approximately $5 million and PVR/Booster stations and water reservoir intakes/pumps/water wells were valued at approximately $24 million.

Figure 4. Whistler Wastewater Treatment Plant.

In addition, the four community watersheds that are vulnerable to fire and critical to community water quality and delivery are at risk. These watersheds have the potential to be significantly compromised by high severity, large scale wildfires that will lead to surface erosion, sedimentation and potential debris flows that can last decades following a wildfire.

Traditionally the RMOW has been serviced by a network of community watersheds including the Twenty-one mile, Alpha, Whistler and Blackcomb Creeks community watersheds. Currently only the Twenty-one-mile watershed is active, the Alpha and Whistler watersheds are offline, and the Blackcomb watershed is for emergency (fire-fighting purposes only). More and more the community is becoming dependent on the Rainbow and other aquifers. Figure 5. shows the network and spatial distribution of watersheds and the aquifer that provide water to the community. From the Figure, it is clearly evident that a large scale catastrophic wildfire could severely impact Whistler's water service.

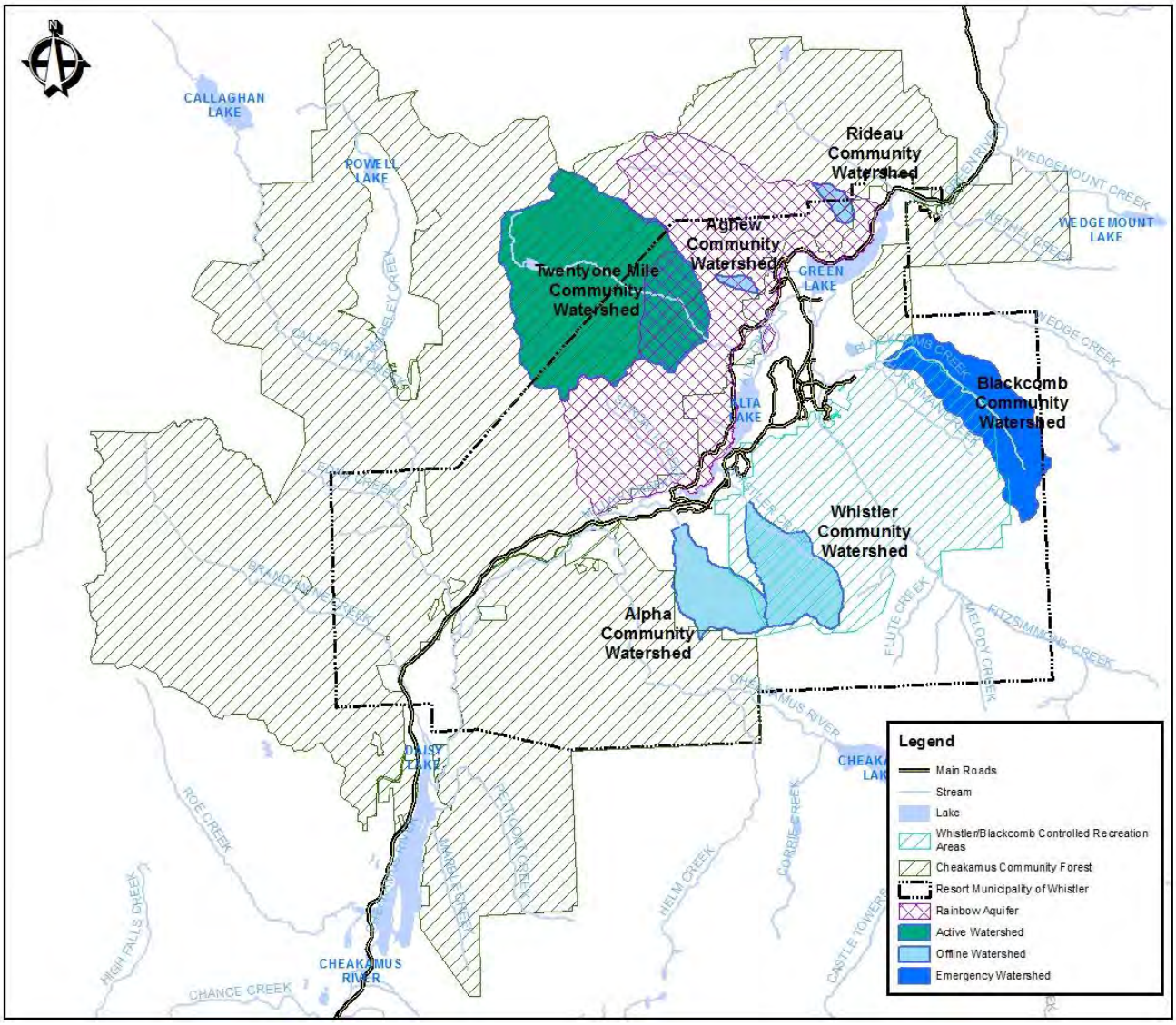


Figure 5. Overview of important community watersheds and the Rainbow Aquifer that supply the community's drinking water and are a source of water for firefighting.

These are only some of the highlights of RMOW infrastructure and there are significant non-RMOW values such as transmission and communication networks that are vital during an emergency event. This critical infrastructure must also be included in an inventory of infrastructure that may be vulnerable to fire.

Recommendation: Inventory and identify risk reductions actions for critical Municipal infrastructure that could be significantly impacted by wildfire. Critical infrastructure not under the responsibility of RMOW (i.e., transmission and communication networks) should be included in this inventory.

2.5 RMOW GREENSPACE

There are 543 ha of greenspace scattered throughout the RMOW, including 373 ha of parks and 170 ha of other miscellaneous area classified as greenspace (Table 2 and Figure 6). These Parks and greenspace include areas with ecological, social, cultural, and economic values at risk. Only the trail network around Lost Lake has been treated for high hazard fuels (Figure 7A and B), yet there are many other areas of municipal green space that have been reviewed in relation to fuel hazard and the potential for these areas to be lost in a catastrophic wildfire. This includes many linear corridors of trees and vegetation that line the extensive network of trails and that are vital to the character and brand of the community that makes Whistler a world class destination resort. This work will require additional funding and staff within the Parks department.

Table 2. Summary of greenspaces located within the RMOW.

ID	Name	Area (ha)	ID	Name	Area (ha)	ID	Name	Area (ha)
1	Alta Lake Park	2.0	19	Eva Lake Park	0.4	37	Snowridge Site	2.6
2	Wayside Park	0.9	20	Snowflake Park	0.9	38	Taluswood Park	0.8
3	Wedge Park	27.5	21	Village Park West	0.4	39	Myrtle Phillips Fields	3.7
4	Bayly Park	9.9	22	Village Park East	0.3	40	Fitzsimmons Creek Park	9.8
5	Marmot Park	0.3	23	Florence Petersen	0.5	41	Beaver Lake Park	7.9
6	Rocky Knoll Park	4.2	24	Green Lake Park	0.2	42	Balsam Park	0.6
7	Pine Point Park	2.1	25	Whistler Secondary Fields	4.8	43	Cheakamus Common	0.2
8	Dream River Park	2.7	26	Lost Lake Park	209.4	44	Lakeside Park	1.9
9	Emerald Park	1.0	27	Natural Area	7.3	45	Natural Area	0.4
10	Rainbow Subdivision Park B	0.8	28	Spruce Grove Park	18.9	46	Checking with Martin Pardoe	0.1
11	Millar's Pond Park	0.9	29	Meadow Park	6.3	47	Alpha Lake Park	2.3
12	Alta Lake Former Hostel	0.5	30	Whistler Nature Reserve	29.9	48	Habitat Park	0.4
13	Whistler Olympic Plaza	1.6	31	Emerald Forest Conservation Area	31.2	49	Blueberry Park	29.1
14	Fitzsimmons Fan Park	2.3	32	Golden Dreams Conservation Area	51.4	50	White Gold Park	0.6
15	Rainbow Subdivision Park A	0.4	33	Rainbow Park	14.1	51	Meadow Park	0.0
16	Green Lake Launch	0.1	34	Alta Lake Station	4.4	52	Spring Creek Fields	0.9
17	Big Timber Park	9.0	35	Stonebridge	29.6			
18	Bottomless Pond Park	1.0	36	Lakeside Park Pond	4.8			
Total Area								**543.2**

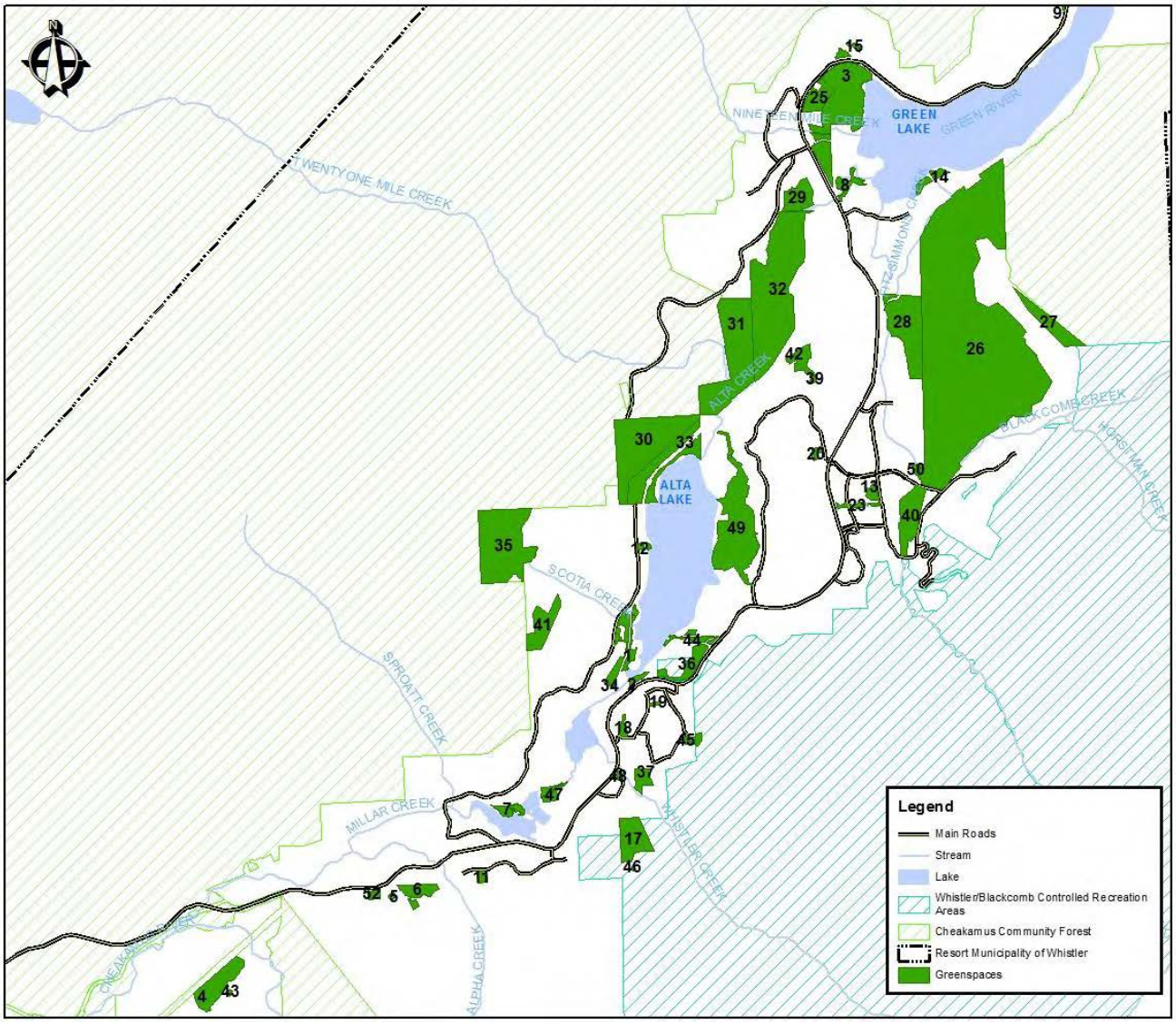


Figure 6. Location of parks and greenspaces managed by the RMOW.

Recommendation: Work with key stakeholders to identify and prioritize treatments of greenspace infrastructure that could be impacted by wildfire and requires protection. Additional funding and staff will be required to implement this recommendation.

Figure 7A and B. Lost Lake fuel management sample photographs pre-treatment (A) and post-treatment (B) Photo credit Bob Brett, Snowline Consulting.

2.6 RMOW ACHIEVEMENTS TO DATE

The RMOW is a proven leader in strategic wildfire management and fire risk mitigation initiatives. The RMOW has demonstrated this leadership by:

- Working cooperatively with the UBCM and Provincial Government to secure funding for community protection planning and fuel management;
- Changing burning and debris disposal regulations to increase debris disposal in the community and reduce costs;
- Completing door to door FireSmart assessments of single family neighbourhoods and organizing this information in a GIS environment; and
- Completing a plan to develop a landscape fuel break network, and piloting the fuel break concept in the Callaghan, in cooperation with the Cheakamus Community Forest.

Milestone achievements have been reached in the planning and implementation phases of strategic wildfire prevention and fuels management. Planning achievements include:

- Completion of the RMOW CWPP (2007), CWPP update (2011), Fire Behaviour Analysis (2013) and FireSmart Assessment Report (2014). The program has targeted areas of considerable values at risk, such as water systems and municipal parks, large hotel and residential areas as areas of priority to mitigate wildfire risk.

- Fuel management prescriptions have been developed for approximately 173 ha of high priority WUI and landscape-level prevention (Table 3).

Implementation achievements in the RMOW include approximately 93 ha of operational fuel treatment between 2004 and 2016 (Table 3). Table 4 outlines the various costs associated with all phases of prescription development and operational treatment between 2009 and 2016. The total investments made since 2009 to fuel management in the RMOW have totaled approximately $1.7 million (Table 4).

Table 3. Prescription development and treatment achievements in the RMOW (2004-2016).

Name	Year	Operations Completed?	Prescribed (ha)	Completed (ha)
2004 Lost Lake Thinning	2004	Yes	0.7	0.7
2007 Lost Lake Trail Thinning	2007	Yes	5.0	5.0
2008 Lost Lake Trail Thinning	2008	Yes	26.1	26.1
Kadenwood Treatment	2009	Yes	7.9	7.9
Horstman	2010/2013	Yes	24.4	24.4
Millar's Pond (Block 8)	2014	Yes	14.7	14.7
Brio (Block 11)	2015	Pending	8.8	-
Taluswood (Block 12)	2014	Pending	9.1	-
Callaghan Phase 1	2014	Yes	14.1	14.1

Name	Year	Operations Completed?	Prescribed (ha)	Completed (ha)
Callaghan Phase 2	2014	Pending	16.9	-
Alpine Meadows	2015	Pending	15.0	-
CCF5	2015	Pending	6.2	-
Big Timber Block 7	2016	Pending	2.4	-
Block 8-2	2016	Pending	21.2	-
Total			**172.5**	**92.9**

The RMOW has actively worked towards building local capacity for the future of the fuel management program. Local operational fuel treatment contractors were used on 80% of implementation projects and one local professional consultant was used in various capacities throughout the duration of the program; many professional consultants were used for more than one project or contract providing a significant boost to local forestry and environmental contractors.

Table 4. Total financial investments to the RMOW fuel management by funding source between 2009 and 2016.

Year	Funding Source	Amount
2009	RMOW	$29,201
	UBCM	$53,936
2010	RMOW	$54,554
	UBCM	$332,409
2011	RMOW	$30,446
	UBCM	0
2012	RMOW	$3,000
	UBCM	?
2013	RMOW	$10,000
	UBCM	$9045
2014	RMOW	$320,000
	UBCM	$191,545
2015	RMOW	$136,000
	UBCM	$300,400
2016 (budgeted)	RMOW	$388,000
	UBCM	$186,763
Total		**$1,649,909**

2.7 EXISTING KEY STAKEHOLDERS

2.7.1 UNION OF BRITISH COLUMBIA MUNICIPALITIES

The UBCM funds various community safety programs, including strategic wildfire prevention. SWPI is a group of funding programs that are administered through UBCM and managed through the Provincial Fuel Management Working Group[2]. This group includes the Ministry of Forests, Lands and Natural Resource Operations (MFLNRO) and First Nations Emergency Services Society (FNESS). This Initiative supports communities to mitigate wildfire risk in the WUI through funding CWPP development, fuel management prescription development, fuel management demonstration projects and operational fuel treatment activities/implementation[3].

For operational fuel treatment programs, UBCM will provide up to 90% funding for project costs, up to a maximum grant of $600,000/year for Regional Districts and $400,000/year for municipalities, in one calendar year. Conditions for fuel treatment funding include:

- Proposed treatment areas must be rated as extreme or high threat (as determined by the 2015 Provincial Strategic Threat Analysis (PSTA), which identifies hazardous fuels that can spot into the interface, or the 2015 Wildland Interface Threat Rating Worksheet; and
- Proposed treatment areas must be under an UBCM approved prescription.

The UBCM will subsidize up to 75% of the total project cost for fuel management prescription development and requires the community to fund the remaining 25%. Conditions for prescription development include:

- Proposed areas under application must be rated extreme or high threat (as determined by the 2015 PSTA or the 2015 Wildland Interface Threat Rating Worksheet); and
- Proposed areas must be identified for treatment in the CWPP or be pre-approved by the UBCM.

2.7.2 FOREST ENHANCEMENT PROGRAM

On February 26, 2016, the B.C. Government announced the formation of the Forest Enhancement Society of B.C. The purpose of the Society is to advance environmental and resource stewardship with a key focus on preventing and mitigating the impacts of wildfires. The RMOW has made application to the Society with the goal of advancing its landscape fuel break strategy that is based on detailed fire behaviour modelling conducted by the Municipality. The fuel breaks identified in the RMOW's fuel break strategy are summarized in Table 5 and illustrated in Figure 8.

The RMOW sees this program as an opportunity to fund a critical element of the strategy required within the Municipality. This work will complement the existing SWPI program, that provides fuel treatment funding for the Wildland Urban Interface located with 2 km of developed areas. The program has a three-year funding mandate so it's uncertain whether funds will be available through the life of this strategy document. Other funding may be required to meet the goals and mandate of the landscape fuel break strategy.

[2] http://www.ubcm.ca/EN/main/funding/lgps/strategic-wildfire-prevention.html

[3] https://ground.hpr.for.gov.bc.ca/

Table 5. Summary of fuel break treatment areas in the RMOW. (not prioritized)

Fuelbreak Name	Area (ha)
Brandywine Creek	207
Alpha Creek	160
Cheakamus River	235
Twenty-One Mile Creek	164
Sixteen Mile Creek	158
Nineteen Mile Creek	126
Blackcomb	264
Fitzsimmons Creek	188
Whistler Creek	107
Callaghan Creek	147
Total	**1756**

The total area of fuel breaks delineated is approximately 1,756 ha, however there is an area of 163 ha that directly overlaps with the hazardous fuel types discussed above (Section 2.2, Table 1) and are therefore double counted in this table. It is recognized that this is an optimum distribution of fuel breaks located throughout the Municipality and that there are likely not enough resources to implement the work in all of these proposed areas. Priority and funding should be given to areas at both the south and north ends of the Municipality and then other fuel breaks within the Municipality should be selected in conjunction with adjacent fuel management work to gain the greatest effectiveness in limiting fire growth and reducing fire behaviour potential within the community. There are additional areas within the CCF operating area that could be thinned to fuel break standards that would enhance and complement the RMOW fuel break strategy, further reducing the overall risk to the community. These areas would be managed by the CCF and as part of the memorandum of understanding would meet acceptable standards of fuel management.

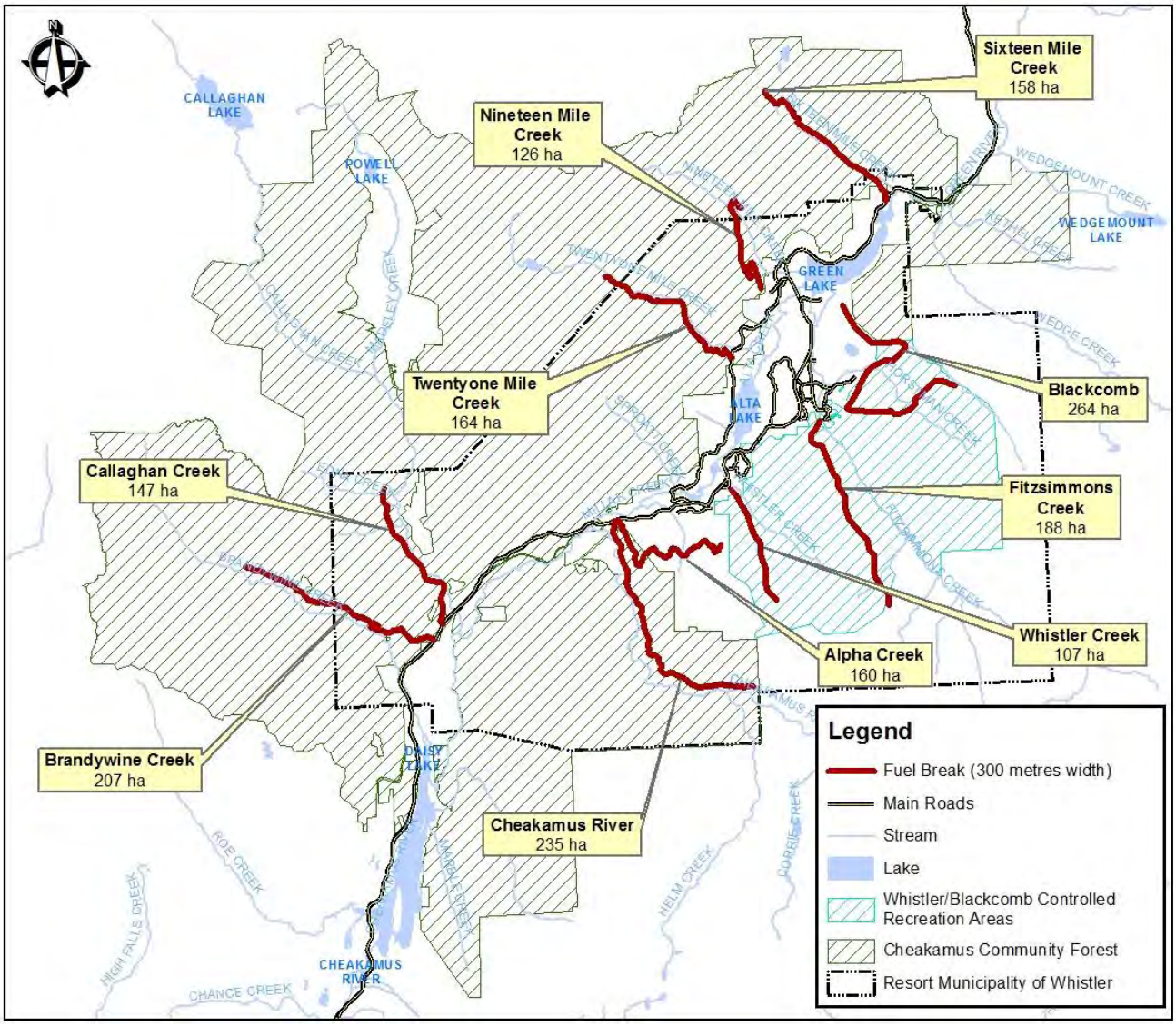


Figure 8. Fuel breaks identified in the RMOW fuel break strategy.

2.7.3 MINISTRY OF FORESTS, LANDS AND NATURAL RESOURCE OPERATIONS (MFLNRO)

The MFLNRO requires various approvals for wildfire mitigation activities occurring on Crown land where MFLNRO acts as the land manager, including:

- First Nations information sharing and consultation must be completed to Ministry standards and requires District Manager approval.

- Letters of Authorization (LOAs) are provided by the Ministry District Manager for mitigation activities that include removal of no more than 50 m^3 of unmerchantable timber on Crown Land. This approval requires prescription and treatment area reviews by the District Manager.
- A Fuel Reduction Forestry Licence to Cut (FLTC) is provided by the Ministry District Manager for mitigation activities that include removal of no more than 2,000 m^3 of merchantable timber on Crown Land. This approval requires completion of an application, and prescription and treatment area review by the District Manager.

2.7.4 LICENSEES

The Cheakamus Community Forest holds tenure throughout much of the RMOW. To date the CCF has assisted in the fuel management program through removal of merchantable wood and in the harvest of the pilot Callaghan fuel break area. Generally, their participation has been limited due to the value of the wood and the high cost of harvest working directly in and around homes within the WUI. There is an opportunity for the CCF to participate more broadly in the community wildfire protection program. This requires the completion of a memorandum of understanding related to the requirements of fuel management standards, and provides a formula for compensation of the additional costs required in implementing these standards to meet the required hazard reduction targets.

Partner with CCF (memorandum of understanding is required) to advance the application of mechanical treatments to reduce costs (see Section 4.3).

3 KEY BARRIERS TO SUCCESS

The key objectives for fuel management in the RMOW are to reduce hazardous forest fuel loads in the WUI (as identified in the CWPP) and to increase employment for local resource workers. Currently, only 8% of the prioritized areas have been treated (92 ha of the approximately 1200 ha of eligible Priority 1 Crown land) and approximately 14% of the untreated priority areas are under prescription. This section summarizes the key barriers to achieving fuel management objectives.

3.1 INSUFFICIENT FUNDING

For operational fuel treatment programs, UBCM through the Strategic Wildfire Prevention Initiative (SWPI) will provide up to 90% funding for project costs, up to a maximum grant of $400,000/year and will subsidize up to 75% of the total project cost for fuel management prescription development, requiring the community to fund the remaining 25%. SWPI funding can be used in the Wildland Urban Interface only, defined as the area within 2 kilometers of a community with a minimum density of 10 structures per square kilometer, not for the landscape level fuel breaks. Currently approximately 1,200 ha of eligible Priority 1 risks (Crown jurisdiction) have been identified and require prescription development and treatment. Considering UBCM provides an annual maximum of $400,000 and requires communities to contribute 10% of the outstanding costs this can be a large financial burden for small communities. Additionally, operational fuel treatment in the RMOW costs approximately $30,000/ha for completion. With a top up contribution from RMOW of $10,000/ha this only allows for a maximum of approximately 15-20 ha of fuel treatment annually. This is inadequate considering the extensive Priority 1 and 2

areas throughout the RMOW. Moreover, treatment of 15-20 ha annually assumes that the RMOW and/or local governments are able to contribute the maximum allowable annual community contribution in order to leverage maximum funding.

The funding model needs to be substantially improved with either more funding coming from the Province and or RMOW contributing more funds from its capital budget.

Additionally, if the scale of treatments can be expanded using mechanical methods or increase burning of debris, the program could realize further gains in efficiency.

Given the current shortfall in funding necessary to adequately protect the RMOW within the foreseeable future, to manage the current wildfire risk profile of the community, and to protect the significant contribution of the resort to the economy of British Columbia, additional support and funding certainty is required from the province. Whistler currently welcomes over 3 million people per year, generates $1.5 billion annual provincial GDP and contributes approximately 25% of BC's total tourism export revenue. The loss of forest cover and the impact to the built environment and critical infrastructure due to a wildfire would create a long term negative impact on the tourism experience of Whistler, and place significant downward pressure on visitor numbers and tourism revenues to the province.

Recommendation: Seek additional support and funding certainty from the province to accelerate the overall plan outlined in this strategy.

3.2 AVAILABLE RESOURCES

Currently, Heather Beresford, the Manager of Environmental Stewardship, is responsible for all operational fuel thinning work within the Municipality. To date she has been effectively able to manage the current program within the scope of her other responsibilities. If the program were to be increased substantially on an annual basis there is uncertainty around what additional resources would be required to assist in the management of the program. Administration of the fuels program ideally requires separate or additional resources. Furthermore, the design of a program that coordinates all programs like UBCM, FEP and the CCF and is administered at a community level would be an ideal model to manage the program.

Having a dedicated staff person(s) with secured funding in place for an operational fuel management program will improve the success and efficiency of an overall program, in addition to a coordinated strategic approach among key stakeholders (MFLNRO, UBCM, licensee, and Whistler Fire Rescue).

Another key barrier has been the cost associated with per hectare treatments. Finding efficiencies and lowering per hectare costs would allow for more area to be treated. The key way to achieve lower treatment costs is to provide a long term stable contract that provides certainty and would allow a contractor to invest in the right equipment to do the job. To date the program has been inconsistent such that a contractor could make a substantive investment in equipment that is more aligned with the requirements of the projects tendered to date. Historically, it has been

challenging to attract qualified contractors that can optimally treat the site mechanically with the optimum equipment.

It is recommended that RMOW work toward establishing a 3-5-year stewardship contract that guarantees a fixed amount of work. This contract would specify a maximum per hectare rate that could be charged in different treatment conditions but would be substantive enough and would include quality planning such that the contract rate could be reduced to a lower level when compared to the tenders of the past few seasons. The goal would be to reduce treatment costs below a threshold of $20,000/ha.

Recommendation: Secure required personnel resources to manage and administer a coordinated operational fuel management program that includes coordination with key stakeholders and funding programs.

Recommendation: Establish a 3 to 5-year operational fuel management contract with the goal of encouraging investment in technologies and equipment to increase efficiencies and reduce treatment costs

3.3 PRIVATE LAND RISKS

UBCM funding of operational fuel management programs is restricted to Crown land. However, within the RMOW the threat from wildfire occurs on both private and public lands. The effectiveness of fuel management treatment in many areas of the Municipality is limited by the extent of private land. There is no funding for private land owners to mitigate the risks of wildfire on their property.

Approximately 369 ha of private land throughout the RMOW are Priority 1 and Priority 2 risk areas. Considering the fact that public dollars cannot be spent on private land to mitigate wildfire risk, incentives, awareness and education for residents are considered increasingly important.

3.4 STAKEHOLDER SILOS

The key stakeholders tasked with managing and implementing fuel management (RMOW, Wildfire Services Branch (WSB), MFLNRO, UBCM, CCF and contractors), are working for the most part individually to meet program goals. As a result, the relationship between these organizations needs to be realigned in order to effectively address the scale of the problem.

The UBCM program lacks the necessary cohesion and coordination required to ensure administrative and operational efficiencies. This applies both at the UBCM level and the local government level. The application process should be designed to address one application for multiple areas rather than submission of individual applications for each area. Timing and flexibility in approvals needs to be streamlined, specifically in circumstances where the local government has an established track record and approved prescriptions on the shelf. The payment process could also be streamlined, such that local governments could receive an advance with a holdback and the technical, financial and GIS data approvals could be handled in one office instead of involving up to three different people in different locations.

Recommendation: Develop a multi-year plan that 1) identifies treatment areas and areas requiring maintenance that are linked to the level of funding determined as part of this process and 2) that is widely publicized so all stakeholders are aware of RMOW fuel management planning.

3.5 NEW DEVELOPMENT

Various factors contribute to wildfire threat in and around a community, including ignition sources, fuel types, and development in the WUI. Many local and regional governments have participated in the Strategic Wildfire Prevention Initiative through the UBCM by completing CWPPs and undertaking small scale fuel treatment projects. While the 2003 Filmon report attempted to promote engagement of local and regional governments through a cost-shared model, it has generally not affected the necessary level of change to address the scale of fire problems faced by communities across BC.

Enforcement of a comprehensive and consistent standard of development in high hazard wildfire zones, which occur throughout the RMOW, would be a logical step to take. This is best accomplished through the development and implementation of a Wildfire Development Permit Area (DPA). The establishment of a Wildfire DPA would require construction of new homes to standards that would ensure they are not vulnerable to wildfire or add to the wildfire risk profile of a community. This type of legislation would be similar to both flood plain and geotechnical hazard areas. Compared to other jurisdictions across North America, BC is missing a standard that links CWPP recommendations and fuel treatments to current and future development. This is a significant gap that will continue to grow with increasing development within the interface. Establishment of a Wildfire DPA will contribute to effective management of WUI developments and would mitigate this growing problem.

Application of a Wildfire DPA could include the following development scenarios:

- Renovation
- Subdivision;
- New development;
- Large parcels; and
- Alteration of land including site grading, vegetation removal, and even riparian area restoration works.

An effective Wildfire DPA would need to consider the principles of FireSmart which include:

- Managing vegetation to create defensible space around buildings;
- Rated roofing; and
- Construction materials and landscaping standards.

Specifically, Wildfire DPA guidelines generally intend to reduce fire risk by ensuring adequate setbacks between buildings and the forest edge through the use of fire resistant building materials (i.e., metal roofing, use of non-wood exterior siding, glazed windows and doors, etc.) and practices, and by removal of debris or fuels within the defensible space immediately adjacent to structures.

4 SOLUTIONS

These proposed solutions address the specific problems identified in Section 3 above. Budgets to achieve these solutions are provided in Section 5. Additionally, stand-alone projects are identified and summarized in Section 6. The purpose of these stand-alone projects is to address specific issues that would not otherwise be covered through work outlined.

4.1 SECURE FUNDING

To accelerate the current Community Wildfire Protection program, the RMOW must secure additional funding from the Provincial Government and or fund the program to a higher level with municipal resources. Largely the hazard that has been identified is on crown land and therefore it should be the responsibility of the crown. That said Whistler is not unlike many communities in B.C. where there is a significant need for funding and limited resources to address the problem. At this time, it does not appear, that outside of UBCM and FEP funding, that the Province has the resources to treat the Whistler hazard areas in a time period and scale that substantially reduces hazard within the next 10 years. At the current funding levels, it is anticipated that the program would require at least 20 years to have a meaningful impact in protecting against a large catastrophic wildfire similar to Boulder Creek. While the existing UBCM fuel modification program provides a base for funding, considerably more resources are required. The recommendations here are based on the fact that key stakeholders have a greater appetite for projects with matching funds. The potential to increase resources are as follows:

1. **Capital Project:** Consider the wildfire risk reduction as a capital project that would be completed over a 10-year cycle.

2. **UBCM:** Continue to maximize the dollars available ($400,000/year) from UBCM for both planning and prescriptions of areas that qualify for treatment under this program. The RMOW has maintained momentum and has protected some high priority areas within the Municipality. While there are limitations to the current program it has allowed the Municipality to create some fundamental building blocks in the areas of highest risk.

3. **FES Funding:** work aggressively to secure funds within the new $85 million dollar FEP program to advance the fuel break strategy and partnering with the CCF. FEP funding is independent of the UBCM with some unique opportunities to advance RMOW wildfire protection goals. The RMOW will need to work cooperatively with the Resource District in prioritizing and submitting projects and as such the RMOW has already initiated dialogue with the Resource District to start this process. It is hopeful that funding can be secured to complete the Callaghan fuel break project in 2016 and that new monetary resources in 2017 will fund additional prescription work and the development of the next priority fuel break area.

Recommendation: Secure additional funding to accelerate the Community Wildfire Protection program. Options include: capital project funding (10-year cycle), maximization of UBCM funding, and FES funding secured in coordination with MFLNRO and CCF (fuel break projects)

4.2 PUBLIC OUTREACH AND EDUCATION

A fundamental FireSmart principle is to protect individual buildings and infrastructure and work out from there. RMOW began a program in 2014 to assess and communicate individual FireSmart ratings to single family residences. More work is required to complete the assessment of the remainder of community and to develop a strategic plan to prioritize focus areas based on identified risk. Further work requires the owners of these private and publicly owned assets to be engaged and involved in risk reduction. To achieve this requires three components:

1. **Develop additional RMOW specific education and outreach material.** This can be inexpensive and based on existing material available in the public realm, such as FireSmart. What is important is that this information is tailored to target audiences within the community (single family homes, strata corporations, and businesses) and speaks directly to the specific programs that the RMOW is championing and how the RMOW can assist in facilitating FireSmart activities. These documents cannot be generic and need to be focused on what the RMOW is actually doing:

    - Comprehensive strategic approach to protecting the community and reducing risks from wildfire;
    - Coordinated links between key stakeholders to ensure a coordinated approach;
    - Tactical, community scale wildfire preparedness plans and evacuation plans;
    - Door to door assistance, as limited by funding and others;

2. **Focused and on-going public education:** To be successful this requires more than simply making available FireSmart pamphlets. Whistler Fire Rescue could stage training sessions in neighbourhood's, go door to door to talk to home owners and offer assistance to identify things that can be fixed. These include tidying up yard waste, creating a 10-m safe area around buildings and the proper placement for sprinklers. This approach has the added benefit of using fire department personnel who carry respect in the community.

3. The RMOW assessed private properties in 2014 and has already begun the development of a **web-based tool for communicating specific risk to individual properties**. The utility of this tool is that it allows individual homeowners to see where their property is in regards to existing wildfire risk rating and provide practical tools to assist them in addressing these risks. This initiative is being considered by the BC Wildfire Service, and the RMOW is well-positioned to advance this tool as a Provincial pilot opportunity. This is a recommended as a stand-alone project summarized in Section 6.

4. The RMOW has recently staffed a FireSmart coordinator position within the Fire Rescue department. This position is focused on advancing FireSmart within the community.

Recommendation: Improve public understanding of fire risk and personal/homeowner responsibility and mitigate wildfire risks on private property through increased efforts in public outreach and education.

Recommendation: The new FireSmart coordinator should develop a strategic plan based on identified risks and priorities including working with stratas.

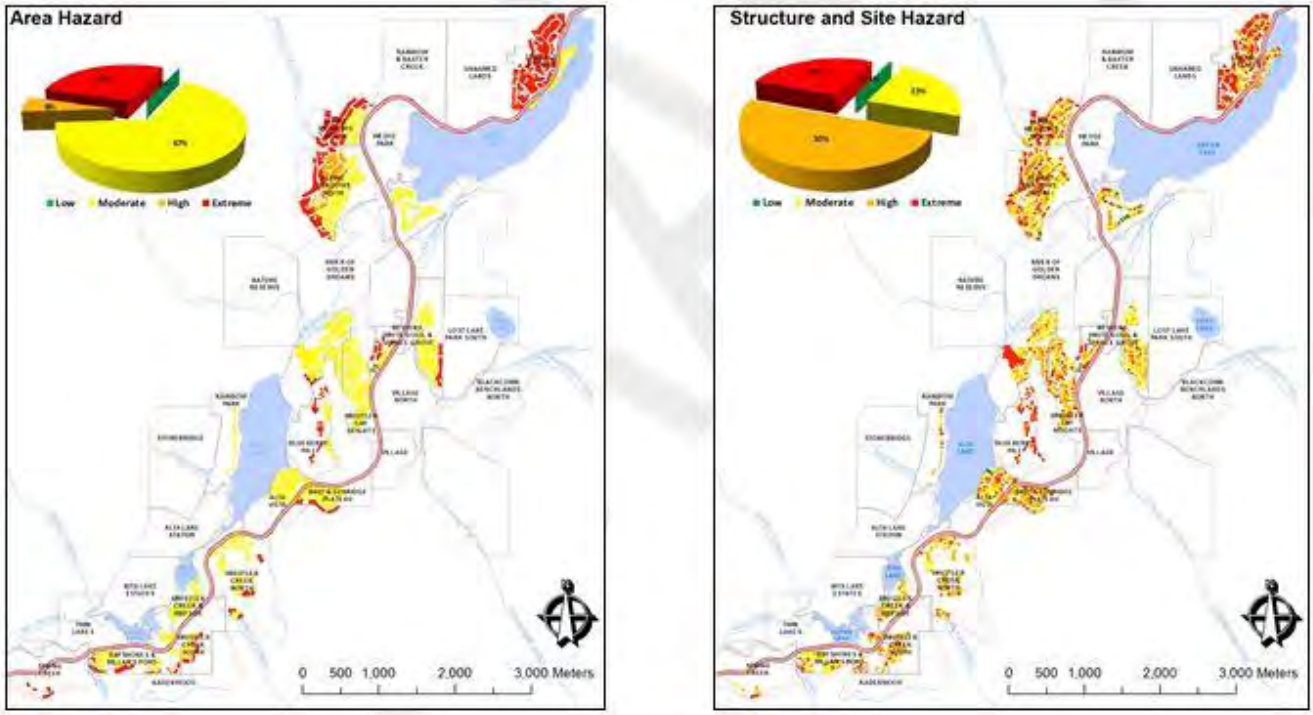
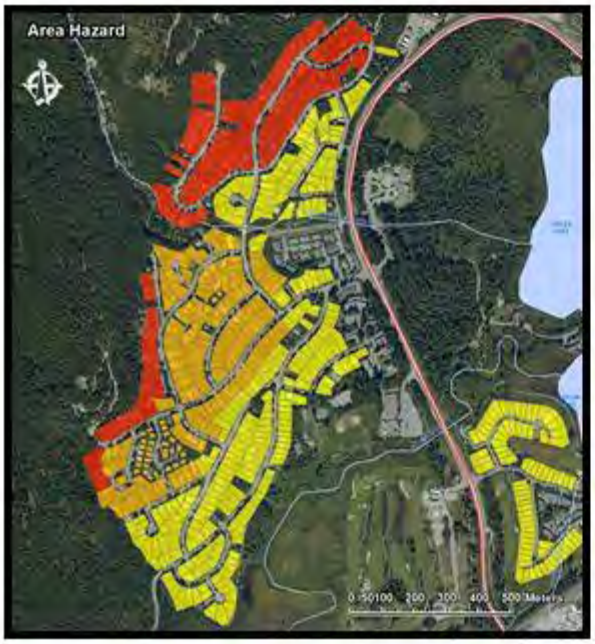


Figure 9A and B. Overview of the Whistler FireSmart Area (A) and Structure and Site Hazard rating system (B) for the RMOW.



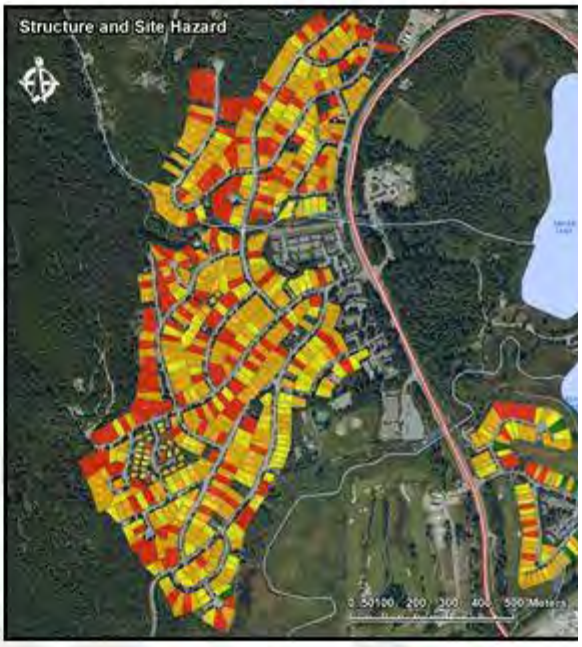


Figure 10A and B. Screen captures illustrating the hazard rating system for sample RMOW neighbourhoods including area hazard (A) and Structure and Site Hazard rating (B).

4.3 COORDINATE STAKEHOLDERS AND ADVANCED PLANNING

This review of issues that confront the RMOW in its ability to more effectively address community protection has identified the need to work together more cooperatively with other stakeholders on specific issues.

The solutions should focus on building upon existing structures and responsibilities and not by inventing a new governance model or creating new committees. The RMOW should partner with CCF in cooperating to achieve the greater good of public safety and protection. There is a tremendous opportunity here to advance the goals of both organizations working together with First Nations, creating employment and achieving a broader scale of community wildfire protection.

Landscape scale fuel management operations could involve complex, expensive and potentially controversial activities. The RMOW would need to lead this initiative with support from FES and MFLNRO, municipalities and other stakeholders in planning and prescription development. The Callaghan pilot project has provided a great learning opportunity to quantify costs, to develop appropriate prescription standards and work with tourism stakeholders. Many of the Priority 1 and 2 treatment areas overlap with the CCF tenure. For example, 52% of identified treatment areas that do not currently qualify for UBCM funding provide an excellent opportunity to highlight the opportunity for cooperation. To increase stakeholder engagement and accelerate the current scale and scope of the program the RMOW should consider:

1. **Partnering with the CCF and advancing the application of mechanical treatments to reduce costs:** Current fuel treatment costs are approximately $30,000/ha. This reflects the fact that under most circumstances no

revenues are associated with these treatments as all timber that is cut and disposed of is non-merchantable. Preliminary analysis and work in other jurisdictions suggests that these unit costs could be reduced to $5,000 to $10,000 if revenues could be included from smaller diameter merchantable timber. This would, for the most part, need to be explored in partnership with the CCF. This would require a memorandum of understanding that addresses increased standards of tree retention and debris removal. The memorandum would deal with fuel management treatment standards. Additionally, the RMOW should direct the locations and the planning of this work to make sure that it meets an effectiveness standard in addressing the potential wildfire behaviour and wildfire risk.

2. **Accelerate planning:** over the past ten years of the program the RMOW has been able to take advantage of grants and funding opportunities largely because there were shovel ready projects available. When CWPP's were first funded the RMOW was one of the first applicants, and completing the CWPP allowed the Municipality to successfully secure some of the first available fuel treatment dollars. Similarly, the development of the fuel break strategy puts the RMOW in a unique position to apply for FEP dollars to implement the strategy. Currently the RMOW is planning approximately one year in advance of any work on the ground. The RMOW should invest in a comprehensive 10-year plan including development of all prescriptions. Ideally this plan should be completed within a three-year time projection such that as new funding opportunities come available the Municipality has shovel ready projects that can be quickly implemented and take advantage of available funding sources.

   Within existing funding models (FES and SWPI) only high and extreme areas identified in the CWPP and potentially the strategic fuel breaks (this is currently in an application stage and funding status is unknown) would qualify for prescription funding. The majority of the area (1200 ha) identified within this plan would not be covered within these two programs, yet given proximity to the community and threat level, they contribute to the greater wildfire risk profile. Therefore, there is a need to fund an extensive planning exercise to address this additional area which has been allocated in the budget assumptions in Section 5. It may be possible to seek additional funding from the Province through other programs, however there is no guarantee of this. This work is considered fundamental to the success of the plan, as treatments cannot be carried out on crown land without the necessary planning, and these prescriptions provide shovel ready projects, that could receive priority funding if more monies and programs are dedicated to this important issue.

Recommendation: Coordinate stakeholders to collaboratively plan and implement landscape scale fuel management. Conduct a high-level meeting with senior staff from the key organizations as the starting point to develop a plan and cooperatively work together to implement a broader landscape level treatment strategy.

Recommendation: Partner with CCF (memorandum of understanding is required) to advance the application of mechanical treatments to reduce costs.

Recommendation: Explore opportunity for creating prescriptions based on a range of site conditions rather than unique prescriptions for each treatment unit.

Recommendation: Invest in a comprehensive 10-year action plan, ideally with a 3-year projection, to ensure projects are shovel-ready and can be implemented quickly as funding opportunities come available.

Partnerships will lead to efficiencies that could support more landscape scale treatments and help create the momentum to overcome some of the hurdles that limit success. A stand-alone project to achieve this solution is summarized in Section 6.

4.4 DEVELOPMENT PERMIT AREAS

The wildland urban interface within the RMOW will continue to grow over the coming decades, adding to the fire risk problem, and requiring more fuel management in the absence of any intervention. To address this problem, the RMOW needs to create new bylaws that minimize areas developed in the interface that are vulnerable to wildfire.

A number of communities have already begun to work on this issue. Approximately twelve local governments throughout the Province have a Wildfire Development Permit Area application process. Some of these are weaker legislatively when compared to others. The RMOW should create a development permit process that builds on the strength of DPA's created in other communities. While some might argue that this is an onerous process, it is considered one of the most important step the RMOW can take to limit wildfire related liabilities.

A sound DPA process needs to incorporate the following:

- Identifies the areas of high risk that should be included within the bylaw – this would likely be a large area of the RMOW (perhaps the majority);
- Includes RMOW staff from the fire service, emergency services, planning, building inspection, environment, and bylaw enforcement in the design and implementation of the process;
- Contains standards for vegetation setbacks, building material and construction standards, evacuation and ingress standards to maintain fire fighter safety; and
- Involves Qualified Professionals with recognized experience and training in protecting communities from wildfire.

In 2014 a Wildfire DPA proposal was put before managers for funding. There were concerns about the impact of this proposal on the costs and burden placed on developers. While there are additional costs and requirements for developers in this process, these have been promoted and accepted in communities with a lower wildfire risk profile. Both the North Vancouver District and the District of Maple Ridge have successfully implemented the DPA process with limited impact on the development community. The RMOW risk profile is considerably higher and the vegetation proximity (forest surrounds the community) and the building design (large amounts of wood characterize much of the building stock) make RMOW homes and businesses highly vulnerable to wildfire. A DPA is required to limit further development that is vulnerable and that slowly converts existing housing stock to a less vulnerable condition. It is important to note that in the absence of this approach that the effectiveness of the fuel treatment work that is being conducted on crown land will be reduced.

Given the experience in Kelowna, Slave Lake and now Fort McMurray, the RMOW may want to follow the lead of the District of North Vancouver, which developed an all hazards DPA that includes flood, wildfire, and slope stability[4].

Recommendation: Enforce a comprehensive and consistent standard of development in high hazard wildfire zones through the development and implementation of a Wildfire Development Permit Area (DPA).

A stand-alone project to achieve this solution is summarized in the Section 6.

5 BUDGET

5.1 BUDGET ASSUMPTIONS

These revenue and expense projections are built around two distinct options as follows:

Option 1 Mid-Range: This option assumes annual treatment, over a ten-year timeline, of 30 hectares (ha) in the Wildland Urban Interface (WUI) (25% of identified Crown land Priority 1 treatment areas) and 40 ha of landscape fuel breaks. Total annual budget is $1,500,000 in year one, $1,800,000 in year 2, $1,750,000 in years 3 through 5 and $1,500,000 in years 6 through 10. **Total 10-year budget is $16,050,000**.

Option 2 Upper Range: This option assumes a doubling of the total treatment areas for annual treatment, over a ten-year timeline, of 60 ha in the WUI (50% of identified Crown land Priority 1 treatment areas) and 80 ha of landscape fuel breaks. Total annual budget is $2,896,000 in year one, $3,196,000 in year 2, $3,146,000 in years 3 through 5, and $2,896,000 in years 6 through 10. **Total 10-year budget is $30,010,000.**

The following activities are common to both budget options and are included in the total annual and total 10-year costs cited above:

- RMOW project funding of:
    - A comprehensive 10-year plan to identify and develop all fuel break and WUI treatment prescriptions as shovel ready projects ($250,000 per year over 4 years for a total of $1,000,000),
    - A Wildfire Development Permit Area program ($50,000 total); and
- RMOW operations funding of an annual Neighourhood FireSmart Support Program. The program will focus on hiring a contractor, public awareness, a marketing campaign, material removal, and partnering with existing champions ($100,000 per annum for a total of $1,000,000).

[4] https://www.dnv.org/property-and-development/development-permit-areas

5.1.1 OPTION 1: MID-RANGE (30 HECTARES WILDLAND URBAN INTERFACE [WUI] AND 40 HECTARES FUEL BREAK)

Assumptions for this option are as follows:

- Objective is to treat 30 hectares in the WUI per year over a ten-year timeline (25% of Crown land Priority 1 areas)
    - Apply for maximum available UBCM funding for Fuel Modification treatments: $400,000 per year (this provides two thirds funding to treat 20 ha).
    - RMOW Project funds of $200,000 to cover the remaining one third cost to treat 20 ha.
    - RMOW Project funds of $300,000 per year to provide full funding for the remaining 10 hectares to be treated each year to reach the 30-ha objective.
    - Apply for $50,000 UBCM funding per year for writing WUI prescriptions.
- Landscape Fuel Breaks – Objective is to treat 40 hectares per year at an average cost of $10,000 per hectare and approximately $1400 per hectare for prescriptions ($450,000 total)
    - Apply for Forest Enhancement Society Forest Enhancement Program (FEP) funding of $250,000 annually for prescriptions and treatment operations funding to develop the fuel break network (covers 20 hectares treated per year)
    - RMOW project funding of $200,000 per year (remaining 20 hectares funded for treatment)
- Fund a comprehensive 10-year plan to identify and develop all fuel break and treatment prescriptions as shovel ready projects $1,000,000 – one-time investment ($250,000 per year over 4 years).
- Fund and manage a Wildfire Development Permit Area (DPA) program - $50,000.
- FireSmart Program – contractor, public awareness, marketing campaign, material removal, and partnering with existing champions - $100,000.

Table 6. Option 1 Projects: 30 hectares Wildland Urban Interface (WUI), 40 hectares of Fuel Breaks

Projects (with funding source)	2017 ($)	2018 ($)	2019 ($)	2020 ($)	2021 ($)	2022 ($)	2023 ($)	2024 ($)	2025 ($)	2026 ($)
Ten-year Budget Commitment										
1. Wildland Urban Interface Fuel Thinning	**950,000**	**950,000**	**950,000**	**950,000**	**950,000**	**950,000**	**950,000**	**950,000**	**950,000**	**950,000**
• UBCM Grants	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000
• RMOW Budget	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
• Prescriptions – UBCM Grants	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
2. Fuel Breaks	**450000**	**450000**	**450000**	**450000**	**450000**	**450000**	**450000**	**450000**	**450000**	**450000**
• Fuel Break Prescriptions and Treatment (Forest Enhancement Society Grants)	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000
• RMOW Funding	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
3. Wildfire DPA (RMOW Funding)		**50,000**	-	-	-	-	-	-	-	-
4. Neighbourhood FireSmart (RMOW Funding)	**100,000**	**100,000**	**100,000**	**100,000**	**100,000**	**100,000**	**100,000**	**100,000**	**100,000**	**100,000**
5. Comprehensive 10-year Prescription Plan (RMOW Funding)		**250000**	**250000**	**250000**	**250000**	-	-	-	-	-
Total Commitment	**1,500,000**	**1,800,000**	**1,750,000**	**1,750,000**	**1,750,000**	**1,500,000**	**1,500,000**	**1,500,000**	**1,500,000**	**1,500,000**
Ten-year Funding Model - Option 1										
UBCM	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000
Forest Enhancement Society	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000
RMOW Project	700,000	1,000,000	950,000	950,000	950,000	700,000	700,000	700,000	700,000	700,000
RMOW Operations	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Total Funding	**1,500,000**	**1,800,000**	**1,750,000**	**1,750,000**	**1,750,000**	**1,500,000**	**1,500,000**	**1,500,000**	**1,500,000**	**1,500,000**

Table 7. Option 1 Total 10-year Budget Commitments

Agency	Contribution ($)
RMOW Project Budget	8,050,000
RMOW Operations Budget	1,000,000
UBCM Program*	4,500,000
Other Government Program**	2,500,000
Total 10-year commitment	**16,050,000**

*UBCM Fuel Modification and Prescription Programs (availability of program funding subject to change)

**Options currently include Forest Enhancement Program (availability of program funding subject to change)

5.1.2 OPTION 2: 60 HECTARES WUI AND 80 HECTARES FUEL BREAK

Assumptions for this option are as follows:

- Objective is to treat 60 hectares in the Wildland Urban Interface (WUI) per year over a ten-year timeline (50% of Crown land Priority 1 areas)
    - Apply for maximum available UBCM funding for Fuel Modification treatments: $400,000 per year. This provides two thirds funding to treat 20 WUI hectares.
    - RMOW Project funds of $200,000 to cover remaining one third cost to treat 20 WUI hectares.
    - RMOW Project funds of $1.2 million per year to provide full funding for the remaining 40 ha to be treated each year to reach the 60-ha objective.
    - Apply to UBCM for $84,000 funding per year for writing WUI prescriptions. (60 ha * $1400)
- Landscape Fuel Breaks – Objective is to treat 80 hectares per year at average treatment cost of $10,000 per hectare and $1400 per hectare for prescriptions ($912,000 total)
    - Apply for Forest Enhancement Society Forest Enhancement Program (FEP) funding of $512,000 per year for 80 hectares of prescriptions and 40 ha treatment funding
    - RMOW project funding of $400,000 per year for treatment for the remaining 40 hectares
- Fund a comprehensive 10-year plan to identify and develop all fuel break and treatment prescriptions as shovel ready projects $1,000,000 – one-time investment ($250,000 per year over 4 years).
- Fund and manage a Development Permit Area (DPA) program - $50,000.
- Neighbourhood FireSmart Program - contractor, public awareness, marketing campaign, material removal, and partnering with existing champions - $100,000.

Table 8. Option 2 Projects: 60 hectares Wildland Urban Interface and 80 hectares of fuel breaks.

Budget Item (Funding Source/Program)	2017 ($)	2018 ($)	2019 ($)	2020 ($)	2021 ($)	2022 ($)	2023 ($)	2024 ($)	2025 ($)	2026 ($)
Ten-year Budget Commitment										
1. Wildfire Urban Interface Fuel Thinning	**1,884,000**	**1,884,000**	**1,884,000**	**1,884,000**	**1,884,000**	**1,884,000**	**1,884,000**	**1,884,000**	**1,884,000**	**1,884,000**
• UBCM Grants	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000
• RMOW Budget	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000	1,400,000
• Prescriptions – UBCM Grants	84,000	84,000	84,000	84,000	84,000	84,000	84,000	84,000	84,000	84,000
2. Fuel Breaks	**912,000**	**912,000**	**912,000**	**912,000**	**912,000**	**912,000**	**912,000**	**912,000**	**912,000**	**912,000**
• Fuel Break Prescriptions and Treatment (Forest Enhancement Society grants)	512,000	512,000	512,000	512,000	512,000	512,000	512,000	512,000	512,000	512,000
• Fuel Breaks (RMOW Funding)	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000	400,000
3. Wildfire DPA (RMOW Funding)		50,000	-	-	-	-	-	-	-	-
4. Neighborhood Firesmart (RMOW Funding)	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
5. RMOW Project/ Comprehensive 10-year Plan		250000	250000	250000	250000	-	-	-	-	-
Total Commitment	**2,896,000**	**3,196,000**	**3,146,000**	**3,146,000**	**3,146,000**	**2,896,000**	**2,896,000**	**2,896,000**	**2,896,000**	**2,896,000**
Ten-year Funding Model - Option 2										
UBCM	484,000	484,000	484,000	484,000	484,000	484,000	484,000	484,000	484,000	484,000
Forest Enhancement Society	512,000	512,000	512,000	512,000	512,000	512,000	512,000	512,000	512,000	512,000
RMOW Project	1,800,000	2,100,000	2,050,000	2,050,000	2,050,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000
RMOW	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Total Funding	**2,896,000**	**3,196,000**	**3,146,000**	**3,146,000**	**3,146,000**	**2,896,000**	**2,896,000**	**2,896,000**	**2,896,000**	**2,896,000**

Table 9. Option 2 Total 10-year Budget Commitments

Agency	Contribution ($)
RMOW Project Budget	19,050,000
RMOW Operations Budget	1,000,000
UBCM Program*	4,840,000
Other Government Program**	5,120,000
Total 10-year commitment	**30,010,000**

*UBCM Fuel Modification and Prescription Programs (availability of program funding subject to change)

**Options currently include Forest Enhancement Program (availability of program funding subject to change)

6 STAND-ALONE PROJECTS

In addition to the recommendations listed in section 5 with costs in section 6, the following stand-alone projects are intended to further strengthen the capacity of the RMOW to protect communities:

Stand Alone 1: Web-based Tool

Secure funding to partner with the BC Wildfire Service to develop a stand-alone project based on 2014 property risk assessments to design and implement a web-based tool for homeowners to evaluate their relative risk and provide tools to help reduce this risk.

Stand Alone 2: Coordinated Stakeholders

Secure funding to design a pilot project with two or three licensees to coordinate activities and reduce costs. In addition, create the institutional support with communities, RMOW staff, local government and the Province.

Stand Alone 3: **Development Permit Areas**

Secure funding to develop new bylaws and create Wildfire DPA. Strike a staff committee involving all coordinating departments and consult externally with realtors, builders and developers.

7 REFERENCES

Economic Partnership Initiative Committee. 2016. 2016 Updated Summary of Key Findings and Economic Planning Report. Weblink: https://www.whistler.ca/media/news/whistlers-economic-partnership-initiative-report-updated. Accessed November 21, 2016.

B.A. Blackwell & Associates Ltd. 2014. Resort Municipality of Whistler FireSmart 2014 Assessment Report. Contract Report.

FESBC. 2016. Forest Enhancement Society of British Columbia. FESBC Process. Weblink: http://fesbc.ca/process.html

WHISTLER

REPORT | ADMINISTRATIVE REPORT TO COUNCIL

PRESENTED:	January 24, 2017	**REPORT:**	17- 003
FROM:	Resort Experience	**FILE:**	LLR 1271
SUBJECT:	LLR 1271 – BAR OSO NEW LIQUOR PRIMARY PATIO		

COMMENT/RECOMMENDATION FROM THE CHIEF ADMINISTRATIVE OFFICER

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

RECOMMENDATION

That Council pass the resolutions attached as Appendix "A" to Administrative Report to Council No. 17-003 providing Council's recommendation to the Liquor Control and Licensing Branch regarding an Application from Bar Oso for a Structural Change to Liquor Primary Licence No. 162781 to add a new outdoor patio with an occupant load of eight persons; and further

That Council pass the resolutions attached as Appendix "B" to Administrative Report to Council No. 17- 003 providing Council's recommendation to the Liquor Control and Licensing Branch regarding an Application from Bar Oso for a Structural Change to Liquor Primary Licence No. 162781 to increase the upper floor interior occupant load from 28 to 30 persons and to decrease the lower floor occupant load from 70 to 62 persons.

REFERENCES

Applicant: Bar Oso
Location: 4222 Village Square

Appendices:

"A" – RMOW Resolution – Structural Change to a Liquor Primary Licence (Patio)
"B" – RMOW Resolution – Structural Change to a Liquor Primary Licence (Interior)
"C" – Location Plan
"D" – Letter from Rising Tide Consultants dated January 3, 2017
"E" – Occupant load stamped plan upper floor and patio
"F" – Occupant load stamped plan lower floor
"G" – Minutes of January 12, 2017 Liquor Licence Advisory Committee Meeting (relevant excerpts)

PURPOSE OF REPORT

This report presents recommendations for Council's consideration regarding an application for a structural change to a liquor primary licence to add a new outdoor patio to Bar Oso and to change (decrease) the interior occupant load of the establishment. For these types of licence amendments the provincial Liquor Control and Licensing Branch (LCLB) requires local government comment in the form of a resolution from Council regarding the suitability of the licence change and specifically addressing considerations relating to the potential for noise, the impact on the community, the views of residents and a recommendation as to whether the licence amendment should be approved.

DISCUSSION

Establishment Location, Current Capacity and Hours

Bar Oso is located at 4222 Village Square in Blackcomb Lodge (shown on Appendix "C") and operates with liquor primary licence No. 162781. The lower floor (basement) area is currently licenced for 70 persons, and the upper floor (Village Stroll level) interior area is currently licensed for 28 persons. There is currently no patio. The hours of liquor service are 9 a.m. to 1 a.m. Monday through Sunday. The establishment has a Family Foodservice term and condition which permits minors accompanied by a parent or guardian in all licensed areas until 10 p.m. when meal service is available.

Application for New Liquor Primary Patio and Change in Interior Occupant Load

Bar Oso is applying to add an eight person capacity outdoor patio to the covered area to the right of the front door of the establishment. (See applicant letter of Appendix "D".) Patio seating will consist of two high top tables, each with four chairs. The patio plan and relationship to the existing establishment are shown on the upper floor occupant load stamped plan drawing of Appendix "E".

As part of the LCLB application, Bar Oso proposes to change the interior occupant loads (capacities) of the establishment. The upper floor plan drawing of Appendix "E" has been stamped by Whistler Fire Rescue Service for an occupant load of 30 persons, an increase from the current 28 persons. The lower floor plan drawing of Appendix "F" has been stamped with an occupant load of 62 persons, a reduction from the current 70 persons. These two changes will decrease the total interior capacity to 92 persons from the current 98 persons. With the addition of the proposed eight person patio the total Bar Oso licensed capacity will be 100 persons, the maximum permitted by the number of washrooms in the establishment.

The proposed patio is also the subject of Development Permit DP1524 for the addition of eight seats and two planters on an existing covered outdoor space adjacent to Bar Oso. The development permit process is administered by the municipal Planning Department, and planning staff support the patio development subject to support of the liquor licence. Approval of DP1524 is delegated to the General Manager of Resort Experience, and that approval will be coordinated with the municipal review and support of the liquor licence change application.

LCLB Review Process

Bar Oso has submitted an application to the LCLB for a Structural Change to a Liquor Primary Licence to add a new outdoor patio and to change the interior occupant loads. For this type of application the LCLB requires local government comment in the form of a resolution from Council regarding the suitability of the licence change and specifically addressing the potential for noise, the impact on the community, the views of the residents and a recommendation as to whether the licence amendment should be approved.

Municipal Review Process

For this type of application Council Policy G-17 specifies a public advertising period, a good standing review, a Liquor Licence Advisory Committee (LLAC) referral/report/recommendation, a staff report to Council and a Council resolution to the LCLB in a prescribed format. Also part of the municipal review is a referral of the proposed floor plan drawings of the establishment for building code compliance and a determination of occupant load.

Current Good Standing Status

In order for the Municipality to give consideration to an application requesting a permanent change to a licence the applicant must be in "Good Standing" with respect to the compliance and enforcement history of the establishment. A Good Standing review was conducted to determine the compliance history of the applicant. The application was referred to the LCLB inspector, the Whistler Detachment of the RCMP, the Whistler Fire Rescue Service and the RMOW Building and Bylaws Departments. Each was asked to provide a written list of any contraventions and their disposition for the 12-month period preceding the date of the application and any other comments considered to be relevant. There were no compliance issues identified, and the RCMP has determined the establishment to be in Good Standing.

Liquor Licence Advisory Committee Review Process

A summary of the applicant's proposal was referred by e-mail to LLAC members on December 5, 2016 and members were asked to provide their initial comments. Staff then prepared a report, which was presented at the January 12, 2017 meeting of the committee. The report addressed the LLAC review criteria regarding the need for the licence changes and the potential impacts on the resort community. The applicant then provided a further rationale for the proposed licence changes and addressed LLAC member questions about the application. (Relevant excerpts of the minutes of the LLAC meeting are attached herein as Appendix "G".) The committee then passed the following motion:

> **That** the Liquor Licence Advisory Committee supports the application from Bar Oso for the addition of an eight person capacity patio, with the condition that fire access be maintained.

LLAC members suggested that the fire access requirement for the patio area should be added to the Bar Oso Good Neighbour Agreement. Staff will ensure that such a clause will be included.

LLAC members had no concerns with the proposed changes to upper and lower floor interior occupant loads, which will reduce the Bar Oso total interior capacity from 98 persons to 92 persons. It was concluded that a formal recommendation from the committee was not needed, because the change will result in a net reduction in the interior capacity of the establishment.

WHISTLER 2020 ANALYSIS

W2020 Strategy	TOWARD Descriptions of success that resolution moves us toward	Comments
Visitor Experience	The resort community's authentic sense of place and engaging, innovative and renewed offerings attract visitors time and time again	Patio areas in Whistler are in high demand in good weather, especially for ski après and during summer daylight hours. Bar Oso's location on the Village Stroll facing Village Common is well positioned in meeting the demand for patio service by both visitors and residents in a key location in Whistler Village Centre.
Economic	The Whistler economy provides opportunities for achieving competitive return on invested capital	The licence change will permit the local business the opportunity to invest in the creation of a new amenity in response to customer demand from visitors and residents.

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	There is potential for a new liquor primary licensed patio adjacent to the Village Stroll to result in disturbances and objectionable noise, especially at night. Guests of Blackcomb Lodge and Village Common area could be negatively impacted, if the establishment is not properly managed. If the application is approved, there is not expected to be a significant increase in noise from the establishment. Bar Oso does not have history of noise or disturbances, and the proposed eight person capacity patio is unlikely to be a source of objectionable noise. Management has agreed to turn off amplified music (if any) on the patio by 10 p.m. Further, the establishment is subject to the provisions of the RMOW Noise Control Bylaw No. 1660, 2004. The Good Neighbour Agreement commits the applicant to limit noise disturbances, to close doors and windows by 10 p.m. and to comply with the municipal Noise Control Bylaw.
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 new liquor service area has the potential for over-service and/or excessive consumption. Bar Oso has signed a Good Neighbour Agreement that commits it to procedures and training to avoid potentially adverse effects of their products and services.

OTHER POLICY CONSIDERATIONS

Under policies developed and supported by the Liquor Licence Advisory Committee and in Council Policy G-17 *Municipal Liquor Licensing Policy*, a structural change to add a new outdoor patio to a liquor primary licence specifies a public advertising period, a good standing review, a LLAC referral/report/recommendation, a staff report to Council and a Council resolution to the LCLB in a prescribed format.

COMMUNITY ENGAGEMENT AND CONSULTATION

In compliance with municipal policy the applicant advertised the proposed permanent licence change to the Bar Oso liquor primary licence in the December 8 and December 15, 2016 editions of Pique Newsmagazine, and they posted a sign at the establishment (commencing December 8, 2016) in order to provide opportunity for public comment. The advertisements and sign requested that any comments be provided in writing to municipal staff on or before January 7, 2017. No comments were received.

SUMMARY

This report presents an application from Bar Oso for a structural change to a liquor primary licence to add a new outdoor patio and to change (decrease) the interior occupant load of the establishment. The report also provides resolutions in support of the application for Council's consideration that address criteria specified by the LCLB. These resolutions are a result of the application of municipal policy and consultation with the community.

Respectfully submitted,
Frank Savage
PLANNER
for
Jan Jansen
GENERAL MANAGER OF RESORT EXPERIENCE

APPENDIX A

General Manager,
Liquor Control and Licensing Branch

RE: Application for a Structural Change to a Liquor Primary Licence to add a new outdoor patio with an occupant load of eight persons as an amendment to Bar Oso liquor primary licence No. 162781.

At the Council meeting held on January 24, 2017 the Council passed the following resolution with respect to the application for the above named amendment:

"Be it resolved that:

1. The Council recommends the amendment to the licence for the following reasons:
   The proposed licensing will provide for improved customer service for both visitors and residents and will not have any significant negative impacts on the resort community. The applicant has entered into a Good Neighbour Agreement and Noise Mitigation Plan with the Municipality.

2. The Council's comments on the prescribed considerations are as follows:
   (a) The potential for noise if the application is approved:
   If the application is approved, there is not expected to be a significant increase in noise from the establishment. The main concern of outdoor patios is late night noise, especially when nearby accommodation units can be disturbed. Bar Oso does not have history of noise or disturbances, and the proposed eight person capacity patio is unlikely to be a source of objectionable noise. Management has agreed to turn off amplified music (if any) on the patio by 10 p.m. Further, the establishment is subject to the provisions of the RMOW Noise Control Bylaw No. 1660, 2004. The Good Neighbour Agreement commits the applicant to limit noise disturbances, to close doors and windows by 10 p.m. and to comply with the municipal Noise Control Bylaw

   (b) The impact on the community if the application is approved:
   If the application is approved the impact on the community will likely, on balance, be positive by meeting the service expectations of both visitors and residents. Negative impacts on the community are not anticipated as a result of the requested change to the licence.

   (c) The views of residents:
   Council believes that residents are in favour of the application and that residents are not opposed to the application. The method used to gather the views of residents was placement of an information sign at the front of the establishment (on December 8, 2016) and advertisements in the December 8 and December 15, 2016 editions of Pique Newsmagazine. No comments were received. Further, the municipal Liquor Licence Advisory Committee, a committee of municipal Council comprising various community representatives, voted to support the application."

The undersigned hereby certifies the above resolution to be a true copy of the resolution passed by the Council of the Resort Municipality of Whistler on January 24, 2017.

Sincerely,

Laurie-Anne Schimek
MUNICIPAL CLERK
Resort Municipality of Whistler

APPENDIX B

General Manager,
Liquor Control and Licensing Branch

RE: Application for a Structural Change to a Liquor Primary Licence to increase the Bar Oso upper floor interior occupant load from 28 to 30 persons and to decrease the lower floor occupant load from 70 to 62 persons as an amendment to liquor primary licence No. 162781.

At the Council meeting held on January 24, 2017 the Council passed the following resolution with respect to the application for the above named amendment:

"Be it resolved that:

1. The Council recommends the amendment to the licence for the following reasons:
   The proposed licensing will provide for improved customer service for both visitors and residents and will not have any significant negative impacts on the resort community. The applicant has entered into a Good Neighbour Agreement and Noise Mitigation Plan with the Municipality.
2. The Council's comments on the prescribed considerations are as follows:
   (a) The potential for noise if the application is approved:
   If the application is approved there is not expected to be an increase in noise from the establishment, as the total interior occupant load will decrease from 98 to 92 persons. Bar Oso does not have history of noise or disturbances, and the proposed changes to the interior occupant load would be unlikely to result in an increase in noise. Further, the establishment is subject to the provisions of the RMOW Noise Control Bylaw No. 1660, 2004. The Good Neighbour Agreement commits the applicant to limit noise disturbances, to close doors and windows by 10 p.m. and to comply with the municipal Noise Control Bylaw
   (b) The impact on the community if the application is approved:
   If the application is approved the impact on the community will likely, on balance, be positive by meeting the service expectations of both visitors and residents. Negative impacts on the community are not anticipated as a result of the requested change to the licence.
   (c) The views of residents:
   Council believes that residents are in favour of the application and that residents are not opposed to the application. The method used to gather the views of residents was placement of an information sign at the front of the establishment (on December 8, 2016) and advertisements in the December 8 and December 15, 2016 editions of Pique Newsmagazine. No comments were received."

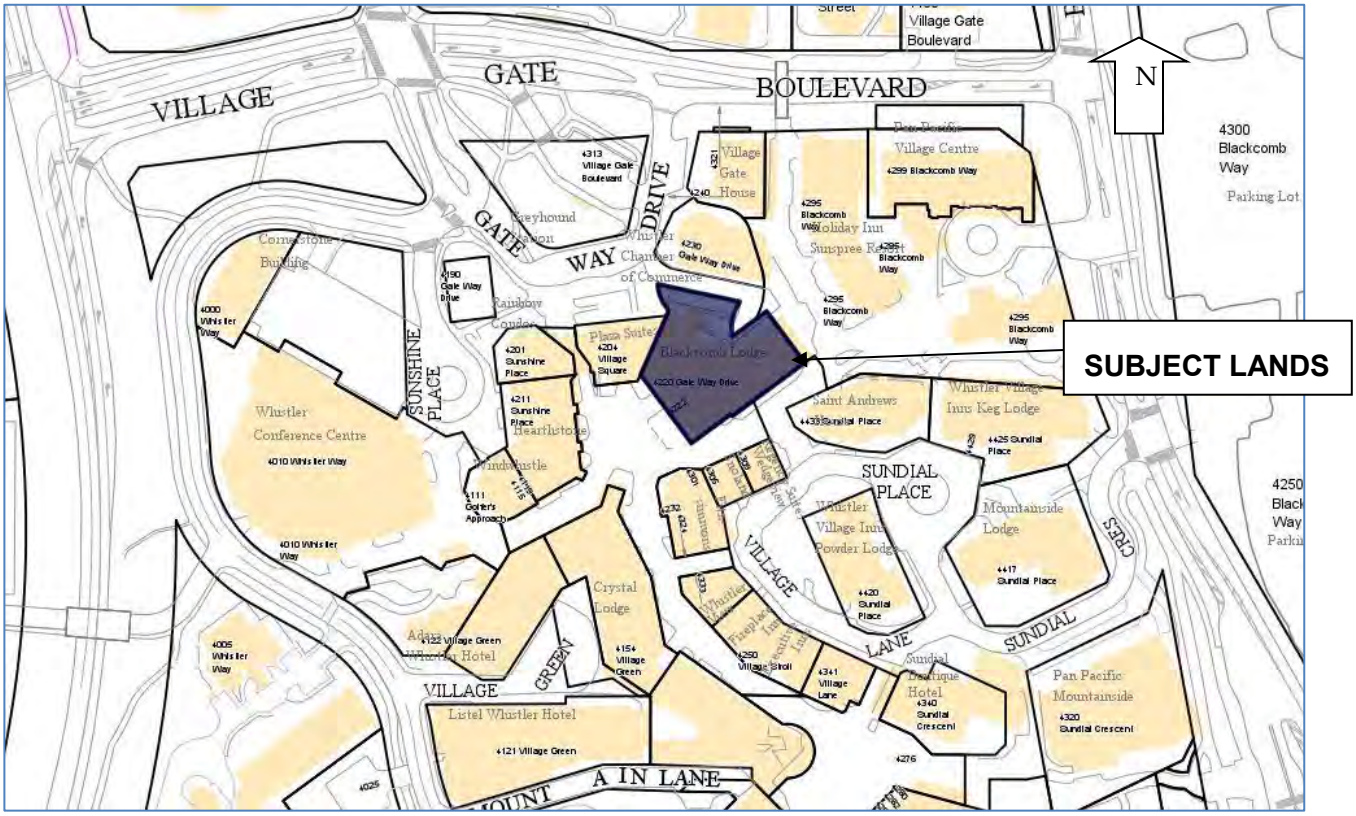
The undersigned hereby certifies the above resolution to be a true copy of the resolution passed by the Council of the Resort Municipality of Whistler on January 24, 2017.

Sincerely,

Laurie-Anne Schimek
MUNICIPAL CLERK
Resort Municipality of Whistler

APPENDIX C

LOCATION PLAN – BAR OSO



RisingTide CONSULTANTS

Experts in liquor licensing for the success of your business

January 3, 2017 **VIA EMAIL**

Mr. Frank Savage, Planner
Planning Services
Resort Municipality of Whistler
4325 Blackcomb Way
Whistler, B.C. VON 1B4

Dear Frank:

Re:	**Letter of Rationale for Application for a new Patio**
At:	**Bar Oso**
Address:	**4222 Village Square, Whistler, BC**
Licensee:	**0995300 BC Ltd.**

The writer is assisting the above applicant with a request to the Resort Municipality of Whistler and the Liquor Control & Licensing Branch for a structural change application to add a new patio area at Bar Oso.

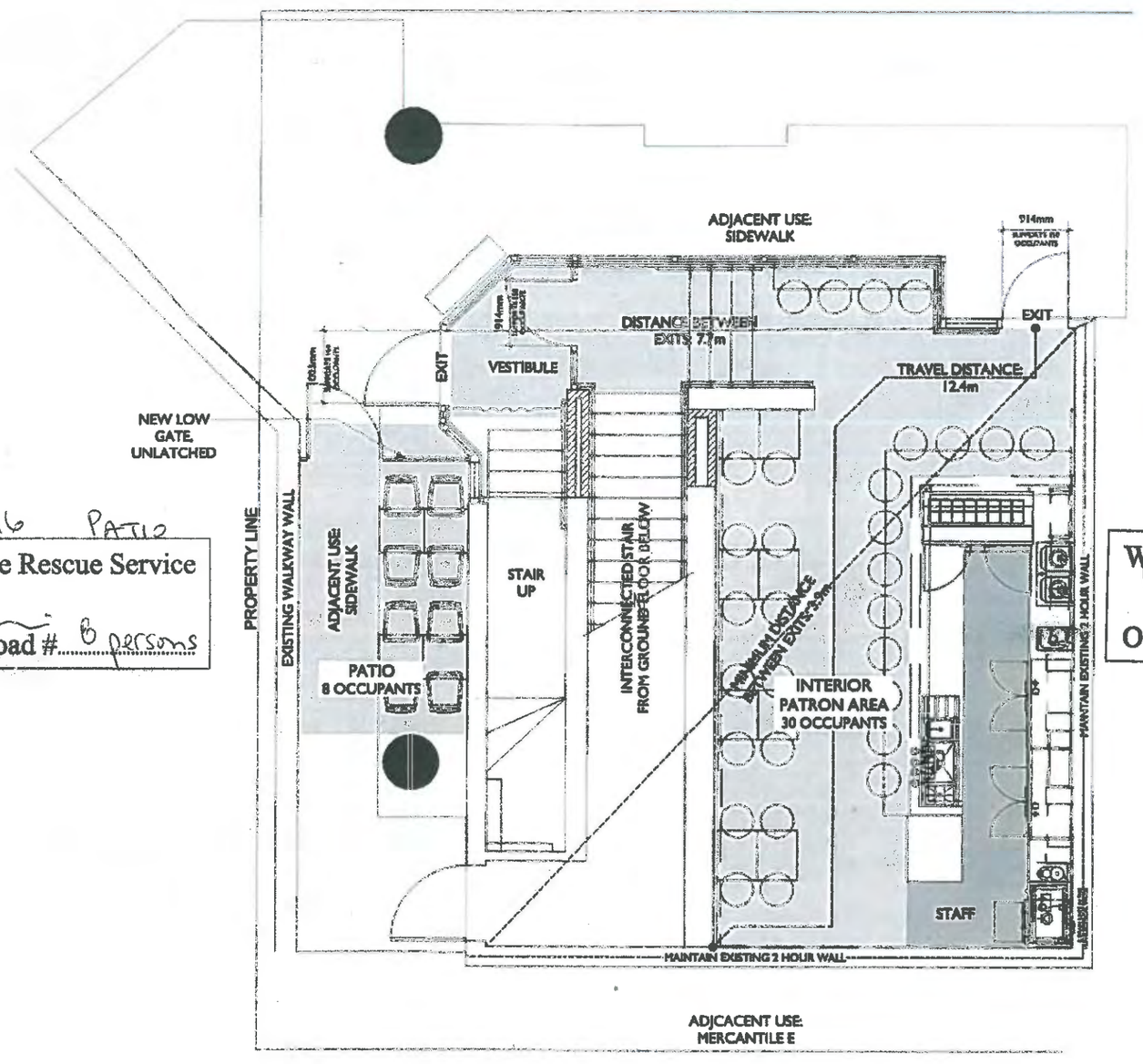
Bar Oso is requesting a structural change to allow for a small 8 person patio just outside their main entrance. This structural change application is to reduce the capacity of the lower area from 70 to 62, increase the capacity of the upper area from 28 to 30 and add a new 8 person patio for a total capacity of 100 persons which is the maximum allowable due to the washroom count.

Bar Oso does not envisage any adverse impacts on the community in regard to this new patio. Indeed, it will have very positive impacts and benefits.

Do not hesitate to contact me if you require further information.

Yours truly,

Edna Lizotte
Licensing Specialist



1 2nd STOREY CODE COMPLIANCE PLAN
1 : 30

TOPTABLE GROUP CODE ANALYSIS - UPPER FLOOR

CODE APPLIED	BC BUILDING CODE, 20 2 EDITION
PART APPLIED	PART 3
PROJECT TYPE	ALTERATION, NO CHANGE OF USE NO ADDITION
BUILDING AREA	1700 m2
SUITE AREA	646 m2
BUILDING HEIGHT	4 STOREYS
MAJOR OCCUPANCIES	A2, C, E
NUMBER OF STREETS FACING	3 STREETS
BUILDING CLASSIFICATION	3.2.2.24, 3.2.2.50, 3.2.2.63
SPRINKLERS	NFPA 13
CONSTRUCTION ALLOWED	NON-COMBUSTIBLE NON-COMBUSTIBLE USED
REQUIRED CONSTRUCTION: FLOORS	1 HOUR
REQUIRED CONSTRUCTION: MEZZANINES	1 HOUR
REQUIRED CONSTRUCTION: ROOFS	N/A
REQUIRED CONSTRUCTION: COLUMNS, WALLS	1 HOUR
OCCUPANT LOAD:	
PATRON AREA:	37.0m2 @ 1.2m2/OCCUPANT = 30 OCCUPANTS
PATIO AREA:	0.0m2 @ 1.2m2/OCCUPANT = 0 OCCUPANTS
BAR & KITCHEN AREAS:	5.8m2 @ 9.3m2/OCCUPANT = 1 OCCUPANTS
TOTAL INTERIOR OCCUPANT LOAD:	39 OCCUPANTS
NUMBER OF EXITS REQUIRED	1 EXIT 2 EXITS PROVIDED
MINIMUM WIDTH OF EXITS REQUIRED	1.8mm EXIT WIDTH REQUIRED OVER 1 EXITS
MAXIMUM TRAVEL DISTANCE ALLOWED	45m
FEMALE WASHROOMS PROVIDED:	1 WC
MALE WASHROOMS PROVIDED:	1 WC
UNISEX WASHROOMS PROVIDED:	1 WC
OCCUPANT LOAD WCs SUPPORT	100 OCCUPANTS TOTAL

Dec 6/16 PATIO
Whistler Fire Rescue Service
Occupant Load # 8 persons

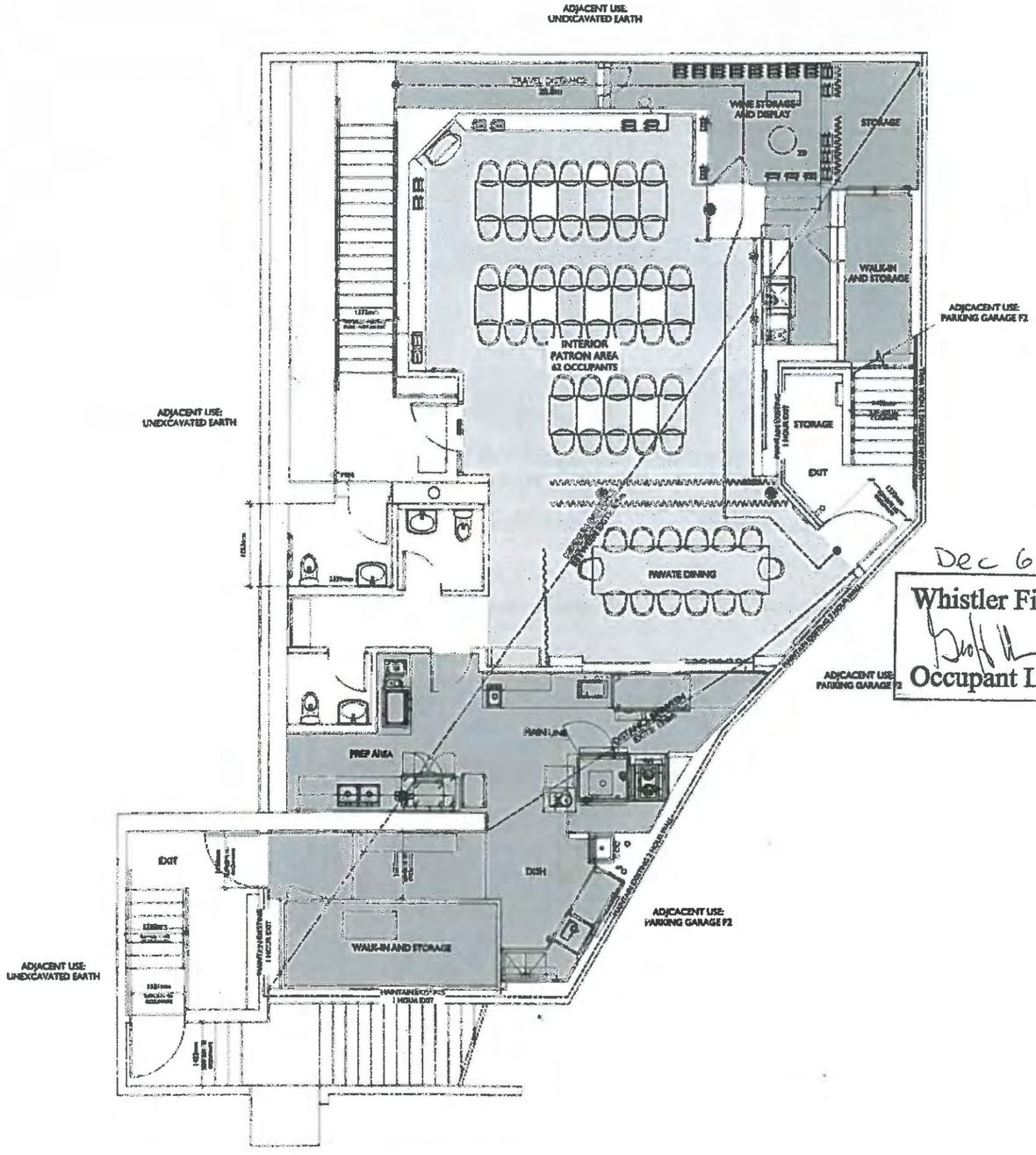
ADJCACENT USE: MERCANTILE E
Dec. 6/16 Interior
Whistler Fire Rescue Service
Occupant Load # 30 persons

MALLENGOWINGBERZINS
ARCHITECTURE INCORPORATED

TOP TABLE GROUP
PRIVATE DINING & BAR
4222 VILLAGE SQUARE
WHISTLER, B.C.
V0N 1B4

No REVISION/SUBMISSION DATE

CODE-02



1 1st STOREY CODE COMPLIANCE PLAN
1 : 50

TOFTABLE GROUP CODE ANALYSIS - LOWER (GROUND) FLOOR

CODE APPLIED	BC BUILDING CODE, 20 12 EDITION
PART APPLIED	PART 3
PROJECT TYPE	ALTERATION, NO CHANGE OF USE, NO ADDITION
BUILDING AREA	1 700 m2
SUITE AREA	224.2 m2
BUILDING HEIGHT	4 5 OREYS
MAJOR OCCUPANCIES	A2, C, E
NUMBER OF STREETS FACING	3 STREETS
BUILDING CLASSIFICATIONS	3.2.2.24, 3.2.2.50, 3.2.2.63
SPRINKLERS	NFPA 1 3
CONSTRUCTION ALLOWED	NON-COMBUSTIBLE NON-COMBUSTIBLE USED
REQUIRED CONSTRUCTION: FLOORS	1 HOUR
REQUIRED CONSTRUCTION: MEZZANINES	1 HOUR
REQUIRED CONSTRUCTION: ROOFS	N/A
REQUIRED CONSTRUCTION: COLUMNS, WALLS	1 HOUR
OCCUPANT LOAD:	
PATRON AREA:	315m2 @ 2m2/OCCUPANT = 62 OCCUPANTS
BAR & KITCHEN AREAS:	47.3m2 @ 9.3m2/OCCUPANT = 5 OCCUPANTS
STORAGE AREAS:	71.2m2 @ 20.0m2/OCCUPANT = 3 OCCUPANTS
TOTAL INTERIOR OCCUPANT LOAD	70 OCCUPANTS
NUMBER OF EXITS REQUIRED	2 EXITS 2 EXITS PROVIDED
MINIMUM WIDTH OF EXITS REQUIRED	162mm EXIT WIDTH REQUIRED OVER 2 EXITS
MAXIMUM TRAVEL DISTANCE ALLOWED	45m
FEMALE WASHROOMS PROVIDED:	1 WC
MALE WASHROOMS PROVIDED:	1 WC
UNISEX WASHROOMS PROVIDED:	1 WC
OCCUPANT LOAD WCs SUPPORT	99 OCCUPANTS TOTAL

* A SIGN SHOWING A MAXIMUM OCCUPANT LOAD FOR THE GROUND FLOOR AREA OF 70 OCCUPANTS SHALL BE PLACED ON SITE IN CONFORMANCE WITH BCBC 3.1 17.1

Dec 6/16 Lower Floor

Whistler Fire Rescue Service

Occupant Load # 62 persons

MALLENGOWINGBERZINS
ARCHITECTURE INCORPORATED

TOP TABLE GROUP
PRIVATE DINING & BAR
4222 VILLAGE SQUARE
WHISTLER, B.C.
V0N 1B4

NO	REVISION/SUBMISSION	DATE

CODE-01

Minutes of January 12, 2017 LLAC Meeting
(Relevant Excerpts)

File No. LLR1271 – Bar Oso New Liquor Primary Patio

Frank Savage introduced Bert Hick from Rising Tide Consultants who is acting on behalf of Bar Oso for this application. A report had been distributed to LLAC members prior to the meeting, and Frank presented an overview of the Bar Oso application for a new eight person patio:

- For this type of application the LCLB requires a resolution from local government Council. Municipal policy requires a referral, review and recommendation from the LLAC.
- The proposal is for an eight person capacity outdoor patio to the right of the entry door.
- In addition the upper floor interior capacity will be increased from 28 to 30 persons and the lower floor interior capacity will be reduced from 70 to 62 persons. The proposed total capacity (including patio) will then be 100 persons, the maximum permitted by the number of washrooms in the establishment.
- Application details were referred by e- mail to LLAC members for comment, and no issues or concerns were identified.
- No comments were received during the 30-day public notification period.
- Bar Oso is in good standing based on its compliance history.
- Frank then reviewed the application in accordance with the LLAC review criteria:
  - The establishment will continue to serve its existing customer base of visitors and residents.
  - There is a high demand for patios in summer and après ski. The proposed patio facing Village Common is in a key location and would provide an alternative outdoor amenity along the Village Stroll.
  - Noise from the patio is unlikely to be a problem for the community: the patio is small, Bar Oso does not have a history of noise or disturbances, outdoor speakers will be turned off by 10 p.m.
  - There were no comments received during the 30-day public notification period.
- Mr. Hick then made a brief presentation explaining the rationale for the new patio and the benefits to the resort. Bar Oso is owned by the Aquilini Group, who also own Araxi Restaurant. It is intended to operate and manage the Bar Oso patio in the same manner as the Araxi patio. It will provide a small amenity but will not be a problem for the community.

Questions & Answers:

LLAC members then had the opportunity to ask questions of Mr. Hick regarding the proposed patio.

- Whistler Fire Rescue Service representative inquired about the door at the far end of the proposed patio. It is an emergency exit door from the hotel. Therefore, the establishment must ensure that there is clear access to the exit at all times and that this requirement should be added to the good neighbour agreement. Mr. Hick agreed and will convey this requirement to Bar Oso management.
- The proposed patio is entirely on private property will not reach the Village Stroll.

LLAC Member Comments:

All LLAC members then expressed support for the patio application, as it will bring more atmosphere to the area and will provide more needed patio seats to this area of Whistler Village.

Moved Mike Wilson
Second Terry Clark

That the Liquor Licence Advisory Committee supports the application from Bar Oso for the addition of an eight person capacity patio, with the condition that fire access be maintained.

CARRIED

There were no issues or concerns with the proposed changes to reduce the interior occupant load of the establishment, and LLAC members concluded that a recommendation to Council was not necessary.

WHISTLER

REPORT | ADMINISTRATIVE REPORT TO COUNCIL

PRESENTED:	January 24, 2017	**REPORT:**	17- 006
FROM:	Corporate and Community Services	**FILE:**	8337.01
SUBJECT:	FIRESMART GRANT APPLICATION		

COMMENT/RECOMMENDATION FROM THE CHIEF ADMINISTRATIVE OFFICER

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

RECOMMENDATION

That Council support the UBCM FireSmart grant application to further develop the FireSmart program in Whistler. The FireSmart program, delivered by the FireSmart Coordinator, will include delivering public education, conducting site visits and community assessments, make recommendations on FireSmart plans for specific areas and assist property owners in coordinating FireSmart activities.

REFERENCES

Appendix A – 2017 FireSmart Grant Program application and budget

PURPOSE OF REPORT

The purpose of this report is to describe the application to acquire funds to develop the FireSmart program and to seek Council's support.

DISCUSSION

Council recognizes the need for proactively managing wildfire fuels in the Municipality. To this extent, they have invested as a Municipality and obtained Provincial money through Union of British Columbia Municipality, to reduce fuels in strategic locations on Public Lands. This money specifically cannot be spent on private lands. FireSmart is the program which provides guidelines for private land owners to manage their wildfire risks.

Council will consider $100,000 in Capital Budget funding in 2017 for FireSmart programing in Whistler. Much of that funding will be used to directly assist taxpayers to move forward with FireSmart projects.

The FireSmart Coordinator will provide coordination on projects such as: fuel removal, owner's concerns and questions, provide site specific guidance and recommendations.

To assist with this cost, the RMOW is applying for $10,000 from the UBCM 2017 FireSmart Grant Program to develop the FireSmart Program, subject to a Council Resolution supporting the application.

This grant application will not impact current or future applications for UBCM fuel management funding.

A Resolution supporting this application will, by allowing for funding of this position, help administer the overall spending, and provide coordination for, Whistler's FireSmart Program.

WHISTLER 2020 ANALYSIS

W2020 Strategy	TOWARD Descriptions of success that resolution moves us toward	Comments
Partnership	Residents, taxpayers, business and local government hold a shared vision for the resort community and work in partnership to achieve that vision	
	Decisions consider the community's values as well as short and long-term social, economic and environmental consequences	
	Partners work together to achieve mutual benefit	
Health and Social	The Resort Community is safe for both visitors and residents, and is prepared for potentially unavoidable emergency events	

W2020 Strategy	AWAY FROM Descriptions of success that resolution moves away from	Mitigation Strategies and Comments
	None	

OTHER POLICY CONSIDERATIONS

FireSmart fuel management on private lands will complement the ongoing work and Municipal expenditures on Public Lands within the Municipality.

BUDGET CONSIDERATIONS

If successful, the UBCM will provide the funds for the FireSmart Coordinator, who will work with the Fire Chief to provide a well-coordinated, high quality FireSmart program in Whistler that helps homeowners to enhance Wildfire safety within their neighbourhoods and become an important part of the overall wildfire preparedness of the RMOW.

COMMUNITY ENGAGEMENT AND CONSULTATION

The community will be engaged mainly by the FireSmart Coordinator. The FireSmart Coordinator will work closely with individual owners as required. They will provide information to Whistler residents on how to FireSmart their property and assist them with understanding options, prioritizing work, fuel removal, engaging arborists, and connecting with Parks or other land managers, as needed.

SUMMARY

Fuel Management is a key component of wildfire risk reduction. Ongoing programs of fuel reduction in strategic locations on public lands are important and should continue.

FireSmart offers guidelines to assist homeowner's in making decisions on fire risk reductions on their properties. FireSmart projects along with RMOW Fuel Management Programs provide the community with increase protection from wildfires and help mitigate associated risks.

Respectfully submitted,

Lindsay Debou,
ACTING MANAGER, PROTECTIVE SERVICES
For
Norm McPhail
GENERAL MANAGER, CORPORATE AND COMMUNITY SERVICES

SWPI -
For administrative use only

Strategic Wildfire Prevention Initiative

FireSmart Planning Grant Program

2017 APPLICATION FORM

Please type directly in this form or print and complete. Additional space or pages may be used as required. For detailed instructions regarding application requirements, please refer to the *2017 SWPI FireSmart Planning Grant Program & Application Guide*.

SECTION 1: APPLICANT INFORMATION

Local Government or First Nation: Resort Municipality of Whistler

Date of Application: January 18, 2017

Contact Person*: Scott Rogers

Title: FireSmart Coordinator

Phone: 604 966 4173

E-mail: srogers@whistler.ca

* Contact person must be an authorized representative of the applying local government or First Nation

SECTION 2: COMMUNITY INFORMATION

1. **SCOPE OF PROJECT.** Are the proposed activities for a specific neighbourhood or community within your local government/First Nation or for entire area? Please describe the proposed area.

   Activities include delivering public education, conducting site visits and FireSmart assessments on private land, making recommendations on FireSmart plans for specific areas and assist property owners in coordinating FireSmart activities, developing support and confidence of municipal departments as it pertains to the FireSmart program.

   This occurs throughout all Whistler neighbourhoods.

   What is the current wildfire threat rating for the proposed area? This information can be found in a recent Community Wildfire Protection Plan or through the Provincial Strategic Threat Analysis

   High Fire Hazard rating exists abundantly throughout Whistler and is mapped on municipal GIS under CWPP.

2. **FIRESMART COMMUNITY RECOGNITION.** Has your First Nation or a neighbourhood or community within your local government/First Nation achieved FireSmart Community Recognition status from Partners in Protection?

   This is still a primary focus and pending goal of our FireSmart program and as the identity of our FireSmart program strengthens this will ultimately be achieved.

3. **LOCAL FIRESMART REPRESENTATIVE TRAINING.** Has a staff person, elected official or community member in your local government or First Nation completed the Local FireSmart Representative workshop? Please indicate the workshop date and location.

   The FireSmart Coordinator is registered to attend the LFR workshop in Kamloops February 22nd and 23rd, 2017. The FireSmart manual has been thoroughly and regularly reviewed and used.

   Fire Chief, Geoff Playfair, completed the workshop in April, 2012 in Nanaimo. Deputy Fire Chief, Chris Nelson, completed the course in December, 2014 in Kamloops.

SECTION 3: PROJECT INFORMATION

4. PROJECT INFORMATION.

Project title: FireSmart program

Proposed project start and end dates: Start: January 1, 2016 End: October 30, 2017

Total Project Budget: $100,000

5. DESCRIPTION OF PROPOSED ACTIVITIES. Please describe the specific activities you plan to undertake.

Educate high school students with presentations, educate municipal employees in meetings and with presentations, public outreach, property assessments, community and homeowner guidance, municipal department unification by including interested departments (planning, building, fire, communications, environmental stewardship, I.T., operations, management) as process unfolds.

6. OUTCOMES/PROGRESS TO DATE. If you have previously received funding under the SWPI FireSmart Planning program, please provide an update on the outcomes of those funded projects or a summary of progress to date.

FireSmart Coordinator hired. Community engagement begun. Assessments completed and reports created for property owners. Networking within the RMOW occurring. Developing Provincial relationships. Presentation delivered to senior municipal management.

7. INTENDED OUTCOMES & DELIVERABLES. What will be the specific deliverables? How will the project support residents to undertake FireSmart planning activities for private lands and/or advance wildfire mitigation planning activities for private lands?

Education through outreach/presentations (in Whistler Secondary School with Environmental Stewardship teacher and outdoor education teacher), have the students adopt the principles of FireSmart and carry the values forward, develop FireSmart module for regular High School education (intended curriculum inclusion);

Direction to homeowners provided through assessments and reports, participate with FireSmart work days, participate in strata council meetings;

Co-host FireSmart event on May 6th (National Wildfire Community Preparedness Day) with Emergency Program Coordinator to launch Emergency Preparedness week;

Create and deliver survey to homeowners who previously received FireSmart assessments to determine what barriers to pursuing the work may be;

Launch FireSmart campaign though the Communications Department;

Audit the RMOW webpage to identify material to further support and deliver FireSmart program;

Further develop understanding and confidence within various municipal departments;

FireSmart community recognition award to showcase FireSmart.

8. **COMMUNITY PARTNERS.** Please list all <u>confirmed</u> partners (e.g. community or resident organization, First Nation or Aboriginal organization or other local government) that will directly participate in your project and the specific role they will play.

RMOW (support), strata management companies (request assessments and include in council meetings and include in FireSmart work days), Whistler Blackcomb (fuel management discussions), Whistler Secondary School (allow education of FireSmart to students).

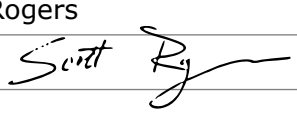
SECTION 4: REQUIRED APPLICATION MATERIALS

Only complete applications will be considered for funding. The following separate attachments are required to be submitted as part of the application:

- Completed Application Form
- Local government Council or Board resolution, or First Nation Band Council resolution, indicating support for the current proposed activities and willingness to provide overall grant management
- Detailed budget

SECTION 5: SIGNATURE (To be signed by Local Government or First Nation Applicant)

Applications are required to be signed by an authorized representative of the applicant. Please note all application materials will be shared with the Province.

Name: Scott Rogers	Title: FireSmart Coordinator
Signature: 	Date: January 18, 2017

All applications (from local governments and First Nations) should be submitted to:

Local Government Program Services, Union of BC Municipalities

E-mail: swpi@ubcm.ca Mail: 525 Government Street, Victoria, BC, V8V 0A8

THE RESORT MUNICIPALITY OF WHISTLER
4325 Blackcomb Way
Whistler, BC Canada V0N 1B4
www.whistler.ca
TEL 604 932 5535
TF 1 866 932 5535
FAX 604 935 8109

2017 Budget for $10,000 FireSmart Planning Grant

$10,000 FireSmart Planning Grant use			
FireSmart Coordinator Labour	$27.74/hr	3 months	$10652.16

WHISTLER VALLEY HOUSING SOCIETY

REPORT ADMINISTRATIVE REPORT TO COUNCIL

PRESENTED:	January 24, 2017	Report No: 17 - 005
FROM:	Marla Zucht, Director, Whistler Valley Housing Society	File No: 7224
SUBJECT:	RMOW APPOINTMENTS TO WHISTLER VALLEY HOUSING SOCIETY	

RECOMMENDATION

THAT Council of the Resort Municipality of Whistler (RMOW), re-appoints Jonathan Decaigny, Cheryl Skribe, Gord Low and Marla Zucht as the four RMOW appointees to the Whistler Valley Housing Society (WVHS).

PURPOSE

The purpose of this report is to provide a recommendation to the RMOW for the appointment of four Directors to the WVHS. These four RMOW appointments are necessary to keep the Directors' composition consistent with the Society's bylaws.

DISCUSSION

The Whistler Valley Housing Society was established in 1983 and is the predecessor to the incorporated Whistler Housing Authority Ltd. The Society operates on a not-for-profit basis. The WVHS is eligible for government funding and assistance programs reserved exclusively for non-profit societies, the most significant of which is the favorable equity requirement for capital borrowing afforded by CMHC and BC Housing. The primary focus of the WVHS is to oversee the operations of Whistler Creek Court, a 20 unit rent-geared-to-income rental housing project in the Creekside.

The Whistler Valley Housing Society Constitution sets the number of WVHS Directors at seven, with four Directors required to be appointed by the RMOW. The WVHS held their AGM in December 2016, at which time Garry Watson, Steve Bayly and Jessica Averiss were re-elected by the Directors as the WVHS community representatives to the Whistler Valley Housing Society.

WHISTLER VALLEY HOUSING SOCIETY

SUMMARY
This RMOW appointment of the four WVHS Directors will be consistent with the bylaws outlined in the Whistler Valley Housing Society Constitution and will enable the WVHS to continue to exist as a separate entity, with its function and responsibilities executed by the Whistler Housing Authority Ltd.

Respectfully submitted,

Marla Zucht
Director
Whistler Valley Housing Society (On Behalf of the Directors of the WVHS)

WHISTLER

MINUTES

REGULAR MEETING OF LIQUOR LICENCE ADVISORY COMMITTEE
THURSDAY, NOVEMBER 10, 2016, STARTING AT 8:45 A.M.

At Municipal Hall – Flute Room
4325 Blackcomb Way, Whistler, BC V0N 1B4

PRESENT:

Accommodation Sector Representative, Chair, Colin Hedderson
Food & Beverage Sector Representative – Pubs, Mike Wilson
Food & Beverage Sector Representative – Nightclubs, Terry Clark
Food & Beverage Representative – Restaurants, Vice-Chair, Kevin Wallace
Public Safety Department Representative, RCMP, Rob Knapton
Public Safety Department Representative, RCMP, Darren Durnin
Whistler Fire Rescue Service Representative, Geoff Playfair
Liquor Control and Licensing Branch (LCLB) Inspector, Charlie Wager (by telephone)
RMOW Staff Representative, Secretary, Frank Savage
Recording Secretary, Shannon Perry

REGRETS:

Whistler Community Services Society Representative, Jackie Dickinson
Councillor, Andrée Janyk

Colin Hedderson called the meeting to order at 8:50 a.m.

ADOPTION OF AGENDA

Moved by Terry Clark
Seconded by Geoff Playfair

That Liquor Licence Advisory Committee adopt the Liquor Licence Advisory Committee agenda of November 10, 2016.

CARRIED

ADOPTION OF MINUTES

Moved by Kevin Wallace
Seconded by Mike Wilson

That Liquor Licence Advisory Committee adopt the Liquor Licence Advisory Committee minutes of October 13, 2016.

CARRIED

PRESENTATIONS/DELEGATIONS

Recently Announced Provincial Liquor Policy Changes

New Liquor Control and Licensing Branch Policies

Frank Savage presented a report to the Liquor Licence Advisory Committee (LLAC) and led a discussion on new Liquor Control and Licensing Branch (LCLB) policies. The intent of the review and discussion was to highlight the

new policies that may affect Whistler establishments with liquor primary or food primary licences, the accommodation sector and the resort community as a whole.

On October 20, 2016 the LCLB issued six Policy Directives with a total of 76 **new policies which will come into effect on January 23, 2017**. New policies relevant to Whistler were highlighted as discussed below:

<u>LCLB Policy Directive 16-14: General policy changes for all licensees and additional policy changes for UBrews/UVins and Licensee Retail Stores</u>

- Policy No. 6: *Permit local governments to delegate licensing decisions to staff*

  This would allow the Municipality to delegate licensing recommendations on certain types of licence applications to municipal staff, rather than the current requirement for a resolution from municipal Council. Potential for streamlining review process.

- Policy No. 12: New *and updated definitions for service area, establishment, event site*

  New definitions relevant to determination of occupant load (capacity) of the patron area of a licensed establishment. Presently, there is some confusion whether the term "establishment" refers to the entire or just the area where patrons may consume liquor.

Policy No. 13: *Provide flexibility to extend the hours of liquor service in exceptional circumstances*

This provides an opportunity for an establishment to apply "in exceptional circumstances" to serve liquor outside of the current provincial limitations of 9 a.m.to 4 a.m. provided it is in the public interest.

<u>LCLB Policy Directive 16-15: Food primary licence and catering licence policy changes</u>

- Policy No. 1: *Permit patrons in a hotel liquor primary or food primary to take an unfinished drink to their room*

  Patrons can take unfinished drinks from the food primary or liquor primary establishment to their room. Discussion: This policy would apply to hotels such as the Fairmont where the licensed establishments are owned by the hotel. It would be up to each eligible hotel to decide upon and manage. Patrons cannot leave the property. LCLB to provide a clarity on restrictions when the new policies come into effect in January 2017.

Rob Knapton left meeting 9:02 a.m.

- Policy No. 2: *Permit establishments to have dual food primary and liquor primary licensing*

  Food primary establishments can apply for a liquor primary licence at the same location and operate as a bar or nightclub after a certain hour, such as 10 p.m. Dual licensing would allow establishments to shift their focus away from food and remain in compliance with LCLB policies.

  Q: Can a food primary (restaurant) still operate the kitchen, but have a reduced late-night menu?

A: (From LCLB rep.) LCLB sees this as a possibility for a food primary licence – will be confirmed in January when the new policies come into effect

LCLB Policy Directive 16-16: Liquor primary licence policy changes

- Policy No. 1: *Allow liquor primaries to relocate to a new community*
  Liquor primaries will be able to relocate anywhere in the province, but they are still subject to a local government community input process for the new location.

- Policy No. 3: *Permit hotels/resorts with a liquor primary to provide a free alcoholic drink to guests in the lobby/reception area at check-in*
  Hotels and resorts with a liquor primary licence on their property are able to provide guests with one standard drink upon check in.
  Q: Would a guest be able to take a drink from an establishment on an outdoor walkway?
  A: (From LCLB rep.) These changes will be up to the establishments to manage; it offers a service to guests, but hotels don't have to implement it.

- Policy No. 9: *Allow businesses outside hospitality, entertainment or beverage service to apply for a liquor primary licence*
  Most any business will be able to apply for a liquor primary licence. Examples may include spas, art galleries and cooking schools. The new policy allows businesses to offer liquor as an additional service to their patrons. The licensed area can overlap all or part of the business, or it can be adjacent to the primary business.

- Policy No. 11: *Concert halls and live event theatres*
  LLAC would like to see the definition of a concert hall to see if it would apply to Maury Young Arts Centre. This will be clarified when the new licence policy manual is released in 2017. The updated manual will incorporate new policies and definitions.

- Policy No. 12: *Streamline the application process for a liquor primary licence*
  For a new liquor primary licence this would allow an application to the LCLB and the RMOW at the same time (in parallel) instead of the current consecutive process. This could reduce the application time for a new liquor primary licence by several months.

- Policy No. 14: *Golf course patrons can take a drink from one service area to another*
  A patron may purchase a drink in one licensed area at a golf course and take it to another service area at the golf course, as long as the patron takes a direct route between the service areas. This allows patrons to carry liquor between the licensed clubhouse and the licensed playing area.

- Policy No. 17: *Amend requirement for local governments/First Nations to assess their own applications*
  If a local government is the applicant for a liquor primary licence, the branch will conduct the public input process, and the local government will not be asked to provide a resolution.

LCLB Policy Directive 16-17: Manufacturer licence and agent licence policy changes

- Policy No. 17: *Streamline the application process for a manufacturer lounge and Special Event Area*

  For a new brewery/distillery manufacturer lounge or special event area this would allow an application to the LCLB and the RMOW at the same time (in parallel) instead of the current consecutive process. This could reduce the application time for a new lounge or special event area by several months.

LCLB Policy Directive 16-18: Special Event Permit (formerly Special Occasion Licence) policy changes

- Policy No. 17: *Special Event Permits*

  The former Special Occasion Licence is now called a Special Event Permit.

- Policy No. 2: *Update the conditions for a Special Occasion Licence (now a Special Event Permit)*

  Currently, a Special Occasion Licence (SOL) for a charity concert or event is only available to non-profit organizations. With the policy change, businesses can now also apply for a Special Event Permit (SEP) to raise funds for charity. An SEP must not be issued for the primary purpose of making a profit unless the funds raised go to a charitable purpose.

- Policy No. 5: *Allow non-residents and non-citizens to apply for a special event permit*

  Currently, only B.C. residents, Canadian citizens and permanent residents may apply for a Special Occasion Licence. With the new policy anyone can now apply for a Special Event Permit, as there is no longer a residency or citizenship requirement.

LCLB Policy Directive 16-19: Compliance and Enforcement Policy Changes

Five new policies noted. No discussion.

Licensed Food & Beverage Services Locations and Capacities

A presentation from Frank Savage regarding licensed food and beverage service locations and capacities – an update and follow-up to a presentation at the October 13, 2016 LLAC meeting. A decision making framework for new licence applications should consider the following objectives in addition to those previously discussed:

- Maintain the independent nature of Whistler's food and beverage sector
- Maintain a competitive food and beverage environment, without impacting the viability of existing businesses.

Specific municipal policies should be developed for certain application types:

- New liquor primary licences or conversions from food primary
- Dual food primary and liquor primary licence applications
- Other businesses applying for a FP or LP licence
- Increases in liquor primary or food primary capacities

A discussion was held as to how to advise the food and beverage sector of the coming provincial liquor policy changes and obtain input on the implementation in Whistler. Some ideas and comments:

- Bring in resort stakeholders and hold an information/planning session?
- The Whistler guest experience should be maintained and enhanced.
- Restaurant sector representative will reach out and find out which restaurants would be interested in pursuing a liquor primary licence (dual licence).
- Accommodation sector representative will inform Hotel Association of Whistler of the changes.
- Pub sector representative will mention at upcoming sector meeting.
- Nightclub sector cautioned that restaurants considering a liquor primary licence for nighttime hours should be aware of the enhanced security requirements of a nightclub environment.
- What will be the business licence implications for dual liquor licenses?
- Policies should consider more than just Whistler Village – also consider Function Junction, Cheakamus Crossing, Whistler Creek, Rainbow
- Q: Are both licences affected if there are penalties assessed?
  A: Likely only the licence in use will be affected.

It was concluded that sector representatives will seek feedback from their members. At the next LLAC meeting a more focused session will be held to consider input received and solicit recommendations for the implementation of the new policies.

OTHER BUSINESS

Meeting start time

LLAC agree to continue starting at 8:45 a.m. on second Thursday of month

Next meeting Thursday, December 8, 2016.

ADJOURNMENT

Moved by Geoff Playfair

That Liquor Licence Advisory Committee adjourn the November 10, 2016 meeting at 10:35 a.m.

CARRIED

_____

CHAIR: Colin Hedderson

_____

SECRETARY: Frank Savage

WHISTLER

File 546

MINUTES

TRANSPORTATION ADVISORY GROUP (TAG) WORKSHOP 6
TUESDAY NOVEMBER 8, 2016, STARTING AT 10:00 a.m.

In the Delta Whistler Village Suites, Raven B Conference Room
4308 Main Street, Whistler, BC, V0N 1B4

PRESENT:
N. Wilhelm-Morden, RMOW Mayor - Chair
S. Anderson, RMOW Councillor
A. Janyk, RMOW Councillor
M. Furey, RMOW – Chief Administrative Officer
D. MacFarlane, WB – Director of Mountain Operations (Alternate)
K. Goodwin, Tourism Whistler – VP Market Development and Sales
M. Facundo, Whistler Chamber of Commerce – Manager, Whistler Experience
B. Murray, Citizen-at-Large
B. Smith, Citizen-at-Large (by phone)
M. Boyd, BC Transit – Regional Planning Work Lead
M. Kazemi, MOTI Area Manager Sea-to-Sky (Alternate)
J. Jansen, RMOW – GM of Resort Experience
J. Hallisey, RMOW – GM Infrastructure Services
E. DalSanto, RMOW – TDM Planner & Recording Secretary

GUESTS:
L. Trotter, BC Transit – Regional Transit Manager (Alternate)
R. Kruse, RMOW – Senior Communications Officer

REGRETS:
S. Pass, Citizen-at-large
J. Sobieniak, Citizen-at-Large
M. Sedgwick, WB – VP Information Technology
D. Legault, MOTI – Operations Manager, Howe Sound and Sunshine Coast
L. Glenday, District of Squamish – CAO, invited guest

ADOPTION OF AGENDA

Moved by Councillor Janyk
Seconded by Councillor Anderson

That the Agenda of the Transportation Advisory Group (TAG) of November 8, 2016 be adopted as circulated.

CARRIED

ADOPTION OF MINUTES

Moved by B. Murray
Seconded by Councilor Anderson

That the Minutes of September 22, 2016 of the Transportation Advisory Group (TAG) be adopted as circulated.

CARRIED

Presentations and Delegations

Transportation Today Presentation

There were no formal presentations at today's TAG workshop.

Transportation Tomorrow Exercise

TAG Vision and Goals:
RMOW staff presented the revised vision statement and revised goals based on TAG's discussion at the September workshop.

ACTION: RMOW staff will take the comments and revise draft Goals 1, 3, 5, 6 and 9. Staff will circulate the updated Goals with the minutes.

2017 Action Planning Discussion:
TAG voting members completed a 2017 Action planning prioritization exercise before the workshop. RMOW staff presented TAG with the results of the exercise: the prioritized list of potential actions from highest priority to lowest. TAG discussed the top nine actions as well as items that should be promoted.

B. Smith left the meeting at 10:59 am.

ACTION: Staff will refine the TAG action items and circulate them via email for comment. Staff will also include feedback from the BC Transit Sea to Sky Corridor Regional Transit Survey as well as the RMOW lead Visitor and Residents Transportation Barriers Survey.

Proposed Community Transportation Forum:

TAG discussed hosting a Community Transportation Forum in early 2017. The purpose would be to share the highlights of what TAG has learned through studies and various pilot projects, share the 2017 proposed actions and to get public comment on the 2017 action plan. TAG members discussed a potential format and discussion items.

Moved by Councilor S. Anderson
Seconded by B. Murray

THAT TAG recommends to Council to hold a Community Forum focused on Transportation in January 2017.

CARRIED

Correspondence:

There was no correspondence received addressed to TAG.

Updates and Other Business

- **TAG Citizen at Large Appointments:**
  Council has appointed Ben Smith to the Mayor's Task Force on Housing and appointed Crosland Doak as a Citizen-at-Large to the Transportation Advisory Group.

- **Highway Incident Investigation RFP**
  The RMOW has put out a request for proposal seeking independent consultant services to assist the RMOW in better understanding existing practices employed in the management of closures and delays related to traffic accidents on the Sea to Sky Highway between Horseshoe Bay and Village Gate boulevard in Whistler. The RFP closes November 15, 2016 and the final report is due January 31, 2017. The goal of this Assessment is to inform discussions with provincial and federal agencies on a means to decrease the amount of time the Highway is closed in the event of an incident.

  The RMOW will continue to work with community partners to communicate road closure and major incident information to guests to the resort especially those using the Highway.

- **Sea to Sky (S2S) Corridor Regional Transit Working Group:**
  The Working Group consisting of members from local and regional government as well as first nations communities. It was brought together by BC Transit as part of the process to oversee and guide the implementation of regional and interregional recommendations listed in the Sea to Sky Transit Future Plan. The Working Group met November 7th. Updates included a progress report on recent provincial announcements, the Sea to Sky Corridor Transit Survey and potential governance and funding models for a regional transit system operated by BC Transit. Results from the survey will be shared with TAG.

- **RMOW Resident and Visitor Travel Survey:**
  As an action item from the Community Energy and Climate Action Plan, the RMOW is conducting a project including working with focus groups of residents and an on-line survey to residents and visitors seeking information about why they drive and what actions would move them to drive less thus reducing GHGs. The results will be shared with TAG to inform their work.

- Topics for next meeting:
  - Community Transportation Forum
  - Defining "Community Transportation Initiative"
  - Potential "Measures of Success"
  - Highway 99 Incident Investigation & Emergency procedures update

Next Meeting

The next TAG workshop will be scheduled for the first week of January 2017.

ADJOURNMENT

Moved by Councillor A. Janyk.

That Transportation Advisory Group (TAG) adjourns the November 8, 2016 TAG workshop at 12:04 pm.

CARRIED

_____	_____
CHAIR:	Recording Secretary
Mayor Nancy Wilhelm-Morden	Emma DalSanto, TDM Coordinator

RESORT MUNICIPALITY OF WHISTLER
ZONING AMENDMENT BYLAW (IN-GROUND BASEMENT GFA EXCLUSION)
NO. 2132, 2016

A BYLAW TO AMEND ZONING AND PARKING BYLAW NO. 303, 2015

WHEREAS Council may, by bylaw, 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 prohibit any use in any zone;

NOW THEREFORE the Municipal 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 (In-Ground Basement GFA Exclusion) Bylaw No. 2132, 2016".

2. Zoning and Parking Bylaw No. 303, 2015, is amended as follows:

    2.1 In Part 2, by inserting the following definition in appropriate alphabetical order:

    "in-ground basement floor area" means that portion of the lowest floor of a building, at least 50% of the exterior wall height of which is below the level of finished ground adjoining the wall, and for this purpose wall height means the vertical distance from the level of the finished floor to the underside of the floor system above;"

    2.2 In Part 5 General Regulations, by inserting the following as subparagraphs 26(1)(a)(i) and (ii) and renumbering remaining subparagraphs accordingly:

    "(i) basement floor area in existence on May 12, 2012 having an elevation at least 1 metre below the average level of finished ground adjoining the exterior walls of the building, to a maximum of 125% of the floor area of the storey immediately above, and for this purpose the Municipality may require a building permit applicant to provide a statutory declaration as to the existence of basement floor area on May 12, 2012;

    (ii) in-ground basement floor area to a maximum of 125% of the gross floor area of the storey immediately above;"

Given first and second readings this 6th day of December, 2016.

Pursuant to Section 464 of the *Local Government Act,* a Public Hearing was held this 10th day of January, 2017.

Given third reading this __ day of _____, 2016.

Approved by the Minister of Transportation this __day of _____, 2016.

Adopted by the Council this ___day of _____, 2016.

Nancy Wilhelm-Morden,
Mayor

Laurie-Anne Schimek,
Municipal Clerk

I HEREBY CERTIFY that this is a true copy of Zoning Amendment Bylaw (In-Ground Basement GFA Exclusion) No.2132, 2016.

Laurie-Anne Schimek,
Municipal Clerk

From: Peak Plumbing [mailto:peakplumbing@telus.net]
Sent: Monday, January 02, 2017 11:56
To: Mayor's Office <mayorsoffice@whistler.ca>
Subject:

Dear Office of Whistler's Mayor,

Happy New Year.

Please find a letter I have written to the Mayor and Council attached. My contact information is Angela Mellor 2401 Dave Murray Place Whistler 6049380209 amellor@telus.net

Thanks & Best Regards Angela

Dear Mayor and Council thank you very much for taking my question at your Dec 5th meeting and committing to discussing if Whistler should declare opposition to the Kinder Morgan pipeline expansion. I respectfully request that council pass this motion. Best Regards Angela Mellor

Whereas:

- We would be joining the 21 municipalities in British Columbia, The Union Of BC Indian Chiefs, 17 First Nations, the cities of Vancouver & Burnaby, Metro Vancouver and 90% of the people who spoke to the special government panel this summer, all of whom have declared opposition to this pipeline as it's just not worth the risk to our land and waters.

- In Whistler we rely almost entirely on tourism and keeping British Columbia wild and beautiful is in our best interests. Opposing this pipeline expansion is the only way to safeguard the clean land water and air of BC.

- Building this second pipeline, to twin the one built in 1953, will mean expanding the tar sands production and tripling the bitumen (300,000 barrels a day to 890,000 barrels a day) piped across BC, into the City of Burnaby & Tsleil Waututh land. All of this new volume will be for export and the tanker traffic is projected to increase from one tanker a week to more than one every day navigating through the Second Narrows.

- This is not a time to get stuck in the old extractive story of this province– we all know BC is so much more than a source wood, metals, gas and oil – its our home & duty to safeguard these lands and waters for future generations. Let's support our neighbours, take the long view and say no to fossil fuel expansion. Our young people are depressed and disillusioned that we seem to be business as usual with no thought to scientifically confirmed future consequences.

- Most importantly the Tsleil –Waututh and Squamish Nations have very loudly and with great frequency said NO. If this goes ahead they will have a new pipeline and more tankers right on their doorstep bringing great potential for bitumen sludge on the land, beaches, water and ocean floor of the whole lower mainland.

- We need to walk the talk of truth, reconciliation and our commitment to clean energy by listening to and standing in solidarity with our First Nations neighbours. Imagine how we would feel if the pipeline route was coming through Whistler, it is important for us to speak up and use our loud voice to show solidarity with the communities who are being directly affected.

THEREFORE, be it moved that the RMOW oppose the expansion of the Kinder Morgan pipeline, oppose the Federal Government relaxing the regulations of rivers and fisheries to allow the building of the pipeline and other industrial projects, and in addition oppose the additional shipping of oil along the BC Coast that would result from this pipeline construction.

And further that the RMOW also expresses its solidarity and supports the position of other communities in their position to stand against the building of this project and its impacts.

Whistler Secondary School
8000 Alpine Way,
Whistler, BC
V0N 1B8

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

Dear Mayor and Council,

Do you love the beautiful forests, the outstanding mountains and the crystal clear lakes found throughout Whistler? If so, I urge you to consider putting compost bins throughout the upper and lower villages. Compost bins have everything going for them; they're good for the environment, they make Whistler look eco-friendly, and they are relatively cheap for what they bring. There really isn't any downside to compost. If these compost bins were installed, Whistler would become even more amazing than it already is.

The major benefit that compost bins bring is reducing our waste. As a resort town, we already produce too much waste, and this negatively affects our community. If in 100 years all of our forests and lakes were filled with excess waste, no one would want to visit Whistler and our economy would collapse. However, if compost bins were put into place, a big chunk of the waste could be diverted from landfills into fertilizer and other usable soils. Being environmentally friendly is so crucial for our town, because the environment is what Whistler runs on. Whistler should be doing whatever it takes to preserve our beautiful surroundings, and compost bins are a very effective way to do that.

Compost bins are a great way to become environmentally friendly, and being environmentally friendly doesn't only benefit the environment. Having the bins throughout the village would increase our eco-friendly status, and that could only benefit us. If tourists notice the compost bins around the village, they will think highly of Whistler from an environmental perspective, which could increase the tourists and their friends chance to return, which would ultimately boost our economy. Whistler already does so much to be eco-friendly, but most of the stuff it does isn't very visible. Nothing says we appreciate the environment more than having compost bins in the village.

Another benefit to having compost bins throughout the village is that they are relatively inexpensive for what they bring. Cost-wise, all that is needed are the actual bins and transportation to and from the garbage center, but you could maybe do that with the other garbage from the village. Considering how much composting helps the environment and make us look eco-friendly, I think the small cost is a price worth paying.

If you try and find something that can make our town better at an affordable price, you probably couldn't find anything more effective than compost bins. They would reduce our waste immensely while preserving our environment, they would increase our eco-friendly status and they have a very reasonable price. I don't know what is harder; finding something more effective than compost bins, or finding a reason not to install compost bins throughout the village.

Sincerely,
Ben Brownlie
Ben Brownlie
Grade 9 Student
Whistler Secondary School

4325 Blackcomb Way,
Whistler, BC
V0N 1B4

Whistler Secondary School,
8000 Alpine Way,
Whistler, BC
V0N 1B8

Donation bins

Dear Mayor Wilhlem-Morden and/or other interested parties,

Clothing and textiles are nearly 100 percent recyclable. The Re-Use It Center helps recirculate used items back into our local community. This concept is very practical because, it's not only affordable but it also reduces waste. The only drawback is its accessibility. Clothing donation bins have become a popular way to reduce waste by reusing items. Our nearest donation bin in is Squamish in the parking lot of Walmart. Adding these bins in our town is a simple and effective way to collect the most donations possible.

As the Re-Use It Center is moving to Nesters late next year, having donation bins further south, for example outside the Creekside market, would create more donation opportunities. It's important that the bins are accessible to everyone in our community because we believe that it will greatly decrease the amount of waste. As well as having donation bins on the south end of town, having them in the village would greatly benefit our community because certain tourists who come and go from Whistler leave behind many very lightly used clothing items. Having these donation bins would make it simple for our visitors to put their items to good use.

The Re-Use It Center is the only outlet for used items in Whistler. At times they receive so many donations that they are obligated to turn down people's offers. Due to this issue these bins could donate to other charities. There are several other organizations that collect donations. The Big Brothers foundation has a program that helps schools and non-profit organizations to be able to host a bin in their community. Big Brothers could give our local schools donation bins so that we could collect items. Once the donations are collected, big brothers picks them up. They then sell the items to value village, which provides them with money to fund local projects such as mentoring, volunteer screening and training and project development.

We believe so strongly in this matter because of the impact it has on our environment. After people are finished with their items they are usually put to waste. Recycling items is a good way to decrease the amount of unneeded consumption. While textiles are a smaller portion of our landfill waste at 5.2 percent Jackie King, executive director of Secondary Materials and Recycled Textiles thinks ",it is clear clothing and textiles needs to become a top-of-mind recyclable just like aluminum, plastic, glass, and paper,". Although you may not consider your discarded clothes to be waste, they do their part to contribute to the harmful environmental effects of landfills. Nylon, a common textile product, takes 30 to 40 years to decompose. Clothing accumulates very quickly over time for its long period of decomposition.

From what we understand, Whistler is aiming to become a truly green community. Little steps like this can contribute greatly to our common goal. Reducing waste is not only good for our community but for our planet. Collaborating with organizations such as the Re-Use It Center and Big Brothers can benefit us in many different ways. It not only reduces waste but it also creates more affordable options. We urge you to place these donation bins in our town. Though we may be a small, tightly-knit community, we can make a difference, one step at a time.

Sincerely,

Jade Quinn-McDonald and Camie Matteau Rushbrook, grade 9 Whistler Secondary

Whistler Secondary School
8000 Alpine Way,
Whistler, B.C. V0N1B8

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

Dear Mayor and Council, to whom it may concern,

We believe that bear awareness is a very high priority in Whistler because of such the marketing industry around them. We have some suggestions on how to educate locals and visitors about our bears and how to keep them alive. Please take this into consideration as we would like to improve the current situations around this problem.

Imagine being tranquilized and held in captivation based on the way you're living your life. Just doing what you need to do in order to survive. Bears used to be thought of as free loving, careless creatures that roam around open fields while eating berries all day, sleeping all night, and hibernating during the winter. Whereas these days bears are perceived as much more.

Bears are the most symbolic animal of Whistler's district and wildlife. They represent strength and confidence by taking action and defending their land, displaying their role of leadership in the animal kingdom. Due to the migration of people into Canada, some of their characteristics have changed physically and geographically. In the past, bears have had a large amount of free range space and terrain. However, as the human population increases, the area of habitat for bears has decreased tremendously.

Whistler is filled with people and our number one priority is keeping our town clean and safe so everything around here, human or animal can live a healthy and happy life. Despite our best efforts, the bears in this town are being tranquilized and killed for the way they have adapted to life here in Whistler. Because of the constant public demand for produce due to the increase in population, there are fewer berry crops which has encouraged bears to find different sources of food to fulfill their hunger; for example: human food, and scraps. Breaking into peoples homes, digging through dumpsters, and trash cans. Even strolling through the village looking for something to eat is what they have come to.

Whistler is a tourist town. There are so many attractions that draw people in because of its beauty and opportunity. Being one of the 10,000 permanent residents living in Whistler we know how many people come to visit all year around. There's approximately 2,200 seasonal residents and 11,500 second home owners, so whistler gets busy. Although there is lots of fun activities and beautiful sights to see, we feel like the tourists awareness goes down. We presume that this is the leading cause to our bear problem. Since Whistler is a town that has a lot of part time visitors, some of these people aren't aware of our wildlife and dangers with certain actions. Including polluting the town and encouraging animals to become comfortable around humans. People are unaware that throwing a piece of trash on the ground, could lead to a bear's death. The mountain and the village have the most scraps of plastic or garbage lying around, because of some careless tourists and locals or from somebody dropping a glove off the chair. All of the

bears live on or near the mountain so keeping a safe and unpolluted place is very important for our and the bear's environment. The mountain looks like a clean place during the winter, but underneath that snow are pieces of plastic, paper, and fabric materials that are all harming the habitat for bears and other animals that live up there.

Over 20 bears are killed in Whistler every year due to them getting into garbage and conflict with people. We blame it on them, but it's not their fault. They're just trying to survive and provide for their family, even if that means breaking into garbage bins and eating the trash that comes from us.

How can we find a solution to this problem? We locals believe that tourists and some short term residents are uneducated about our wildlife and habitat. We have considered our options and feel that the best solutions are visuals; these images will be universal and simple. Whistler's community is very multicultural and some residents and visitors do not have very strong english. Therefore we envision multiple signs be put up in the busy and popular parts of town containing information on how we can protect our bears and their habitats. We think it would be in our best interest to have these signs located on chair lifts or gondolas where you would most likely encounter a bear. We would also like to create brochures with not just information on how to keep our wildlife healthy and preserved, but to also provide instructions on what to do if you encounter a bear. We believe this will help inform more tourists if these brochures were to be displayed in hotel lobbies as this is where most short term visitors would stay. By keeping our bears out of danger, it could help us understand their habits and patterns better which will give us a better response on why they have evolved this way.

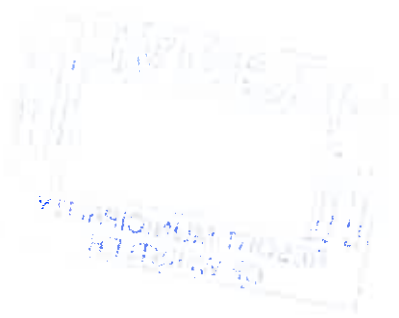
Bears should be treated with dignity and respect instead of being stereotyped as intimidating and deadly creatures. They are a part of this town and they will continue to be unless we don't change our habits and irresponsible ways. We need to inform the people in this town about our wildlife and what is happening to the animals that live alongside us. Whistler's nature and wildlife are some of the biggest attractions that bring visitors to this town. The beauty would not be the same without our well-known bears as the symbolic animals of Whistler.
We need to protect our wildlife and inform tourists, locals, and short time visitors about this subject. If we show how much we care for the nature around us, we will be able to convince and let others know that we can lower or even stop the death of animals in Whistler forever.

Sincerely,

Kaitlyn Hill Erin Wilson

Kaitlyn Hill ***and*** ***Erin Wilson***

Grade 9 students
Whistler Secondary School



4325 Blackcomb Way
Whistler, BC
V0N 1B4

Whistler Secondary School
8000 Alpine Way
Whistler, BC
V0N 1B8

Dear Ms. Willhelm-Morden,

Picture this, you just came rushing from a long day of working on the mountain and all you want is to get home, but then you realize that you just missed your bus. Missing your bus and having to wait another twenty minutes for the next one is something that must have happened to all of us a couple times here in Whistler.

During the summer missing your bus is not really a problem, you can relax and wait for the next one in a nice and warm environment, but unfortunately things are not that simple during winter when you have to endure harsh cold winds and temperatures as cold as -15 degrees celsius. You usually wait standing because the benches feel like ice and the air around you is cold and uncomfortable making your toes feel like they have frostbite. To top it off, there's not much to entertain you because taking your hands out of your pockets to use your phone doesn't sound very appealing.

My idea to make waiting for the bus in the winter more comfortable is to install heaters at the bus stops that already have shelters built on them. Nowadays there are many solar powered heaters available, these heaters will make the bus stops warm and cozy, won't add up to our energy consumption and we'll make Whistler even more environmentally friendly. The solar panels can be installed in the roof of the shelters. To make the heating actually work, the bus stops will need to be more closed off and protected from the cold winds. This can be achieved by having glass panels in the front of the shelters too.

Our winters have a lot of precipitation and snow so many days are cloudy ones, but even then the solar panels will work, and since the coldest days are when there are no clouds up in the sky solar heating will do just fine. Depending on the model you pick, solar energy can also work during the night. Since solar heaters are sometimes less effective than electric heaters, some electricity may be needed to keep the bus stops warm during very cold nights.

Research also show that heated bus stops encourage more people to take a bus instead of using cars, making the traffic better and making our Green House Gases emissions smaller. Whistler is a very spread out town and the main route between the neighbourhoods is Highway 99. Since there's only one way to travel through Whistler traffic is very common during the main seasons and most times it becomes a real inconvenience, as an example last weekend it took me 2 hours to get from the village to cheakamus. Also the traffic caused by holidays makes buses late, adding to our waiting time in the cold bus stops. By making riding a bus sound more appealing and comfortable, people, including the tourists, will start seeing it as another transportation option therefore making the current traffic situation better.

I think that making the bus stops heated will make everyone, from kids waiting for the school bus to weekend skiers, more comfortable when waiting for the bus. Please take this idea in consideration.

Sincerely,

Luana Kodato
Grade 9 student, Whistler Secondary School

1

Jan. 12 2016

Mayor & Council
4320 Blackcomb Way
Whistler B-C. V0N 1B4

9179 Emerald Dr.
Whistler B.C
V0N 1B9

Dear Mayor & Council

I understand a public meeting is being held on Transit in the near future. I have been taking transit now since 1995 on a regular basis and have not owned a vehicle since that time. I have enjoyed this service and have developed a good relationship with the drivers. The service has grown over the years and more buses have been added and more people are using the service.

Here in Emerald there seems to be more riders than in Rainbow and in the past I pushed for more service and the service is now adequate. Despite the fact that we have no resident housing here several people do ride transit.

Transit seems to have a stigma attached to it and in its infancy the bus was referred to as the "loser cruiser". But in reality smart people ride the bus and meet friends or send texts or just go on tour.

3- You can tell a lot about a town by who rides the bus & who does not. Riding transit gives you a good cross-section of your community. Go to another town like Powell River or even Whistler & you will see what I mean.

A seniors bus pass in Hamilton is 308 dollars a year I believe. But they have a bigger tax base. In Powell River faves are cheaper too.

I do not believe free transit is a good idea. It only leads to abuse and nothing is free. I can imagine free transit when there were close security. I used to ride

on New Years when Transit was free and there was plenty of abuse. I rode security for 4 New Years and the things I saw coming into town was not good nor was the behavior. Several of the riders on my buses ended up having alcohol seized or were busted and in jail. Now for some strange reason we have no security on the buses on New Years

Our shelters are always being vandalized - broken windows - tagged or carved up. etc.

One time coming home from a morning of stripping concrete I got on the bus at Nesters just after lunch with a back pack full of tools.

Just ahead of me ~~a~~ man was talking to a young 7 year old boy across the aisle and was touching his hair and leg. I called the driver to call the RCMP. By the time we got out on the highway the man had pulled a knife and asked the boy to go for a walk

in exchange for the knife.
I exchanged words with the man and he came at me with the knife at MPSC. A struggle took place and I threw the man off the bus at the Alpine ~~Meds~~ Meadows stop light. You never bring a knife to a hammer fight they say. The man was arrested in Pemberton two days ~~last~~ later in a school yard. Like I said riding transit lets you know about the town your in.

7

We have plenty of parking and plenty of cars ~~for~~ with one person in them. I have suggested a park & ride in the ~~old~~ lot on the way to Cheakamus Crossing and asked for more buses in Emerald, we have good service now. Our drivers should be applauded for their service. If a bus breaks down there is another one 5 or 10 minutes behind it. It is us that has to change not transit.

Mike Suggett

Weir-Jones Engineering Consultants Ltd.
A MEMBER OF THE WEIR-JONES GROUP OF COMPANIES
Systems Engineering for the Technology and Resource Industries

ISO 9001:2008 Certified

598 East Kent Avenue South
Vancouver, BC Canada V5X 4V6
ph. (604) 732-8821
www.weir-jones.com

January 12th, 2017

Mayor Nancy Wilhelm-Morden and Members of Council
Resort Municipality of Whistler
4325 Blackcomb Way
Whistler, BC V0N 1B4

Dear Mayor Wilhelm-Morden and Members of Council:

On December 27th, 2016, ongoing coverage by The Vancouver Sun of B.C. readiness for a major earthquake noted the *"30 per cent probability of a major earthquake hitting a populated area in southwestern B.C. within the next 50 years."* This followed a series of stories on the CBC along the same lines.

When any emergency happens, most of the burden of dealing with it falls upon the shoulders of local governments, hence my purpose in writing you.

On December 31st, 2016, *The Sun* published my article, attached, about the world-leading skills and expertise of B.C. companies in evidence around the globe. It noted that my company has developed many vibration-sensing technologies now in global use, including our ***ShakeAlarm®*** *Earthquake Early Warning System* that's been in use here in B.C. in the Massey Tunnel since 2009, and at other locations in Canada, the US, and Europe.

Following publication of the opinion piece in *The Vancouver Sun*, we've received requests from a range of elected and administrative officials in B.C. seeking more information about our ***ShakeAlarm®*** technology.

The complex science and engineering behind our ***ShakeAlarm®***, serves a simple purpose: to give everyone advance warning of a damaging earthquake, giving them precious seconds to protect themselves. Depending on your community's proximity to a seismic event, this provides a warning of between two and 90 seconds.

In a serious earthquake, every second of advance warning saves lives, reduces damage scenarios, and allows early recovery. A critical part of our ***ShakeAlarm®*** *Earthquake Early Warning System* is its ability to shutdown bridges, tunnels and automated transit systems before a seismic event causes damage. It can also shut down gas and electrical systems in hospitals and other institutions and private buildings, while firing up emergency generators. Weir-Jones technology issues school warnings and public notification via civil infrastructure control systems and phone apps.

How reliable is our technology? The Société Générale de Surveillance (SGS), with 85,000 employees worldwide is the world's leading inspection, testing, and certification company that insurance companies rely on when determining and assessing risk to public and private buildings and infrastructure. They have chosen to enter into a global agreement with us to place our technology in countries with high seismic risk that don't have effective programs in place to address earthquake response.

This is a tremendous achievement, especially when one considers all the efforts put forward by academic and commercial institutions in B.C. and around the world to develop earthquake early warning systems, one of which we are very proud.

If you've ever wondered about earthquake preparedness during your considerations and discussions about the safety of B.C. and your community, then our technology will be of help to you: Our ***ShakeAlarm®*** *Earthquake Early Warning System* is the best in the world for its ability to detect seismic signals, and accurately analyse *and act on them within milliseconds*. We'd be delighted to talk with you on how it can quickly be put in place in your community. Indeed, every installation of Weir-Jones technology around the globe started with a conversation about how we can increase the safety of people in communities.

Please have a look at the *"For Policy Makers"* area of our website, and please let us know if you'd like to discuss further how we can advance your community's safety, by contacting Kyle Rasmusens at (604) 732-8821 or through kyler@weir-jones.com.

Sincerely,

Iain Weir-Jones, President
Weir-Jones Engineering Consultants Ltd.

Attachment

OPINION

Early-warning technology for earthquakes, developed by a Vancouver-based company, uses sensors to detect the first seismic waves, analyze them and, if necessary, shut down traffic into the George Massey Tunnel. *RICHARD LAM/FILE*

B.C. BUSINESSES AMONG THE BEST IN THE WORLD

We're global leaders and we should be proud of that, *Iain Weir-Jones* writes.

There has been much talk in 2016 about our trade agreements and trading arrangements. Canadians depend on trade. As events unfolded around the globe — especially those involving our biggest trading partner, the United States — it has caused some to approach the new year with questions about our ability to compete, to create jobs and to grow our economy.

In the face of protectionism abroad, are we really powerless? Without doubt, there are those who hope we'll believe this, as it's that kind of thinking that spawns hopelessness and attracts its close friend pessimism, the ultimate economy-killer.

Canada and British Columbia have no reason to question our place in the world in 2017. There are, and always will be, trade challenges. We overcome them with hard work, innovation and what we have to offer. Our confidence helps, too, but maybe Canadians' brand of quiet confidence needs a rethink.

Canadians compete globally in every sector, but we don't know as much about our strengths or our trade successes as we should, or as times require. We should make more of our international accomplishments and the role they play in keeping people safe, secure and healthy and improving their lives.

I regularly see CEOs of globally successful B.C. companies in airports and hotels around the world. I rarely see them here, however, because, like me, the majority of the goods they sell and the services they provide are far from the comfort of home. That's the way of it when we're a trading nation. Still, we do ourselves a disservice — and make ourselves vulnerable to those who foster uncertainty — when we don't know what we've got in our own backyard, or what we've accomplished. Put simply, we can all do a better job to let people at home know that we compete and succeed in the world.

I can only talk about what I know, and that involves the engineering company I founded 45 years ago in Vancouver. To date, we have operated in 55 countries around the world. What do we do? In a word: vibrations. Our company specializes in detecting and characterizing vibrations, analyzing vibrations — and doing this work in milliseconds to help protect people and structures from the damage caused by vibrations.

> *I regularly see CEOs of globally successful B.C. companies in airports and hotels around the world.*
>
> *IAIN WEIR-JONES, president of Weir-Jones Engineering Consultants*

We began with specialized monitoring and testing services in the resource and transportation sectors, then moved into manufacturing sensors and electronic readout equipment for use in environmental, geotechnical and structural industries. Our technology and systems are in operation all over the world.

At home, our earthquake early-warning technology is in the George Massey Tunnel, where our sensors detect the first seismic waves of any earthquake, analyze them and, if necessary, shut down traffic into the tunnel. All these actions are performed in less than half a second. Close to 80 per cent of all Canadian and U.S. nuclear power stations use our systems and technologies for post-earthquake structural assessments. In South America, and in European power plants and at dam sites, our seismic monitoring systems are installed.

With earthquakes, every second matters. Whether it's just a couple of seconds before the incoming destructive waves of a local, shallow crustal quake or 90 seconds before a mega-thrust quake, action can be taken — from triggering alarms in schools, protecting hospitals and shutting off gas lines, to the automatic opening of first-responder garage doors so fire trucks and ambulances can help those in need. We're implementing early-warning systems — with accompanying smartphone apps — that cover everything from large geographic regions to people's homes. We're doing it at home and abroad.

In Quebec, B.C. and in the U.S., our seismic rockfall detection system uses acoustic-signature analysis and recognition to determine when rocks or other debris fall onto railway lines. In pipelines across the U.S. — and in Alberta, Manitoba and Ontario — you'll find the oil-and-gas safety systems developed and built by our engineers in Vancouver.

In Saudi Arabia, you'll find the world's largest permanent seismic monitoring array assessing the response of oil reservoirs, and it, too, was developed, built and deployed by our engineers and technicians. The U.S. navy, Washington State Ferries and the Alaska Marine Highway system use our vessel draft-measurement and hull-monitoring technologies. Australian navy submersibles use our strain-analysis technology. Off the coast of Newfoundland and Russia, offshore drilling platforms use our structural-monitoring systems.

India, South Africa, the U.S., South Korea and Taiwan are just a few of the countries whose mining, resource and transportation sectors have used our monitoring and analytical technologies.

All of this has come from engineers and scientists in our B.C. company. And we're all proud of the success we've achieved.

But in writing this article, in light of the recent focus on trade relations and futures, and the uncertainty some are suggesting, it's my hope that we might all embrace these as British Columbian and Canadian achievements, that Vancouver Sun readers remember just one or two of these advances, and declare, "We did this. B.C. did this. Canada did this."

I know there are hundreds of B.C. companies we've likely never heard about that compete and lead around the globe, despite protectionism, parochialism and any number of hurdles. They're just that good, and so are their products, services and people.

As we take on 2017, it would do us all good to hear about these B.C. companies, and how they succeed in a competitive, always-changing world.

These stories will instil warranted confidence in our abilities, our expertise, and our future, and will make quick work of pessimism and those who seek to use it to put us off our game.

Iain Weir-Jones is president of Weir-Jones Engineering Consultants in Vancouver.

January 17, 2017

Mayor's Office
Resort Municipality of Whistler
4325 Blackcomb Way
Whistler, BC, V0N 1B4

RE: Request for Proclamation Week: Jan. 22-29, 2017 Pride Week

Dear Mayor and Whistler Council:

2017 marks the 25th anniversary of the annual Whistler Pride and Ski Festival. Over this past quarter century we have seen significant changes in the attitudes and protections for the LGBT community. Whistler must be proud of the role it has played in helping with the visibility, awareness and building a safe and inclusive environment for our residents and visitors alike.

Whistler Pride brought added visibility and awareness to the resort through the festival itself, the creation of Mr. Gay World (2009), Pride House (2010), and the North America Outgames (2011). In May 2016 the Federal Government introduced Bill C-16 which now protect all Canadians under the Canadian Human Rights Act from discrimination based on "gender identity" and "gender expression."

On behalf of Alpenglow Productions, the producers of the annual Whistler Pride and Ski Festival, we would like to formally request from the Resort Municipality of Whistler Council to consider granting the week of January 22-29, 2017 "Pride Week" and help us celebrate 25 years of Pride in Whistler and our new full equal human rights for all Canadians.

Thank you for your time and consideration. If you require any additional information please feel free to call on me at 1.604.288.7218 or via email at dean@gaywhistler.com.

Warm regards,

Dean Nelson | Executive Producer

/encl. 2017 Pride Week Proclamation

“PRIDE WEEK”

WHEREAS *All individuals seek recognition and respect of their human and civil rights which are accorded to citizens in a free and democratic society, regardless of race, culture, creed or sexual orientation;*

AND WHEREAS *The Resort Municipality of Whistler has been a pioneer in celebrating Pride publicly for the past twenty five years and has benefited socially, economically and culturally from the Lesbian, Gay, Bisexual, Transgendered, Two-Spirited, Queer (LGBTTQ) community;*

AND WHEREAS *LGBTTQ people, residents and visitors alike come together each year during GayWhistler's WinterPRIDE festival to celebrate their uniqueness as individuals, as well as their shared goals and achievements;*

AND WHEREAS *This year marks the 25th annual celebration of the Whistler Pride and Ski Festival Week;*

NOW, THEREFORE, *I, Nancy Wilhelm-Morden, Mayor of the Resort Municipality of Whistler, DO HEREBY PROCLAIM the period from January 22 to 29, 2017, as*

“PRIDE WEEK”

In the Resort Municipality of Whistler.

From: Hal Mehlenbacher [mailto:halron2012@gmail.com]
Sent: Wednesday, January 18, 2017 10:08
To: info <info@whistler.ca>
Cc: Wanda Bradbury <WBradbury@whistler.ca>
Subject: Kinder Morgan

To Mayor and Council,
Can you imagine the village of Whistler without any guests ? How many of our residents would be out of work if tourists from around the world did not show up .

This is a subject that council has to take a position on .

If Kinder Morgan is granted the go ahead to twin the lines from the Alberta tar sands to Burnaby , the Province of B.C. will forever be subject to a disaster of major consequences . When the first oil spill occurs in our pristine waters off our coastline and the smell and pollution of beaches will be the end to our tourism industry in B.C.

The result , thousand of people employed in tourism, sport fishing , hoteliers etc. will lose their jobs . And this is not the only reason for council to vote , we must consider the threat to many forms of wildlife that could be affected when a spill does occur . Can you imagine B.C. without any killer whales or the elimination of our sought after Pacific salmon

Thank you for the opportunity to approach council with my opinion, I do hope you will vote to not back the Kinder Morgan mandate

Hal Mehlenbacher
#304 8300 Beat Paw Trail
Whistler BC
V0N 1B9