WHISTLER

AGENDA

REGULAR MEETING OF MUNICIPAL COUNCIL
TUESDAY, SEPTEMBER 16, 2014, STARTING AT 5:30 PM

In the Franz Wilhelmsen Theatre at Maurice Young Millennium Place
4335 Blackcomb Way, Whistler, BC V0N 1B4

ADOPTION OF AGENDA

Adoption of the Regular Council agenda of September 16, 2014.

ADOPTION OF MINUTES

Adoption of the Regular Council minutes, Public Hearing minutes, and Committee of the Whole minutes of September 2, 2014.

PUBLIC QUESTION AND ANSWER PERIOD

PRESENTATIONS/DELEGATIONS

Fire Service Awards	A presentation of Fire Service Awards by Fire Chief Sheila Kirkwood and Mayor Wilhelm-Morden.
Southwest BC Bio-Regional Food System Design Project	A presentation by Dr. Kent Mullinix, Director, Institute for Sustainable Food Systems at Kwantlen Polytechnic University, regarding the Southwest BC Bio-Regional Food System Design.

MAYOR'S REPORT

INFORMATION REPORTS

2013 State of the Environment Report Report No. 14-108 File No. 8376	**That** Information Report No. 14-108 regarding the 2013 State of the Environment Report be received.

ADMINISTRATIVE REPORTS

DVP 1084 – 7127 Nancy Greene Drive Retaining Wall Variances
Report No. 14-106
File No. DVP 1084

That Council approve Development Variance Permit DVP 1084 to:

1. Vary the south side setback to 0.0 metres from the property line and vary the height to 1.5 metres for a proposed rockstack retaining wall; and
2. Vary the rear setback to 1.0 metres from the property line and vary the height to 1.6 metres for a proposed rockstack retaining wall,

as shown on the plans prepared by Murdoch Company Architecture + Planning Ltd., dated July 31, 2014, and attached to Administrative Report No. 14-106 as Appendix B, subject to receipt of a planting plan for the area between the base of the proposed retaining wall and the property line to the satisfaction of the General Manager of Resort Experience.

DVP 1085 – 1205 Mount Fee Road Building, Retaining Wall and Parking Variances
Report No. 14-107
File No. DVP 1085

That Council approve Development Variance Permit DVP 1085 to:

1. Vary the front setback from 5.50 metres to 0.0 metres for a retaining wall;
2. Vary the rear setback from 6.0 metres to 0.0 metres and to 1.0 metre in height for retaining walls;
3. Vary the side setback from 3.0 metres to 2.48 metres for a proposed column;
4. Vary the front setback from 5.5 metres to 5.04 metres for a proposed duplex;
5. Vary the parking space width in the garage from 3.0 metres to 2.5 metres;
6. Vary the parking requirements to allow vehicles to back out into the public street;
7. Vary the front parcel line setback from 1.5 to 0.0 metres to allow for a parking space at 0.0 metres from the front parcel line; and
8. Vary the uncovered parking space width from 3.0 metres to 2.4 metres and the parking space length from 6.1 metres to 5.0 metres,

all as shown on the architectural plans prepared by DVAD Inc., dated May 5, 2014, and the landscape plan prepared by Tom Barratt Ltd., dated April 30, 2014, attached as Appendices C and D to Council Report No. 14-107.

UBCM - 2014 Convention Update and New Bid Opportunities
Report No. 14-109
File No. 2014.34

That Council receive the update on the 2014 Union of British Columbia Municipalities (UBCM) Convention; and,

That Council direct staff to submit a bid for the Resort Municipality of Whistler to host the 2016, 2018 and 2020 Union of British Columbia Municipalities (UBCM) Conventions; and further,

That should the bid be successful, Council accept the host responsibilities on behalf of the Resort Municipality of Whistler as outlined in Administrative Report No. 14-109.

MINUTES OF COMMITTEES AND COMMISSIONS

Advisory Design Panel	Minutes of the Advisory Design Panel meeting of June 12, 2014.

OTHER BUSINESS

CORRESPONDENCE

Nesters Entrance File No. 8240	Correspondence from Erika and Peter Durlacher, dated September 2, 2014, regarding landscaping at the entrance to the Nesters subdivision.
Highway 99 Speed Limit Increases File No. 507	Correspondence from Rhonda Wittman and Dr. Chris Armstrong, dated September 3, 2014, and September 10, 2014, regarding speed limit increases to Highway 99 through Emerald Estates in Whistler.
Community Enrichment Program Grant File No. 3004	Correspondence from Kasi Lubin, Executive Director for Zero Ceiling, dated September 9, 2014, requesting to use the $4,500 grant received from the 2014 Community Enrichment Program to help support four youth for the 2014/15 Work 2 Live program.
Taxation Exemption for Not-For-Profit Organizations File No. Bylaw 2037	Correspondence from the Spo7ez Cultural Centre and Community Society, operating as the Squamish Lil'wat Cultural Centre, dated August 28, 2014, requesting a five-year property taxation exemption beginning in 2015.
Gas Pipeline and LNG File No. 3900	Correspondence from Laurie Parkinson, dated September 9, 2014, regarding the proposed Pacific Trails natural gas pipeline and LNG tanker and safety risks.

ADJOURNMENT

WHISTLER

MINUTES

REGULAR MEETING OF MUNICIPAL COUNCIL
TUESDAY, SEPTEMBER 2, 2014, STARTING AT 5:30 PM

In the Franz Wilhelmsen Theatre at Maurice Young Millennium Place
4335 Blackcomb Way, Whistler, BC V0N 1B4

PRESENT:

Mayor N. Wilhelm-Morden

Councillors: J. Crompton, J. Grills, D. Jackson, A. Janyk, and R. McCarthy

ABSENT: J. Faulkner

Chief Administrative Officer, M. Furey
General Manager of Corporate and Community Services, N. McPhail
General Manager of Infrastructure Services, J. Paul
General Manager of Resort Experience, J. Jansen
Director of Finance, K. Roggeman
Director of Planning, M. Kirkegaard
Manager of Communications, M. Comeau
Senior Planner, M. Laidlaw
Planner, R. Brennan
Planning Analyst, B. McCrady
Recording Secretary, A. Winkle

ADOPTION OF AGENDA

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

That Council adopt of the Regular Council agenda of September 2, 2014, with the addition of a resolution under Other Business regarding grizzly bear recovery.

CARRIED

ADOPTION OF MINUTES

Moved by Councillor J. Crompton
Seconded by Councillor J. Grills

That Council adopt the Regular Council minutes of August 5, 2014 and the Special Council minutes of August 8, 2014.

CARRIED

PUBLIC QUESTION AND ANSWER PERIOD

There were no questions from the public.

MAYOR'S REPORT

Mayor Wilhelm-Morden reported that July has been confirmed as the busiest on records in terms of paid room nights, up 10 per cent over last year. The summer has also seen positive trends in increased destination visitors and revenue per available room. This follows record breaking May and June numbers also. Apparently August, September and October are also pacing ahead of last year. She congratulated departments in the municipality and partner organizations around the resort who have delivered excellent summer experiences.

Mayor Wilhelm-Morden reported that on Saturday around 3,000 cyclists will participate in the 5th annual RBC GranFondo Whistler. Participants include an 11-year-old biking to Whistler from Squamish, and two cyclists over 80 years old. In Whistler, the best place to cheer the cyclists is along Blackcomb Way, and near the finish line between Day Lot 4 and Whistler Olympic Plaza. One lane of the Sea to Sky Highway between Vancouver and Whistler Village will be used for the event. Travel in both directions is possible but drivers should plan ahead and expect significant delays between Whistler and Vancouver from 6 a.m. to 4 p.m. and between Whistler Village and Function Junction between 9 a.m. and 4 p.m. People are encouraged to walk, bike, or take transit. Transit throughout Whistler is free until 6 p.m. and will have modified routes south of Whistler Village. Visit whistler.ca for event information, travel tips and maps. The Resort Municipality of Whistler invests in GranFondo programming through the Festivals, Events and Animation Program using RMI funding. Mayor Wilhelm-Morden acknowledged and thanked the Province for assisting in making this possible. She wished best of luck to the Whistler residents who are participating in the event.

Mayor Wilhelm-Morden reported that the Whistler Village Beer Festival will be held at Whistler Olympic Plaza from September 11 to 14. In just its second year, the event has expanded substantially.

Mayor Wilhelm-Morden reported that the Crafty by Nature + EnviroFest event was held last Sunday August 31. The event was a success with over 700 people attending. The event celebrated Whistler's natural environment with nature crafts, workshops, live music, learning opportunities, and so on.

Mayor Wilhelm-Morden reported that Whistler hosted the GROW Conference in late August. Councilor Crompton will report on his experience later in the Mayor's Report. The conference describes itself as being about the future of innovation, growth and entrepreneurship. It is a curated environment that brings together technology pioneers, founders, executives, influencers and investors who are passionate about identifying problems worth solving.

Mayor Wilhelm-Morden reported that Meadow Park Sports Centre is closing sections of its facilities for annual maintenance. Closures will affect the Fitness Studio, the Weight Room, the pool and the shower facilities during parts of September and October. Check whistler.ca for details. Mayor Wilhelm-Morden reported that there was consideration given to delaying the closure of the pool for the teachers' strike, but that could not be

accommodated due to the roof repair that has to be done this fall and cannot be done with the pool open.

Mayor Wilhelm-Morden reported that starting today, the Resort Municipality of Whistler began offering full-day programming to children affected by the teachers' strike. Kids on the Go (KTOG) for the Day is held at Myrtle Philip. It is non-instructional and is currently for children in grades 1 to 7 as well as kindergarten students. Parents do not have to cross the picket line to access the facility. For more information, contact Myrtle Philip Community Centre or Meadow Park Sports Centre by phone or in person between the hours of 9 a.m. and 5 p.m.

Mayor Wilhelm-Morden reported that a skateboard park rejuvenation plan is underway to evaluate existing features, recommend improvements and repairs, and design a new area. Thank you to everyone who attended the workshop this month. Over 30 skate park users shared their ideas and feedback. With council approval, construction for the new Whistler Skate Park could begin in 2015.

Mayor Wilhelm-Morden congratulated the Whistler Public Library and the other organizations who excelled in the August ServeUs Challenge. A total of 15 organizations were recognized by the Chamber of Commerce for their extraordinary guest service. In addition to winning the award, Whistler Public Library also celebrated its 28th birthday on August 27.

Mayor Wilhelm-Morden reported that the RMOW will host the Union of British Columbia Municipalities' Convention in Whistler from September 22 to 26. More than 2,000 delegates are attending from local governmentS, the provincial government, related associations, and media. The RMOW is pleased to welcome the conference and showcase Whistler's innovation and best practices that have made us a leader in local governance. It is an honour to host our municipal colleagues from around the Province and contribute to important conference business for the resort. The BC Mayor's Caucus will be meeting on the Monday afternoon.

Mayor Wilhelm-Morden reminded everyone to be especially aware of Whistler's bear population for the next few weeks. Please take care to avoid having bear attractants, such as garbage, pet food, and dirty barbecues, accessible on your property. Also, please ensure fruit bearing trees and berries like mountain ash are removed as much as possible. There will be a series of three informational talks on bears at Whistler Public Library. You can find out more about these at whistler.ca.

Mayor Wilhelm-Morden thanked everyone who took care on trails this summer while Lost Lake's western toad population has finished their two-to three-week migration to nearby forests. The western toads' migration was helped this year by two new culverts, increased wildlife fencing, and improved signage installed by the municipality.

Mayor Wilhelm-Morden thanked everyone who helped during and after the Spruce Grove Circle fire. In addition to recognizing Whistler Fire Rescue Services and other fire and emergency and social services, she thanked the

following organizations: Black's Pub, Delta Whistler Village Suites, Evolution Whistler, Holiday Inn Whistler Village Centre, IGA Marketplace, McDonalds, Nester's Market, Resort Cabs, the Re-Use It Centre, and the Wildwood Bistro & Bar.

Mayor Wilhelm-Morden, on behalf of Council and the Resort Municipality of Whistler, shared her condolences with the family and friends of Bosco Poitras following his passing. Robert "Bosco" Poitras was a writer and publisher of Whistler's witty newspaper the Whistler Answer that ran from 1977 to 1982, and from 1992 to 1993. He was a passionate supporter of Whistler, a critic of Whistler from time to time, and a witty and skilled writer. Bosco's ashes were scattered on Whistler Mountain by friends.

J. Crompton reported that he attended the GROW Conference in Whistler. One of the key topics was a vision to make Whistler the most connected resort in the world. He commented on the possible opportunities for Whistler from having the minds from Silicon Valley committed to coming to Whistler over the next five years, such as possible beta testing new products in town, and the hackathon event where software engineers from Vancouver, San Francisco and Seattle built software over 36 hours. He congratulated Guestfolio, a team from Whistler, for coming in second. He thanked the team at the RMOW for their work and participation in the conference.

Councillor A. Janyk thanked RMOW staff for completion of the Alpha Lake park area. She reported that the docks for each humans and dogs are now in place and commented on the separation of human visitors and dogs.

Councillor A. Janyk thanked Nigel Loring for work during his five years as Executive Director of the Whistler Mountain Ski Club and congratulated him on his new position with the Alberta Ski Federation.

INFORMATION REPORTS

Second Quarter Investment Report - 2014
Report No. 14-099
File No. 4572

Moved by Councillor A. Janyk
Seconded by Councillor D. Jackson

That Council receive Information Report No. 14-099 on Investment Holdings as of June 30, 2014.

CARRIED

ADMINISTRATIVE REPORTS

DVP 1081 - 9343 Emerald Drive Parking, Covered Stair and Retaining Wall Variances
Report No. 14-103
File No. DVP 1081

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

That Council approve Development Variance Permit 1081 to:

1. Vary the parking space setback from 1.5 metres to 0 metres from a parcel boundary;
2. Vary the height of the covered staircase from 5 metres to 7.5 metres;
3. Vary the front and side setback (south) to 0 metres and the height to 0.80 metres for three proposed retaining walls; and

4. Vary the front setback (north) to 0 metres and the height to 4.6 metres for a proposed retaining wall,

all as shown on the proposed plans prepared by Eco Mountain Homes, dated April 23, 2014, and attached to Administrative Report No. 14-103 as Appendix B.

CARRIED

DVP 1083 – 8562 Buckhorn Place Setback Variances
Report No. DVP 1083
File No. 14-101

Moved by Councillor R. McCarthy
Seconded by Councillor J. Crompton

That Council approve Development Variance Permit 1083 to:

1. Vary the front setback for an attached garage from 5.0 metres to 2.0 metres; and,
2. Vary the side setback for an attached garage from 3.0 metres to 1.8 metres,

as shown on the Architectural Plans prepared by Burgers Architecture Inc., dated June 26, 2014, attached as Appendix B to Council Report No. 14-101.

CARRIED

RZ1080 – 2010 London Lane –First and Second Readings of Zoning Amendment Bylaw
Report No. 14-100
File No. RZ 1080

Moved by Councillor A. Janyk
Seconded by Councillor D. Jackson

That Council consider giving first and second readings to "Zoning Amendment Bylaw (CL5 Zone – Commercial Local Five) No. 2063, 2014"; and,

That Council authorize the Corporate Officer to schedule a public hearing regarding Zoning Amendment Bylaw (CL5 Zone - Commercial Local Five) No. 2063, 2014 and to advertise for same in the local newspapers; and further,

That Council direct staff to advise the applicant that before consideration of adoption of Zoning Amendment Bylaw (CL5 Zone – Commercial Local Five) No. 2063, 2014, the following matters shall be completed to the satisfaction of the General Manager of Resort Experience:

1. Payment of any outstanding rezoning application fees.

CARRIED

RZ 1084 – 4150 Tantalus Drive Rezoning for Additional Gross Floor Area
Report No. 14-102
File No. RZ 1084

Moved by Councillor A. Janyk
Seconded by Councillor D. Jackson

That Council endorse the continuing review of Rezoning Application RZ 1084; and further,

That Council direct staff to prepare the necessary zoning amendment bylaw for Council consideration.

CARRIED

At 6:01 p.m. a Public Hearing was held for Land Use Contract Amendment Bylaw (Blueberry Hill) No. 2062, 2014.

At 6:08 p.m. the meeting resumed.

AS0002 - 4369 Main Street Telus Rooftop Antennae and Radio Cabinet Application
Report No. 14-104
File No. AS0002

Moved by Councillor R. McCarthy
Seconded by Councillor D. Jackson

That Council authorize the issuance of a letter of concurrence (support) to Industry Canada for the proposed Telus rooftop antennae and radio cabinets as shown in the plans prepared by GS Sayers Engineering Ltd. (S101, S301-303, S401-403) dated February 2014 and attached as Appendix B to Administrative Report No. 14-104.

CARRIED

Alpine Water Main Replacement Project – 2014 Update
Report No. 14-105
File No. 271.4

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

That Council authorize staff to postpone the Phase 1 portion of the Alpine Water Main Replacement project, and consolidate that work with the Phase 2 work scheduled for 2015.

CARRIED

BYLAW FOR FIRST AND SECOND READINGS

Zoning Amendment Bylaw (CL5 Zone – Commercial Local Five) No. 2063, 2014

Moved by Councillor A. Janyk
Seconded by Councillor D. Jackson

That Zoning Amendment Bylaw (CL5 Zone – Commercial Local Five) No. 2063, 2014 receive first and second readings.

CARRIED

BYLAW FOR THIRD READING

Land Use Contract Amendment Bylaw (Blueberry Hill) No. 2062, 2014

Moved by Councillor R. McCarthy
Seconded by Councillor J. Crompton

That Land Use Contract Amendment Bylaw (Blueberry Hill) No. 2062, 2014 receive third reading.

CARRIED

OTHER BUSINESS

Grizzly Bear Recovery Plans

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

WHEREAS, grizzly bears and the wild places they inhabit are an iconic and integral part of the Sea to Sky region's natural heritage and image, are culturally significant to First Nations, and there are ecological, economic, and spiritual benefits to conserving and recovering grizzly bears including that they are an "umbrella species", the conservation of which will benefit many other plants, animals and ecosystem values like clean water and recreational opportunities;

AND WHEREAS, the community of Whistler was involved in, and supported, the April 2008 Sea-to-Sky LRMP which set a goal of achieving and maintaining Viable status for each of the four Grizzly Bear Population Units that overlap the Sea-to-Sky LRMP plan area, including the two adjacent to Whistler, through the development of Grizzly Bear Recovery Plans;

AND WHEREAS, these Grizzly Bear Recovery Plans have not been written and Grizzly Bear Population Units in the Sea to Sky Region remain Threatened;

THEREFORE BE IT RESOLVED that the community of Whistler continues to support the management, recovery and long-term viability grizzly bear populations in the Sea to Sky region and encourages the creation and Implementation of Grizzly Bear Recovery Plans as soon as possible.

CARRIED

CORRESPONDENCE

Environmental Legacy Fund
File No. 3009

Moved by Councillor A. Janyk
Seconded by Councillor D. Jackson

That correspondence from Carol Coffey, Executive Director of the Community Foundation of Whistler, dated August 11, 2014, regarding the 2013 annual fund statement for the Environmental Legacy Fund be received.

CARRIED

B.C. Green Party at UBCM
File No. 3009

Moved by Councillor R. McCarthy
Seconded by Councillor J. Crompton

That correspondence from Adam Olsen, Leader of the B.C. Green Party, dated August 12, 2014, regarding opportunities to meet at the Union of BC Municipalities (UBCM) conference be received.

CARRIED

ADJOURNMENT

Moved by Councillor J. Crompton

That Council adjourn the September 2, 2014 Council meeting at 6:27 p.m.

CARRIED

_____
MAYOR: N. Wilhelm-Morden

_____
CORPORATE OFFICER: S. Story

WHISTLER

MINUTES

PUBLIC HEARING OF MUNICIPAL COUNCIL
TUESDAY, SEPTEMBER 2, 2014 STARTING AT 6:00 PM

In the Franz Wilhelmsen Theatre at Maurice Young Millennium Place
4335 Blackcomb Way, Whistler, BC V0N 1B4

PRESENT

Mayor N. Wilhelm-Morden

Councillors: J. Crompton, J. Grills, D. Jackson, A. Janyk, and R. McCarthy

ABSENT: Councillor J. Faulkner

Chief Administrative Officer, M. Furey
General Manager of Corporate and Community Services, N. McPhail
General Manager of Infrastructure Services, J. Paul
General Manager of Resort Experience, J. Jansen
Director of Finance, K. Roggeman
Director of Planning, M. Kirkegaard
Manager of Communications, M. Comeau
Planner, R. Brennan
Recording Secretary, A. Winkle

The Public Hearing is convened pursuant to Section 890 of the Local Government Act R.S.B.C. 1996, c. 323 to allow the public to make representations to Council respecting matters contained in "Land Use Contract Amendment Bylaw (Blueberry Hill) No. 2062, 2014" (the "proposed Bylaw").

Everyone present shall be given a reasonable opportunity to be heard or to present written submissions respecting matters contained in the proposed bylaw. No one will be discouraged or prevented from making their views known. However, it is important that remarks be restricted to matters contained in the proposed Bylaw.

When speaking, please commence your remarks by clearly stating your name and address.

Members of Council may, ask questions following presentations however, the function of Council at a Public Hearing is to listen rather than to debate the merits of the proposed Bylaw.

As stated in the Notice of Public Hearing, in general terms, the purpose of the proposed Bylaw is to amend the land use contract for the subject lands by

replacing the contract's existing Gross Floor Area definition with "Zoning and Parking Bylaw No. 303, 1983" Gross Floor Area definition as follows:

"gross floor area" means the total area of all floors in all buildings on a parcel, measured to the outside surface of the exterior walls of the building including stairwells, basements and cellars but excluding areas specified in subsection 25.1 of Section 5.

Explanation — An explanation was given by Robert Brennan, Planner, concerning the proposed Bylaw.

Submissions — Mayor Wilhelm-Morden called three times for submissions by the public.

No submissions were made by the public.

Correspondence — Allison Winkle, on behalf of the Corporate Officer, indicated that no correspondence was received regarding the proposed Bylaw.

ADJOURNMENT

Hearing no further comments, the Public Hearing adjourned at 6:08 p.m.

_____
Mayor, N. Wilhelm-Morden

_____
Corporate Officer, S. Story

WHISTLER

MINUTES

COMMITTEE OF THE WHOLE
A MEETING OF MUNICIPAL COUNCIL
TUESDAY, SEPTEMBER 2, 2014, STARTING AT 2:02 P.M.

In the Flute Room at Municipal Hall
4325 Blackcomb Way, Whistler, BC V0N 1B4

PRESENT

Mayor N. Wilhelm-Morden

Councillors: J. Crompton, J. Grills, D. Jackson, A. Janyk, and R. McCarthy

ABSENT: Councillor J. Faulkner

Chief Administrative Officer, M. Furey
General Manager of Resort Experience, J. Jansen
General Manager of Corporate and Community Services, N. McPhail
Manager of Communications, M. Comeau
Environmental Coordinator, T. Symko
Communications Officer, P. Buswell Lafrance
Recording Secretary, A. Winkle

ADOPTION OF AGENDA

Moved by Councillor J. Crompton
Seconded by Councillor R. McCarthy

That Council adopt the Committee of the Whole agenda of September 2, 2014.

CARRIED

PRESENTATION/DISCUSSION

A presentation was given by Johnny Mikes, Field Director for the Coast to Cascades Grizzly Bear Initiative, regarding grizzly bears in the Whistler region.

A discussion was held regarding grizzly bears in the Whistler region.

ADJOURNMENT

Moved by J. Crompton

That Council adjourn the meeting at 2:39 p.m.

CARRIED

_____ _____
Mayor N. Wilhelm-Morden Corporate Officer: S. Story

KPU | Institute for Sustainable Food Systems

Southwest BC Bio-Regional Food System Design Project

Envisioning a Bio-Regional Food System for 2050

Project Overview September 2014

Researchers at Kwantlen Polytechnic University's *Institute for Sustainable Food Systems (ISFS)* are leading a project to explore the economic, environmental stewardship and food self-reliance potential of a bio-regional food system in southwest BC (SWBC). The team is using scenarios to understand the relationship between factors in the food system and understand the how different decisions will impact the future of our food system. Working with stakeholders we will create a potential Bio-Regional Food System Design for 2050. It will be accompanied by an action plan and recommendations. The project will produce a wide range of information and tools that can be used by municipal and regional governments, food system advocates, farmers and agriculturalists, Indigenous communities, entrepreneurs and many others.

Southwest BC Bio-region

Why a Bio-Regional Food System?

Climate change, rising oil costs, and the degradation of the environment are creating uncertainties in global food production. In Southwest BC we are losing our capacity to grow food for local consumption. Farms are being lost and small lots in the ALR are at risk of development. Local processing capacity is nearly absent. Development and expansion of southwest BC's food system will help to build local resilience and adaptive capacity. It is estimated that residents of Southwest BC spend over $6 billion[1] per year on meals; a Southwest BC food system could capture an increased share of this spending for regional economies.

The team is using a bio-regional approach to create a potential Design for an integrated food system that respects the boundaries and leverages the opportunities of an ecological and cultural region beyond the conventional delineations of municipal and regional boundaries. Our planning horizon is 2050. What is the potential for a revived and re-localized food system in BC; how many jobs can a bio-regional food system support and how much can it contribute to the regional economy; what kinds of ancillary businesses can emerge and how can this kind of food system reduce GHG emissions and address serious environmental concerns? These are some of the questions the ISFS team is trying to answer.

Project Highlights

- Relevant, applied and community-based research that will provide useful information and tools to farmers and food system businesses, policy makers, planners and others.
- Endorsed and supported by the Agricultural Land Commission and a growing list of major municipalities and other organizations. Funded by the Real Estate Foundation, Webster Foundation, Vancity Community Foundation, and a growing list of municipal supporters.
- Scenario approach to explore the dynamics of the food system in an uncertain future.
- Systems thinking approach focused on as many elements of the food system as possible including: agricultural inputs, agricultural production, storage, processing, distribution and consumption. Data and research limitations will be considered throughout the project as the team moves forward.
- A project advisory committee, Indigenous advisory committee e and academic advisory committee provide advice on methodology, research and engagement for all aspects of the project.

[1] Calculated using Statistics Canada Survey of Household Spending in 2010, Table 62-240-X, and BC Stats population estimates for 2010.

Project Timeline and Current Status

Phase	Achievements to Date	
Phase 1 – Baseline	- Compiled a team of Research Associates and Partners. The team includes economists, Planners, agriculturalist scientists, ecologists and a stakeholder engagement and communications specialist. See a full list of the team in this package	Complete
	- Drafted a set of objectives and indicators to guide the modeling and design of a SWBC bio-regional food system	Complete
	- Baseline research: collected data to inform the modeling process and collected information on the current state of the Southwest BC Food System. Baseline research and data collection will continue through summer 2014 as the team moves into the modelling and Design phase	Complete
	- Secured funding and endorsement from over 35 organizations and counting	Ongoing
	- Launched project website and social media	Complete
Phase 1 – Baseline	**Next Steps**	
	- Phase 1 stakeholder workshops	Complete
	- Phase 1 baseline and stakeholder workshop reporting	Complete
Phase 2 Modelling and Design	- Refine model and develop scenarios based on baseline research data and consultation results	July – December 2014
	- Scenario and Design event(s) with stakeholders	January 2015
	- Visualization and description of Design	February-May 2015
Phase 3 - Action Planning	- Action planning outreach and workshops	May –June 2015
	- Project completion	September 2015

What is a Bio-Region?

Bio-regions are areas that share similar topography, plant and animal life, and human culture. They are alternately referred to as a Life Place. They are largely based on eco-regions but incorporate human settlement and activity patterns and can take political boundaries into consideration.

The bio-region for the project includes: Metro Vancouver, Fraser Valley Regional District, Sunshine Coast Regional District, Squamish Lillooet Regional District, and Powell River Regional District. The bio-region also includes the traditional territories of the Coast Salish Peoples.

The characteristics most commonly used to delineate bio-regions are watersheds and biogeoclimatic zones, landforms, and vegetation assemblages. The Southwest BC Bio-region was delineated using a combination of regional watershed boundaries, Level 3 Ecoregional Classification zones (that reflect similarities in climate, geography and biological communities) and municipal and regional district boundaries. The overlapping boundaries of ecoregions, watersheds, landforms, and Indigenous territories offer a valuable contextual and historical reference points for deepening our shared understanding of how to “live in place” in the present day.

Project Benefits

By supporting the project, partners can access the expertise of a unique multi-disciplinary team as well as access data and tools relevant to policy development, business planning, community development and much more. As the project evolves the team will work with partners to seize emerging opportunities for data sharing and for transforming research into relevant and timely tools for a variety of stakeholders. We encourage all potential partners to learn more about the research being conducted in their area of interest and to contact us to explore opportunities. Examples of current deliverables from the project include:

1. SWBC Bio-Regional Food System Design and Action Plan

- The Design will paint a picture of what a bio-regional food system could look like in southwest BC in the year 205. The document will include a detailed description of the economic, environmental and food self-reliance outcomes and benefits of the Design. It will describe challenges and opportunities and provide policy recommendations and other tools to help stakeholders create a climate that supports this Design and brings it to reality. The design and action plan will be the result of our work with stakeholders and will include documentation about stakeholder outreach during the project.

2. Economic Development & Diversification

- **SWBC Farm Enterprise Budgets:** Farm business planning templates for 30 crops and livestock suited to SWBC
- **Revenue Projections:** Projections for increased revenue resulting from farming of under-farmed land in the Southwest BC region. May be able to provide information by municipality where data permits.
- **Job Creation Potential:** Estimates around the potential for job creation and diversification from farming, processing and distribution businesses in the Southwest BC region.
- **Study of Food Processing, Agricultural Input Suppliers and Distribution Methods in SWBC:** Gather baseline data about the existing system and identifying strategies for overcoming challenges and seizing opportunities.

3. Policy, Planning & Governance

- **Local Government Policy Inventory:** For each municipality, an inventory of existing local policies and strategies, and assessment of their ability to aid in the creation of a comprehensive regional food system design and plan.
- **Local Government Policy Cross Jurisdictional Best Practices Review:** An inventory of best practices and innovations in municipal food system policy.

4. Research Briefs

- Ecological Footprint Analysis of the Current Food System
- Scan of Southwest B.C. Municipal Food System Planning and Policy
- Economic Status of the SWBC Agri-Food Sector
- Food Self-Reliance Capacity of Southwest B.C.
- Healthy Food Basket Costs
- and many others

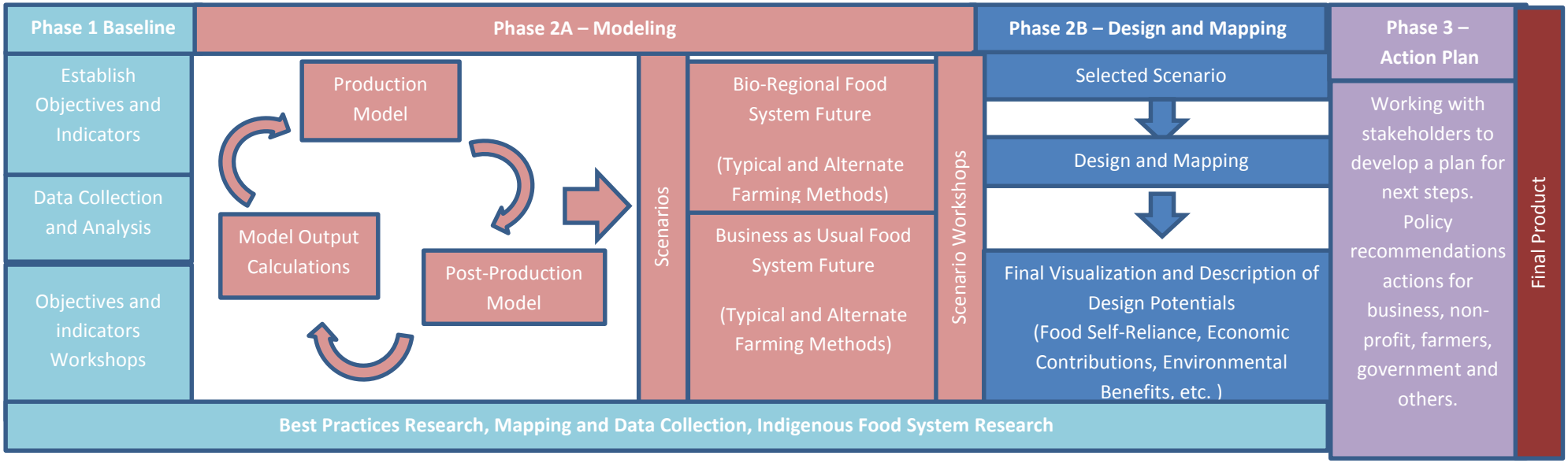
5. Indigenous Perspectives and Paradigms

Our research team is working with an Indigenous Research associate and advisory committee toward the goal of positioning Indigenous priorities, perspectives and paradigms in food system research, design and planning. On his project we will:

- Describe and characterize the Indigenous food systems thinking paradigm and identify the points of entry; complementarity; intersection and contention between it and sustainable food system thinking
- Assess the final project to see how these dimensions have been incorporated and what gaps and opportunities exist for future research.

Project Overview

Three key phases of work will be delivered by the team over the course of three years. The project started in September of 2012. The methodology presented below describes how the project team is approaching the work of envisioning a 2050 food system for southwest BC. The team is developing a mathematical model using food self-reliance and agricultural production as a starting point. The project is based in an understanding of the food system in its broadest sense and ecological, economic, food self-reliance potential. Indigenous priorities and perspectives are being considered and applied throughout. The mathematical model is only a starting point for exploring the potential of a bio-regional food system. The design and action planning phases will allow the team to incorporate broader elements of the food system into the project.



Phase 1 – Baseline	Phase 2A – Modeling	Phase 2B – Design and Mapping	Phase 3- Action Planning
ISFS will work together with stakeholders to establish objectives and indicators to guide the modelling and creation of the Food System Design and gather baseline data to inform the modeling and Design process.	ISFS will develop a mathematical model to estimate how much and what kinds of food could be grown within the SWBC bio-region in the year 2050. The impact of ecological and economic constraints on potential food production will be explored through various scenarios. The post-production (processing and storage) capacity needed to support the modeled food production will then be estimated and quantified.	The team will gather stakeholders to discuss and refine scenarios to create a vision and Design for a 2050 bio-regional food system. Once the Design is complete the team will bring it to life with a description of its food production, economic, environmental and community potentials.	The team will work with stakeholders to develop a roadmap and action plan.

Project Objectives

Strengthen the regional economy by:

- Identifying ways to retain more of the "local food dollar" and position the agri-food sector to contribute directly to the regional economy;
- Identifying opportunities for small to medium sized businesses; and,
- Identifying the potential to create rewarding, satisfying jobs that will appeal to a new generation.

Support agriculture and food provisioning by:

- Connecting agriculture with key elements of the food system (processing, distribution, sales);
- Providing regionally appropriate information for current and future farmers; and,
- Identifying opportunities and strategies for expanding the regional food sector.

Promote environmental stewardship and health by:

- Proposing strategies to mitigate environmental degradation and lessen overall ecological footprints associated with food and agriculture;
- Proposing strategies to contribute to regional greenhouse gas emissions reductions; and,
- Identifying means to integrate ecologically sound agriculture with natural landscapes.

Foster food security and public health by:

- Exploring how we can diversify our food supply by building our bio-regional food system;
- Proposing strategies to make healthy, fresh, foods more accessible

Strengthen communities and build social capital by:

- Building capacity within SWBC communities to engage in agriculture and the food system;
- Working with Indigenous communities of focus to identify points of intersection and opportunities for integration of an Indigenous land and food systems perspectives and priorities; and,
- Bringing together diverse communities by catalyzing action around mutual goals and shared food system values

Project Support and Endorsement

Project Funders	**Municipal Endorsements** *Communities that support the project through allocation of staff liaison*	**Industry Endorsements** *Letters of Support*
• Real Estate Foundation - $300,000 • Webster Foundation - $120,000 • VanCity Envirofund - $75,000 • VanCity - $50,000 • Individual Donations - $7200 **SWBC Municipal Funders to Date** • City of Burnaby - $12,000 • City of North Vancouver - $12,000 • District of Maple Ridge - $12,000 • Township of Langley - $12,000 • City of Langley - $6000 • District of Squamish - $6000 • Squamish-Lillooet Regional District- $5000	• District of North Vancouver • District of Mission • City of Pitt Meadows • City of Port Moody • Village of Pemberton • Corporation of Delta • City of Abbotsford • Bowen Island Municipality • City of New Westminster	• Small Scale Food Processor Association • Delta School District • Whistler Centre for Sustainability • BC Agricultural Land Commission • BC First Nations Agricultural Association • Farm Folk City Folk • Invest North Fraser • White Rock Surrey and Naturalists' Society • The Surrey/ White Rock Food Action Coalition • The New Westminster Community Food Action Committee • Fraser Health • Richmond Food Security Society • Langley Environmental Partners Society • Surrey Board of Trade • Vancouver Food Policy Council • Bowen Agricultural Alliance • Food Matters Chilliwack

Many thanks to the British Columbia Agriculture Council and Metro Vancouver for supporting the project proposal to Real Estate Foundation.

Stakeholder Engagement

The Institute for Sustainable Food Systems is an applied research institute. We believe research must respond to community need and provide solutions for real world challenges. Stakeholders across the food system will be engaged in the project in several ways.

1. Participation in the design and action planning of a bio-regional food system.
    a. June 2014 – Stakeholder workshopswere hosted across the bio-region to gather input and priorities on the objectives, sub-objectives for a bio-regional food system and the associated indicators that will be used to measure progress and success.
    b. Early 2015 – A 2-3 day design event will bring together stakeholders to explore different scenarios for a bio-regional food system and creates a design and vision for how we will feed our communities in 2050.
    c. Spring 2015 – Workshops will bring stakeholders together to establish next steps, policy recommendations and other tools to bring the design to life.

2. A project advisory committee has been assembled and will begin meeting in July 2014. This committee will provide feedback and project methodology and strategy.

3. The engagement team meets regularly with City Councils, Agricultural Advisory Committees, Community Organizations and interested individuals to provide updates on the project and opportunities for input and feedback.

Phase 1 - Food System Objectives and Indicators (DRAFT – May 2014)

Food System Objectives		Food System Indicators	
1	**Increase self-reliance in agricultural production**	1.1	Degree to which locally grown food contributes to total food consumption and satisfaction of nutritional requirements
		1.2	Quantity of under-farmed land
		1.3	Quantity of agricultural land by land quality
		1.4	Quantity of water used in food processing
		1.5	Quantity of water used in crop and livestock production
		1.6	Degree to which agricultural inputs (seed, feed, fertility, and stock) are regionally produced
		1.7	Capacity of storage and processing facilities to support year-round supply of regionally produced foods
		1.8	Total amount of agriculturally viable land on Indian Reserves
		1.9	Types and values of alternative regional marketing channels
2	**Minimize external inputs and optimize soil, water and air quality**	2.1	Changes in soil carbon stocks in agricultural land
		2.2	Number of soil cover days for agricultural land
		2.3	Total quantity of water used in food processing
		2.4	Total quantity of water used in crop and livestock production
		2.5	The percentage of crop nutrient demand met or exceeded
		2.6	Risk of nitrogen contamination to water
		2.7	Quantity of agricultural ammonia emissions
		2.8	Quantity of synthetic fertilizer used
3	**Increase biodiversity**	3.1	The diversity of crop and livestock types in the bio-region
		3.2	The diversity of crop and livestock varieties in the bio-region
		3.3	Capacity of agricultural land to provide wildlife habitat
		3.4	The connectivity of non-production habitat
4	**Minimize non-renewable energy inputs and optimize energy efficiency**	4.1	Quantity and types of energy used throughout the food system
		4.2	Fossil fuel share of total energy use in the system
5	**Reduce and Remove Greenhouse Gas Emissions**	5.1	Tonnes of carbon dioxide emissions from fossil fuels (system wide)
		5.2	Tonnes methane emissions from cattle, manure and waste disposal
		5.3	Tonnes No2 emissions from manure management and application; fertilizer application
		5.4	Net terrestrial carbon stocks: soil organic carbon; hectares of forest/woody vegetation available for carbon sequestration
6	**Reduce the ecological footprint of the food system**	6.1	Ecological Footprint of land based agricultural food production in SWBC
		6.2	Ecological Footprint of food consumed in SWBC (local plus imported foods)
7	**Strengthen and Enhance Local Farm and Ancillary Business**	7.1	Number of farms and farm types
		7.2	Characteristics of farm operators
		7.3	Farm profitability in the bio-region
		7.4	Initial farm capital costs in the bio-region
		7.5	Number and location of food processing operations in the bio-region
		7.6	Types and values of alternative marketing channels
		7.7	Retail and farm gate price and quantity comparison of selected food commodities
8	**Contribute to the Local Economy**	8.1	Gross domestic product (GDP) of the agri-food system sector
		8.2	Number of farm employment opportunities and total farm employee labour income
		8.3	Number of ancillary business employment opportunities and related labour income.

Southwest British Columbia Project Team

Principal Investigator

Dr. Kent Mullinix- Kwantlen Polytechnic University-ISFS

Collaborators	Project Methodology Advisors
• **Dr. Rebecca Harbut** - Kwantlen Polytechnic University, Sustainable Agriculture • **Dr. Jan Thompson** - Kwantlen Polytechnic University, Dept. of Geography	• **Dr. Herb Barbolet** - Simon Fraser University-Centre for Sustainable Community Development and Centre for Dialogue • **Professor Patrick Condon** - University of British Columbia • **Dr. Eduardo Jovel** - University of British Columbia • **Dr. Aleck Ostry** - University of Victoria • **Dr. Bill Rees** - University of British Columbia • **Dr. Alejandro Rojas** - University of British Columbia

Research Associates

Supply Chain Team

- **Lead - Dr. Kent Mullinix**
  Kwantlen Polytechnic University-ISFS
- **Caitlin Dorward**
  Kwantlen Polytechnic University- ISFS

Economy Dynamics

- **Lead - Dr. Wallapak Polasub**
  Kwantlen Polytechnic University - ISFS
- **Caroline Chiu**
  Kwantlen Polytechnic University - ISFS
- **Ermias Afeworki**
  Kwantlen Polytechnic University - ISFS

Planning/Policy/Governance

- **Lead: Dr. Cornelia Sussmann**
  Kwantlen Polytechnic University - ISFS
- **Co-lead: Caitriona Feeney**
  Kwantlen Polytechnic University - ISFS
- **Rebecca Kilford**
  Kwantlen Polytechnic University - ISFS

Indigenous Communities

- **Lead – Dawn Morrison**
  Kwantlen Polytechnic University - ISFS
- **Rebecca Kilford**
  Kwantlen Polytechnic University - ISFS

Ecological Systems and Climate Change Adaptation

- **Lead - Dr. Sean Smukler**
  University of British Columbia, Land and Food Systems
- **Greg Harris**
  Kwantlen Polytechnic University, Dept. of Biology
- **Anna Rallings**
  Kwantlen Polytechnic University - ISFS

Ecological Footprint Analysis and GHG Mitigation

- **Lead - Dr. Meidad Kissinger**
  Ben-Gurion University of the Negev
- **Dr. Cornelia Sussmann**
  Kwantlen Polytechnic University - ISFS

Food Security Dynamics

- **Lead - Dr. Lenore Newman**
  Canada Research Chair in Food Security
  University of the Fraser Valley

Community Health/ Nutrition

- **Lead - Katie Robinson, R.D.**
  Kwantlen Polytechnic University - ISFS
  Registered Dietician
- **Collaborator - Dr. Christiana Miewald**
  Simon Fraser University

Stakeholder Engagement

- **Lead: Sofia Fortin**
  Kwantlen Polytechnic University - ISFS

The Institute for Sustainable Food Systems

Directed by Dr. Kent Mullinix, the Institute for Sustainable Food Systems at Kwantlen Polytechnic University is based on Kwantlen's Richmond campus and operates in conjunction with the Sustainable Agriculture program. The Institute's applied research, extension, and education programming focuses on regional-scale, human intensive, ecologically sound food systems as foundational to sustainable community. Our past and current work falls under two categories: MESA projects and Bio-Regional Food Systems projects.

Through our MESA ("Municipally Enabled Sustainable Agriculture") projects, we have worked with municipalities in south-west BC to investigate the direct economic, environmental, and social benefits that could result if municipalities supported small scale agriculture in their communities through policy (such as bylaws allowing urban farming and farm gate sales) and programs (such as education programs and demonstrations). Our work has demonstrated significant potential for increased food security, a reduction of farmland loss to urban sprawl, job creation, and wealth generation.

In our Bio-Regional Food Systems projects, we are working to evaluate the potential for a food system sector organized and operating at the eco-region scale and comprised of low input, human intensive, and ecologically sound supply chain components. This eco-regional scale food sector complements the current food system, to improve food self-reliance, minimize environmental impact, improve economic viability of farms and ancillary businesses, contribute to the local economy, create opportunity for the development of small and medium sized businesses and strengthen communities. We are currently working on bio-regional food systems projects in south-west BC and in the Yukon.

For more information about the Institute for Sustainable Food Systems, please visit us online at http://www.kpu.ca/isfs

Kwantlen Polytechnic University has been serving the Metro Vancouver region for 30 years, and has opened doors to success for more than 250,000 people. Four campuses—Richmond, Surrey, Cloverdale and Langley—offer a comprehensive range of sought-after programs, including business, liberal arts, science, design, health, trades and technology, apprenticeships, horticulture, and academic and career advancement. Over 18,000 students annually have a choice from over 200 programs, including bachelor's degrees, associate degrees, diplomas, certificates and citations.

WHISTLER

REPORT | INFORMATION REPORT TO COUNCIL

PRESENTED: September 16, 2014 **REPORT:** 14-108

FROM: Resort Experience **FILE:** 8376

SUBJECT: 2013 STATE OF THE ENVIRONMENT REPORT

COMMENT/RECOMMENDATION FROM THE CHIEF ADMINISTRATIVE OFFICER

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

RECOMMENDATION

That Information Report No. 14-108 regarding the 2013 State of the Environment Report be received.

REFERENCES

Appendix A – 2013 State of the Environment Report

PURPOSE

To present Council with the highlights of the 2013 State of the Environment Report.

DISCUSSION

The 2013 State of the Environment Report, the second report of its kind, provides a snapshot of the status of Whistler's natural environment based on research and monitoring performed by various agencies including the RMOW. The intent of this report is to foster an understanding of the health of our local natural systems and environmental resources – broadly categorized as air, water, land, plants and wildlife. With this understanding, the RMOW will be better equipped to manage these systems and resources in accordance with our community's values and objectives towards environmental stewardship, as stated in the RMOW's highest level policies: Whistler2020, the RMOW Corporate Plan and Whistler's Official Community Plan (OCP).

Air

This report reviews the state of Whistler's air quality in 2013. The air quality data presented in the report focuses primarily on three specific pollutants, including nitrogen dioxide (NO_2), ground level ozone (O_3), and particulate matter 2.5 ($PM_{2.5}$). This air quality data is primarily sourced from the BC Ministry of Environment, which operates a monitoring station at Meadow Park, and the RMOW which operates a more informal monitoring station in the Cheakamus Crossing neighbourhood. Also reviewed is the Air Quality Health Index (AQHI), a measure relating the location-specific health risks of multiple pollutants for public information purposes.

Air quality throughout in Whistler has been generally good throughout 2012 and 2013. There were no exceedances of air quality objectives, nor were there any air quality advisories issued by the BC MOE. Occasional 2013 winter occurrences of elevated $PM_{2.5}$ levels detected at the BC MOE monitoring station were likely related to local weather conditions combined with high resort

community occupancy and increased wood smoke from fireplaces. There have been no High or Very High AQHI ratings in Whistler since 2010.

Current favourable air quality in Whistler does not mean there is room for complacency. Community growth, increased visitor numbers, increased use of wood-burning appliances, wildfires (regional or even international), changing industrial infrastructure and increased motorized recreation and/or transportation can lead to increased pollutant levels and deteriorating air quality. Air quality objectives provide thresholds that Whistler should strive to remain well below and the aim for the resort community should be to continually reduce pollutant levels. An eye towards continual improvement drives Whistler's projects and programs related to local air quality, including an integral partnership with the Sea to Sky Clean Air Society.

Water

Healthy water quality is an indicator of healthy ecosystems able to support thriving aquatic and wildlife species and providing clean, safe places for recreation. As indicated by historical monitoring results, Whistler has consistently exhibited good water quality results over time. This report examines the state of stormwater, aquatic habitat water quality and swimming beach water quality.

In 2013, there was limited available data upon which to draw solid conclusions, however the available data for this year did not indicate any significant concerns with aquatic habitat water quality or swimming beaches.

With respect to stormwater, in 2012, stormwater in the two village biofiltration ponds was found to be contaminated, which could indicate that the ponds were working as planned to collect and trap contaminants before the water flows into Fitzsimmons Creek. In 2013, limited data was available for water quality in these biofiltration ponds, making it difficult to determine whether the ponds are working correctly and/or if contaminant removal is required to help ensure the proper functioning of these systems. The biofiltration ponds were not sampled specifically for stormwater contaminants in 2013. Limited sampling of basic water quality parameters in the ponds showed exceedance levels of turbidity and conductivity, with dissolved oxygen levels slightly below acceptable range. However, normal readings at the pond outlets likely indicate that the ponds are working as planned to trap contaminants prior to outflow into Fitizsimmons Creek. The data available for 2013 does not indicate any significant negative impacts to Fitzsimmons Creek. Currently in 2014, this data gap has been recognized and the area is being monitored and sampled regularly and a system for contaminant removal is in the planning stage.

Aquatic habitat water quality sampling for Whistler creeks and rivers was also limited in 2013. The only creek monitored for complete organic and inorganic pollutants was Crabapple Creek and all parameters were within the recommended limits for freshwater aquatic life according to the BC Water Quality Guidelines (BCWQG), except for dissolved aluminum on one occasion, and cadmium on all samples. Both of these water quality issues were previously identified in 2012 for Crabapple Creek. These elevated levels of cadmium and dissolved aluminum are likely a result of local development and/or stormwater runoff from roads and parking areas. Other Whistler creeks were sampled periodically for basic water quality parameters pertaining to aquatic habitat. The 2013 results indicate some elevated conductivity and turbidity levels but nothing of significant concern and no exceedances of the relevant guidelines. Continued water quality monitoring for aquatic habitat is planned.

Generally, as per historic monitoring data, water quality in Whistler's streams and lakes has remained consistently good over time. The village stormwater biofiltration ponds and a limited number of streams appear to be negatively impacted by the regular infilling of sediment and/or

contaminants from roads and parking areas. The biggest threat to Whistler's overall water quality, as per historical and 2013 data, seems to be stormwater runoff depositing contaminants and sediment related to urban development into streams and aquatic habitats.

Continued monitoring and appropriate management response is essential for ensuring that urban development and infrastructure is suitably managed so as not to negatively affect our water resources. It is recommended that the RMOW continue to work towards establishing permanent and consistent monitoring sites and associated parameters for stormwater and aquatic habitat water quality sampling in key Whistler creeks. Efforts by BC MOE and the RMOW to confirm long-term water quality objectives for Whistler's lakes are important for monitoring and understanding changes in lake health over the long term. Reviewing water quality results in conjunction with other indicators of aquatic ecosystem health, such as fish and invertebrate populations, will help the RMOW to evaluate trends in the state of local ecosystems and biodiversity.

There were no beach closures due to elevated fecal coliform levels at Whistler's main swimming beaches in 2013, nor have there been any in recent years. Continued monitoring of swimming beach water quality will help to ensure the safety of recreational waters for Whistler residents and visitors.

Land

In this report, the general state of land-based natural systems is reviewed with developed areas, sensitive ecosystems and the harvesting activities of the Cheakamus Community Forest being key indicators or focus areas.

With minimal new development in 2013 (only 1.2 hectares), the state of Whistler's land-based systems appears fairly established. As Whistler approaches build out, development activities focused on maintaining the bed unit capacity and remaining consistent with current zoning. In 2013, development primarily consisted of redevelopment of existing sites.

With significant steps taken to identify and protect sensitive ecosystems through mapping and land use policy and legislation, the RMOW demonstrated a firm commitment toward protecting Whistler's natural environment. The RMOW undertook actions within its jurisdiction and mandate to protect biodiversity by identifying and protecting sensitive ecosystems and habitat and managing the amount, type and location of development activities. The RMOW implemented various initiatives toward environmental protection, including a comprehensive mapping inventory of sensitive ecosystems and indicator species and, for a period when the 2013 OCP was in effect, related new Development Permit Areas for the protection of the natural environment.

2013 was the highest harvest year to date for the Cheakamus Community Forest, with a total log production of 23, 280.5m^3 comprising 51 ha of land. Overall, the Ecosystem-Based Management approach of the CCF continues to support the minimization of environmental impacts to Whistler's forests and land-based ecosystems. Forestry will continue to impact Whistler's natural environment, particularly with the demands of the AAC. Future activities of the CCF should continue to be managed and assessed to most effectively minimize environmental impacts to Whistler's land base.

Despite progressive policies and a cap on Whistler's growth, human activities continue to place pressure on land systems, threatening biodiversity. An ecosystem-based approach should continue to be applied to human activities and development projects and be integrated into land use policies and plans. With the quashing of the 2013 OCP and related DPAs for the protection of the natural environment, the RMOW is now working with existing tools and exploring other means by which to

integrate the current sensitive ecosystem mapping with land-use decision making, which is key for effective environmental protection and stewardship.

Plants and Wildlife

With a view to assessing biodiversity and the overall health of Whistler's natural environment, the state of plants and wildlife are reviewed with species at risk, invasive species, and some other key species as indicators or areas of focus.

In 2013, the BC Conservation Data Centre identified 17 Red listed and 39 Blue listed species at risk in the Squamish Forest District. The number of Red and Blue listed species has increased noticeably in the past 10 years.

The Whistler Biodiversity Project conservatively confirms that as of 2013, there are over 150 invasive species of plants in Whistler. Approximately 20% of the total plant species documented thus far by the Whistler Biodiversity Project are invasive. During the 2013 field season, the Sea to Sky Invasive Species Council coordinated invasive species control work at 106 sites within Whistler. Priority species included Scotch broom, Japanese knotweed, Himalayan blackberry, Canadian horseweed and purple loosestrife. Three new invasive plant species were identified in Whistler.

In 2013, two bears were destroyed by the BC Conservation Officer Service due to human-bear conflict incidents. The RMOW will continue its efforts in cooperation with the Whistler Bear Working group and the BC Conservation Officer Service to try and reduce or eliminate human-bear conflict and related mortality of bears. General observation trends show that in years where berries and other natural bear-food yields are abundant, human-bear conflict numbers are low. In seasons where natural food sources are less abundant, human-bear conflict numbers tend to increase.

The Lost Lake Western toad population appeared to be thriving in 2013, with around 40,000 tadpoles and later 35,000 juvenile toadlets observed. There were approximately 1060 juvenile toadlet human-caused mortalities observed during lake to forest migration.

As the number of species at risk and the threats of invasive species continue to increase in the region, it is critical for the RMOW to implement effective monitoring programs and integrate these aspects of ecosystem health into plans, policies and regulations. RMOW's new partnership with the South Coast Conservation Program will be an important first step towards improving municipal efforts in protecting local species at risk. With the Ecosystems Monitoring Program developed with Cascade Environmental Resource Group in place, we will be able to increase baseline data and build a more complete picture and identify occurring trends, which is integral to measuring ecosystem health and biodiversity. With a strong partner in SSISC to help prevent and control invasive species, Whistler will continue to minimize one of the significant risks to local ecosystem health and biodiversity. As a core member of the Whistler Bear Working Group, the RMOW will continue to develop and adapt initiatives to reduce human-bear conflict in the valley. In the face of continued development and increasing human activities that place pressure on indigenous plants and wildlife, the RMOW must remain diligent in its efforts in all of these areas.

Summary

The state of Whistler's air, land, water, plants and wildlife is generally good with no major environmental issues of concern. Consistent monitoring combined with a proactive approach and adaptive management strategies are key to preserving the integrity of these natural systems.

WHISTLER 2020 ANALYSIS

W2020 **Strategy**	**TOWARD** **Descriptions of success that resolution moves us toward**	**Comments**
Natural Areas	Continual learning about natural areas and species informs appropriate restoration and protection efforts	Monitoring programs provide continual learning which supports RMOW planning and management decisions toward the protection of our natural environment
	Developed and recreation areas are designed and managed to protect as much of the natural environment within them as possible	
Partnership	Partners work together to achieve mutual benefit	The RMOW partners with numerous agencies, including the Sea to Sky Clean Air Society, Sea to Sky Invasive Species Council, the Whistler Biodiversity Project, Cascade Environmental Resource Group, the BC Ministry of Environment to monitor and develop objectives and relevant programs towards environmental protection and stewardship
Water	Health streams, rivers, lakes and wetlands support thriving populations of fish, wildlife and aquatic invertebrate	Water quality monitoring
	Residents and visitors are educated about and encouraged to protect and conserve natural water resources	Information is shared through websites (RMOW and other agencies contributing data to this report)
Natural Areas	Indigenous biodiversity is maintained	This report aims to track the threat of invasive species to indigenous biodiversity
Natural Areas	Natural systems guide management approaches.	This report aims to identify trends in the health of natural systems to help guide appropriate management response and decisions

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

OTHER POLICY CONSIDERATIONS

The work discussed in this 2013 State of the Environment report is guided in part by the following policies:

1. RMOW 2012-2014 Corporate Plan – Goal 6: Demonstrated leadership toward the careful stewardship of natural assets and the protection of ecological function.
2. Whistler2020 Task 299: Develop a comprehensive ecosystem monitoring program, including the formalization of baseline ecosystem assessments.
3. 1993 OCP – general mandate to protect the natural environment, as well as the following policies:
    - 15.4.2 – "…Fish habitat shall also be persevered, protected and monitored."
    - Designation of specific Development Permit Areas for the protection of the natural environment, its ecosystems and biological diversity.

For a period of time (May – December, 2013), this report was governed by the 2013 OCP. The work described in the 2013 State of the Environment Report is supported by the following policies in this document:

a) 2013 OCP Goal 6.2.1.8: Apply targets, indicators, monitoring and evaluation to maintain environment and reverse negative trends.
b) 2013 OCP Goal 6.2.2.1: Support the development of a Whistler biodiversity protection plan that builds upon the objectives, goals and actions of the Whistler Biodiversity Challenge.

BUDGET CONSIDERATIONS

The RMOW Environmental Stewardship functional area perform various environmental monitoring and reporting activities as part of their regular work program. Ecosystem monitoring programs and related activities were funded within the approved 2013 budget. Also within this budget, the RMOW supported partnership programs with organizations such as the BC Conservation Officer Service, the Sea to Sky Clean Air Society and the Sea to Sky Invasive Species Council, whose initiatives support the collection of data documented in this report and, more importantly, contribute to the broader environmental goals of the resort community.

COMMUNITY ENGAGEMENT AND CONSULTATION

The public may access specific data and more information on the various aspects of this report through many organizations, including the RMOW, the BC Ministry of Environment, the Sea to Sky Clean Air Society, the Sea to Sky Invasive Species Council, and the BC Conservation Officer Service. Relevant websites are cited throughout the report.

SUMMARY

The 2013 State of the Environment Report provides a snapshot of the status of Whistler's natural environment based on research and monitoring performed by various agencies including the RMOW. The intent of this report is to foster an understanding of the health of our local natural systems and environmental resources – broadly categorized as air, water, land, plants and wildlife. With this understanding, the RMOW will be better equipped to manage these systems and resources in accordance with our community's values and objectives towards environmental protection and stewardship, as supported by the RMOW's highest level policies.

Positive results should be viewed cautiously, as additional data is needed on these complex systems to identify clear trends or issues. The RMOW will continue to work with relevant partners to monitor the state of Whistler's natural environment and respond accordingly towards meeting our environmental commitments.

Respectfully submitted,

Tina Symko
ENVIRONMENTAL COORDINATOR
for
Jan Jansen
GENERAL MANAGER RESORT EXPERIENCE

2013
STATE OF THE ENVIRONMENT

WHISTLER, BC

REPORT TO COUNCIL

The Resort Municipality of Whistler

September 16, 2014

Prepared by: Tina Symko, M.R.M.
Environmental Coordinator

THE PREMIER MOUNTAIN RESORT COMMUNITY
MOVING TOWARD A SUSTAINABLE FUTURE

WHISTLER

TABLE OF CONTENTS

1 STATE OF THE ENVIRONMENT REPORT 2013

1.1 Introduction

The State of the Environment (SOE) Report provides an annual snapshot of the status of our environment based on research and monitoring performed by various agencies including the Resort Municipality of Whistler (RMOW). This SOE is the second report of its kind presented to Council, with the intent to be delivered annually.

The intent of this report is to foster an understanding of the health of our local natural systems and environmental resources – broadly categorized as air, water, land, plants and wildlife. With this understanding, the RMOW will be better equipped to manage these systems and resources in accordance with our community's values and objectives towards environmental stewardship, as stated in the RMOW's highest level policies: Whistler2020, the RMOW Corporate Plan and Whistler's Official Community Plan (OCP).

1.2 Scope

The information presented in this report covers the period from January 1, 2013 to December 31, 2013, with potential variations related to the availability of relevant data. The report will focus on the following categories towards assessing the state of the following aspects of Whistler's natural environment: air, water, land, plants and wildlife.

1.3 Report Highlights

The SOE report presents a snapshot of the state of Whistler's land, air, water, plant and wildlife resources in 2013.

Air

This report reviews the state of Whistler's air quality in 2013. The air quality data presented in the report focuses primarily on three specific pollutants, including nitrogen dioxide (NO_2), ground level ozone (O_3), and particulate matter 2.5 ($PM_{2.5}$). This air quality data is primarily sourced from the BC Ministry of Environment, which operates a monitoring station at Meadow Park, and the RMOW which operates a more informal monitoring station in the Cheakamus Crossing neighbourhood. Also reviewed is the Air Quality Health Index, a measure relating the location-specific health risks of multiple pollutants for public information purposes.

Air quality throughout in Whistler has been generally good throughout 2012 and 2013. There were no exceedances of air quality objectives, nor were there any air quality advisories issued by the BC MOE. Occasional 2013 winter occurrences of elevated $PM_{2.5}$ levels detected at the BC MOE monitoring station were likely related to local weather conditions combined with high resort community occupancy and increased wood smoke from fireplaces. There have been no High or Very High AQHI ratings in Whistler since 2010.

Current favourable air quality in Whistler does not mean there is room for complacency. Community growth, increased visitor numbers, increased use of wood-burning appliances, wildfires (regional or even international), changing industrial infrastructure and increased motorized recreation and/or transportation can lead to increased pollutant levels and deteriorating air quality. Air quality objectives provide thresholds that the resort community should strive to remain well below and the aim for Whistler should be to continually reduce pollutant levels. An eye towards continual improvement drives the Whistler's projects and programs related to local air quality, including an integral partnership with the Sea to Sky Clean Air Society.

Water

Healthy water quality is an indicator of healthy ecosystems able to support thriving aquatic and wildlife species and providing clean, safe places for recreation. As per historical monitoring results, Whistler has consistently exhibited good water quality results over time. In 2013, there was limited available data upon which to draw solid

conclusions, however the available data for this year did not indicate any significant concerns with aquatic habitat water quality or swimming beaches.

In 2012, stormwater in the two village biofiltration ponds was identified to be contaminated, which could indicate that the ponds are working as planned to collect and trap contaminants before the water flows into Fitzsimmons Creek. In 2013, limited data was available for water quality in these biofiltration ponds, making it difficult to determine whether the ponds are working correctly and/or if contaminant removal is required to help ensure the proper functioning of these systems. The biofiltration ponds were not sampled specifically for stormwater contaminants in 2013. Limited sampling of basic water quality parameters in the ponds showed exceedance levels of turbidity and conductivity, with dissolved oxygen levels slightly below acceptable range. However, normal readings at the pond outlets likely indicate that the ponds are working as planned to trap contaminants prior to entry into Fitizsimmons Creek. The data available for 2013 does not indicate any negative impacts to Fitzsimmons Creek. Currently in 2014, this data gap has been recognized and the area is being monitored and sampled regularly and a system for contaminant removal is in the planning stage.

Aquatic habitat water quality sampling for Whistler creeks and rivers was also limited in 2013. The only creek monitored for complete organic and inorganic pollutants was Crabapple Creek and all parameters were within the recommended limits for freshwater aquatic life according to the BC Water Quality Guidelines (BCWQG), except for dissolved aluminum on one occasion, and cadmium on all samples. Both of these water quality issues were previously identified in 2012 for Crabapple Creek. These elevated levels of cadmium and dissolved aluminum are likely a result of local development and/or stormwater runoff from roads and parking areas. Other Whistler creeks were sampled periodically for basic water quality parameters pertaining to aquatic habitat. The 2013 results indicate some elevated conductivity and turbidity levels but nothing of significant concern and no exceedances of the relevant guidelines. Continued water quality monitoring for aquatic habitat is planned.

Generally, as per historic monitoring data, water quality in Whistler's streams and lakes has remained consistently good over time. The village stormwater biofiltration ponds and a limited number of streams appear to be negatively impacted by the regular infilling of sediment and/or contaminants from roads and parking areas. The biggest threat to Whistler's overall water quality, as per historical and 2013 data, seems to be stormwater runoff depositing contaminants and sediment related to urban development into streams and aquatic habitats.

Continued monitoring and appropriate management response is essential for ensuring that urban development and infrastructure is suitably managed so as not to negatively affect our water resources. It is recommended that the RMOW continue to work towards establishing permanent and consistent monitoring sites and associated parameters for stormwater and aquatic habitat water quality sampling in key Whistler creeks. Efforts by BC MOE and the RMOW to confirm long-term water quality objectives for Whistler's lakes are important for monitoring and understanding changes in lake health over the long term. Reviewing water quality results in conjunction with other indicators of aquatic ecosystem health, such as fish and invertebrate populations, will help the RMOW to evaluate trends in the state of local ecosystems and biodiversity.

There were no beach closures due to elevated fecal coliform levels at Whistler's swimming beaches in 2013, nor have there been any in recent years. Continued monitoring of swimming beach water quality will help to ensure the safety of recreational waters for Whistler residents and visitors.

Land

In this report, the general state of land-based natural systems is reviewed with developed areas, sensitive ecosystems and the harvesting activities of the Cheakamus Community Forest being key indicators or focus areas.

With minimal new development in 2013 (only 1.2 hectares), the state of Whistler's land-based systems appears fairly established. As Whistler approaches build out, development activities focused on maintaining the bed unit capacity and remaining consistent with current zoning. In 2013, development primarily consisted of redevelopment of existing sites.

With significant steps taken to identify and protect sensitive ecosystems through mapping and land use policy and legislation, the RMOW demonstrated a firm commitment toward protecting Whistler's natural environment. The RMOW undertook actions within its jurisdiction and mandate to protect biodiversity by identifying and protecting sensitive ecosystems and habitat and managing the amount, type and location of development activities. The RMOW implemented various initiatives toward environmental protection, including a comprehensive mapping inventory of sensitive ecosystems and indicator species and, for a period when the 2013 OCP was in effect, related new Development Permit Areas for the protection of the natural environment.

2013 was the highest harvest year to date for the Cheakamus Community Forest, with a total log production of 23, 280.5m^3 comprising 51 ha of land. Overall, the Ecosystem-Based Management approach of the CCF continues to support the minimization of environmental impacts to Whistler's forests and land-based ecosystems. Forestry will continue to impact Whistler's natural environment, particularly with the demands of the AAC. Future activities of the CCF should continue to be managed and assessed to most effectively minimize environmental impacts to Whistler's land base.

Despite progressive policies and a cap on Whistler's growth, human activities continue to place pressure on land systems, threatening biodiversity. An ecosystem-based approach should continue to be applied to human activities and development projects and be integrated into land use policies and plans. With the quashing of the 2013 OCP and related DPAs for the protection of the natural environment, the RMOW is now working with existing tools and exploring other means by which to integrate the current sensitive ecosystem mapping with land-use decision making, which is key for effective environmental protection and stewardship.

Plants and Wildlife

With a view to assessing biodiversity and the overall health of Whistler's natural environment, the state of plants and wildlife are reviewed with species at risk, invasive species, and some other key species as indicators or areas of focus.

In 2013, the BC Conservation Data Centre (CDC) identified 17 Red listed and 39 Blue listed species at risk in the Squamish Forest District. The number of Red and Blue listed species has increased noticeably in the past 10 years.

The Whistler Biodiversity Project conservatively confirms that as of 2013, there are over 150 invasive species of plants in Whistler. Approximately 20% of the total plant species documented thus far by the Whistler Biodiversity Project are invasive. During the 2013 field season, Sea to Sky Invasive Species Council (SSISC) coordinated invasive species control work at 106 sites within Whistler. Priority species included Scotch broom, Japanese knotweed, Himalayan blackberry, Canadian horseweed and purple loosestrife. Three new invasive plant species were identified in Whistler.

2013 was a relatively good year in terms of minimal human-bear conflict, with two bears destroyed by the BC Conservation Officer Service. Conflict incident data for past years is not assessed here. General observation trends show that in years where berries and other natural bear-food yields are abundant, human-bear conflict numbers are low. In seasons where natural food sources are less abundant, human-bear conflict numbers tend to increase.

The Lost Lake Western toad population appeared to be thriving in 2013, with around 40,000 tadpoles and later 35,000 juvenile toadlets observed. There were approximately 1060 juvenile toadlet human-caused mortalities observed during lake to forest migration.

As the number of species at risk and the threats of invasive species continue to increase in the region, it is critical for the RMOW to implement effective monitoring programs and integrate these aspects of ecosystem health into plans, policies and regulations. RMOW's new partnership with the South Coast Conservation Program will be an important first step towards improving municipal efforts in protecting local species at risk. With the new

Ecosystems Monitoring Program in place developed with Cascade Environmental Resource Group (CERG), the RMOW will be able to increase baseline data to build a more complete picture and identify occurring trends, which is integral to managing for ecosystem health and biodiversity. With a strong partner in SSISC to help prevent and control invasive species, Whistler will continue to minimize one of the significant risks to local ecosystem health and biodiversity. As a core member of the Whistler Bear Working Group, the RMOW will continue to develop and adapt initiatives to reduce human-bear conflict in the valley. In the face of continued development and increasing human activities that place pressure on indigenous plants and wildlife, the RMOW must remain diligent in its efforts in all of these areas.

Summary
The state of Whistler's air, land, water, plants and wildlife is generally good with no major environmental issues of concern. Consistent monitoring combined with a proactive approach and adaptive management strategies are key to preserving the integrity of these natural systems.

2 AIR

2.1 Values

Whistler values fresh mountain air and clear panoramic views. Clean air contributes to our residents' and visitors' enjoyment of the natural surroundings and supports outdoor recreation and healthy lifestyles. These values are expressed in several high level policies, including Whistler2020 and the Official Community Plan. Protecting our air quality contributes to the regional tourism-based economy and enhances the quality of life for all. Measuring and reporting on air quality is an important aspect of managing human impacts and preserving the fundamental values that clean air provides.

2.2 Background

Several policy and management plan directives outline Whistler's commitment to both air quality and reducing greenhouse gas (GHG) emissions. Notable plans include: Whistler2020; the OCP; the Whistler Way; Whistler's Integrated Energy, Air Quality & Greenhouse Gas Management Plan; the Climate Action Charter; and the Sea to Sky Air Quality Management Plan (AQMP).

The BC Ministry of Environment (MOE) is the primary regulatory body for monitoring and managing air quality in the region. Data collected at BC MOE and industry-run monitoring stations are used to evaluate air quality in relation to established thresholds and regulations (these standards are discussed in detail below). Air quality data are reported annually and made available to the public through the BC Lung Association's "State of the Air" annual reports. Data from monitoring stations throughout BC are also available on an 'almost real-time' basis at http://www.bcairquality.ca/readings/index.html

The Sea to Sky AQMP is a key guiding document for Whistler's initiatives regarding air quality. The AQMP was initially developed for the Sea-to-Sky/Howe Sound airshed between 2002- 2005 (published in 2007) by the BC MOE and local communities, including Whistler, as a proactive measure to ensure clean air is maintained throughout the airshed, in particular due to the projected high levels of growth and development for the region. The AQMP identifies actions that help maintain healthy air through an integrated planning approach that addresses area, point and mobile sources in the airshed. The Sea to Sky Clean Air Society (SSCAS) is a charitable organization created to implement the Sea to Sky AQMP and act as a coordinating body for the air quality management initiatives in the region. The SSCAS is an important partner for the RMOW regarding air quality initiatives.

An airshed-wide emissions inventory, based on 1995 data and completed in 2002, determined that mobile sources represented the most significant source of emissions in the airshed. While this study is outdated, it likely holds true today

(http://www.env.gov.bc.ca/epd/regions/lower_mainland/air_quality/aq_reports/95_seatosky/emiss_inven_report.htm).

Ambient Air Quality Objectives

Ambient air quality objectives identify limits on the acceptable presence of contaminants in the atmosphere, established by government agencies to protect human health and the environment. They are generally expressed in terms of a concentration (E.g. micrograms per cubic metre, or parts per billion) measured over a specific period of time (E.g. one hour, 24 hours or one year) (http://www.bcairquality.ca/regulatory/air-objectives-standards.html).

BC uses a range of ambient air quality criteria that has been developed nationally and provincially to help inform air quality management planning and decision making. These criteria include:

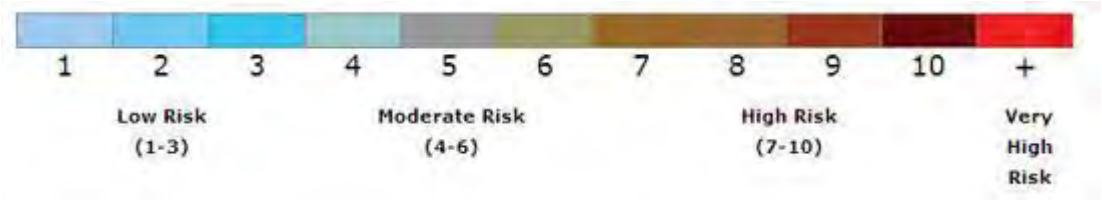
- BC Ambient Air Quality Objectives (BC AAQOs);
- National Ambient Air Quality Objectives (NAAQOs); and
- Canadian Ambient Air Quality Standards (CAAQS).

For more information, visit http://www.bcairquality.ca/reports/pdfs/aqotable.pdf.

Provincial and national air quality objectives provide a mix of both short term (hourly or daily) and longer term (annual) management thresholds as well as differing levels of stringency. Provincial threshold levels may be more stringent than national levels, but not less stringent. All of the above air quality objectives are relevant, however determining priorities in relevance can depend on the goals for a specific community or airshed. For example, the focus might be on managing air quality with respect to long term health impacts, or on avoidance of short-term significant episodes of poor air quality and visibility.

Exceeding air quality objectives, which may result from meteorological conditions or human activities or some combination thereof, may trigger an air quality advisory issued by the BC MOE for the purposes of warning the public, especially those with relevant health issues, as well as to raise awareness and promote behaviour change, particularly in cases where human activity is a primary cause of poor air quality. Multiple exceedances may indicate poor air quality issues and a need for improved management of pollutants within an airshed.

The provincial Air Quality Health Index (AQHI) is another measure of air quality which rates the health risk of multiple pollutants (NO_2, O_3 and $PM_{2.5}$), displayed on an easily understandable 1-10 scale. The AQHI describes the level of health risk associated with the index reading (e.g. Low, Moderate, High, or Very High health risk):



Not a formal indicator based on provincial/federal air quality regulations, the AQHI measure performs a different role, providing British Columbians with current local air-quality information which can be used to support health management for individuals. For more information, visit http://www.ec.gc.ca/cas-aqhi/default.asp?lang=en&n=065be995-1.

Air quality in Whistler is also considered in relation to regional targets established in the Sea to Sky AQMP.

As even low levels of air pollution can affect some individuals and have negative environmental impacts, air quality objectives should not be viewed as “levels we can pollute up to" but rather as levels to stay well below. Air quality objectives such as the BCAAQOs, NAAQOs and CAAQS are important management tools that also consider economics and feasibility of implementation and the emphasis should always be on continual

improvement and minimizing pollutants. The latest scientific research has been unable to establish a concentration for $PM_{2.5}$ or 0_3 below which there are no negative health effects observed.

2.3 Scope

The scope of this report with respect to air quality will address a time period of two years, from January 2012 to December 2013. The BC MOE data for 2012 was not yet available for inclusion in the initial 2012 State of the Environment report and so it will be included here.

With respect to data results, this report focuses on exceedances of air quality objectives, issuance of air quality advisories, general emissions trends for NO_2, O_3 and $PM_{2.5}$, and the AQHI ratings.

This report also includes 2012 and 2013 results from the RMOW-operated $PM_{2.5}$ air quality monitoring station located in Cheakamus Crossing.

2.4 Methodology

Air quality in the region has been measured by the BC MOE since the late 1970s and provides the basis for SSCAS reporting, as well as for this SOE report. The BC MOE, in partnership with industry, collects air quality data at monitoring stations throughout the Sea to Sky/Howe Sound airshed and across BC, although there are variations in the contaminants measured and monitoring methodology.

Aligned with a broader provincial air quality monitoring program, the following contaminants are measured by the BC MOE in Whistler at the Meadow Park monitoring station towards the north end of Whistler:

- Nitrogen dioxide (NO_2);
- Ground level ozone (O_3); and
- Particulate matter 2.5 ($PM_{2.5}$) continuous and non-continuous.

For detailed information on these and other contaminants, visit: http://www.bcairquality.ca/101/pollutants-emissions.html.

It should be noted that the BC MOE $PM_{2.5}$ monitoring equipment in Whistler has recently been replaced, moving from the old Tapered Element Oscillating Microbalance (TEOM) monitor to a new Beta Attenuation Monitor (BAM) which is designated as a Federal Equivalency Method (FEM) sampler – the current accepted monitoring methodology in Canada and the U.S.. The new BAM monitoring equipment is more sensitive than the TEOM equipment and as a result there will likely be higher $PM_{2.5}$ readings. This does not necessarily mean that actual $PM_{2.5}$ concentrations have increased, only that the BAM equipment is more capable of capturing all components of this pollutant. More information on the switch to FEM monitoring including FAQ's, can be found on the BC Air Quality website at http://www.bcairquality.ca/reports/pdfs/faqs_new_pm25_monitoring_june2012.pdf . The BC MOE has been operating both monitors in parallel for several years to ensure acceptable performance of the BAM and establish correlations with the TEOM to enable ongoing trend analyses. The results presented in this report show the BAM equipment data, unless otherwise indicated.

In addition to the BC MOE monitoring station, the RMOW has independently operated an air quality monitoring station since mid-2010 in the Cheakamus Crossing neighbourhood, at the south end of Whistler. This monitoring program uses older TEOM equipment to measure ambient $PM_{2.5}$ concentrations. Monitoring information from this station is available at www.airquality.ca/whistler or through the municipal website: www.whistler.ca. The information is updated on an hourly basis, allowing the public and RMOW staff to monitor the air quality on a near real-time basis.

Levelton Consultants Ltd. operates the RMOW Cheakamus Crossing air quality monitoring station and produces an annual report with a data summary for municipal and public information. While the conclusions in these reports compare recorded $PM_{2.5}$ levels to relevant air quality objectives, there is no association with regulations or

consequences in the case of noted exceedances, as this is a voluntary and informal community monitoring initiative.

2.5 Targets

As a key stakeholder in the Sea to Sky/Howe Sound airshed, Whistler is guided in general by goals identified in the Sea to Sky AQMP.

With respect to this SOE report, targets include no exceedances of relevant air quality objectives, no air quality advisories issued by the BC MOE, minimal hours rated worse than Low on the AQHI, and a general trend toward reduction of relevant pollutant levels including NO_2, O_3 and $PM_{2.5}$.

2.6 Results

With respect to data results, this SOE focuses on reporting exceedances of relevant air quality objectives, issuance of air quality advisories and general pollutant levels for NO_2, O_3 and $PM_{2.5}$ in the years 2012 and 2013.

BC MOE Air Quality Monitoring Results
In 2012, there were no exceedances of BCAAQOs or CAAQS, nor any air quality advisories issued by the BC MOE.

The following summary pollutant results were recorded by the BC MOE air quality monitoring station in 2012:

- NO_2 – annual mean concentration of 4.5 ppb
- O_3 – 64 ppb 1-hour maximum
- $PM_{2.5}$ – annual mean concentration: 3.3ug/m3 (TEOM); insufficient BAM data
- $PM_{2.5}$ – 98th percentile of annual 24-hour daily average: 11.1 ug/m^3 (TEOM); insufficient data (BAM)

In 2013, there were no exceedances of BCAAQOs or CAAQS and no air quality advisories issued by the BC MOE. The following pollutant results were recorded by the BC MOE air quality monitoring station in 2013:

- NO_2 – annual mean concentration of 4.1 ppb
- O_3 – 56 ppb 1-hour maximum
- $PM_{2.5}$ – annual mean of 5.2 ug/m^3 (BAM); 3.5ug/m3 (TEOM)
- $PM_{2.5}$ – 98th percentile of annual 24-hour daily average: 18.5 ug/m^3 (BAM); 10.3 ug/m^3 (TEOM)
- There were also some occasional episodes of elevated $PM_{2.5}$ in winter, likely related to local weather conditions (I.e. temperature inversion and stagnant air mass in the valley) combined with increased wood smoke from fireplaces.

These results are presented in Tables 1-3 below.

Table 1: BC MOE Air Quality Monitoring NO_2 Results 2012 and 2013

Year	Annual mean NO_2	BCAAQO annual mean NO_2
2012	4.5 ppb	32 ppb
2013	4.1 ppb	

Table 2: BC MOE Air Quality Monitoring O_3 Results 2012 and 2013

Year	1-hour Maximum O_3	BCAAQO O_3 (1 hour)
2012	64 ppb	82 ppb
2013	56 ppb	

Table 3: BC MOE Air Quality Monitoring $PM_{2.5}$ Results 2012 and 2013

Year	Annual Mean	BCAAQO (Annual)	98th percentile of annual 24-hour daily average	BCAAQO (24-hour daily average 98th percentile)
2012	insufficient data (BAM) 3.3 ug/m3 (TEOM)	8 ug/m3	insufficient data (BAM) 11.1 ug/m3 (TEOM)	25 ug/m3
2013	5.2 ug/m3 (BAM) 3.5 ug/m3 (TEOM)		18.5 ug/m3 (BAM) 10.3 ug/m3 (TEOM)	

RMOW Cheakamus Crossing $PM_{2.5}$ Air Quality Monitoring Results

In 2012, the RMOW independent air quality monitoring station at Cheakamus Crossing recorded a 24-hour daily average 98th percentile of 12.9 ug/m3, compared to the BCAAQO for $PM_{2.5}$ at 25.0 ug/m3 (24-hour). The measured annual average $PM_{2.5}$ (24-hour) was 5.4 µg/m3, compared to the BCAAQO at 8.0 µg/m3 (Levelton Consultants Ltd, 2014).

While 2012 results were well below the BCAAQO, they were both increased from 2011. (In 2011, a maximum 24-hour concentration of 14.5 5 ug/m3 was recorded, with a measured annual average $PM_{2.5}$ (24-hour) was 4.9 ug/m3.) The increased pollutant levels from 2011 to 2012 was likely due to a period of degraded air quality in July 2012 due to haze attributed to unusual atmospheric conditions that brought smoke from wildfires in Asia to the west coast of North America.

In 2013, the RMOW independent air quality monitoring station at Cheakamus Crossing recorded a 24-hour daily average 98th percentile of 8 ug/m3, compared to the BCAAQO at 25.0 ug/m3 (24-hour). The measured annual average $PM_{2.5}$ (24-hour) was 5.0 µg/m3, compared to the BCAAQO at 8.0 µg/m3.

2013 results show decreased $PM_{2.5}$ statistics from 2012, and similar levels to 2011. 2013 results were well below air quality objectives. Results are shown in Table 4 below.

Table 4: RMOW Cheakamus Crossing TEOM $PM_{2.5}$ Air Quality Monitoring Results 2012-2013

	$PM_{2.5}$ (ug/m3)				
Year	Maximum 24-hour average	24-hour daily average 98th percentile*	BCAAQO (24-hour daily average 98th percentile)	Annual Average (24-hour)	BCAAQO (Annual)
2012	19.8	12.9	25.0	5.4	8.0
2013	14.0	8		5.0	

***** The 24-hour PM2.5 BCAAQO is compared to the annual 98th Percentile 24-hour block average concentration.

Air Quality Health Index (AQHI) Results

In 2012, Whistler had 43 hours where the AQHI was rated worse than Low. In 2013, Whistler had 19 hours where the AQHI was rated worse than Low. There were no instances of a High or Very High AQHI rating in Whistler in 2012 or 2013.

2.7 Trends

This SOE focuses on exceedances of relevant air quality objectives, issuances of air quality advisories, AHQI ratings and general pollutant trends for NO_2, O_3 and $PM_{2.5}$.

For 2012 and 2013, air quality as measured by BC MOE and the RMOW was generally good and met all relevant air quality objectives for the pollutants monitored. There were no exceedances of relevant air quality objectives and no air quality advisories were issued for either year. The differences in air contaminant concentrations from year to year were relatively small. 2013 results show no significant air quality issues of concern based on the scope reviewed here.

There have been no air quality advisories issued specifically for Whistler since real-time O_3 and $PM_{2.5}$ monitoring began in 2001 and 2004 respectively. There have been a small number of widespread advisories issued for the broader Sea to Sky/Howe Sound airshed, including Whistler, the most recent of which was in 2010 due to high $PM_{2.5}$ concentrations resulting from non-local forest fire smoke. Prior to that, a smog advisory was issued for the Sea to Sky/Howe Sound airshed in 2009 due to high 0_3 concentrations and non-local forest fire smoke.

Trends in air quality emerge after numerous years of data collection. BC MOE has provided continuous monitoring of O_3 since 2001, and since 2003 and 2004 for NO_2 and $PM_{2.5}$ respectively. AQHI information is only readily available for Whistler starting in 2010. BC MOE has provided some recent trend charts for $PM_{2.5}$, O_3 and NO_2 as presented below in Tables 5-7. The data results do not cover a long enough time period to verify actual trends in air quality for Whistler at this time, however it can be useful to review the data available to date. Gaps indicated insufficient data recovery for certain parameters in some years.

Table 5: Trends for $PM_{2.5}$ in Whistler – Annual Average 2005-2013

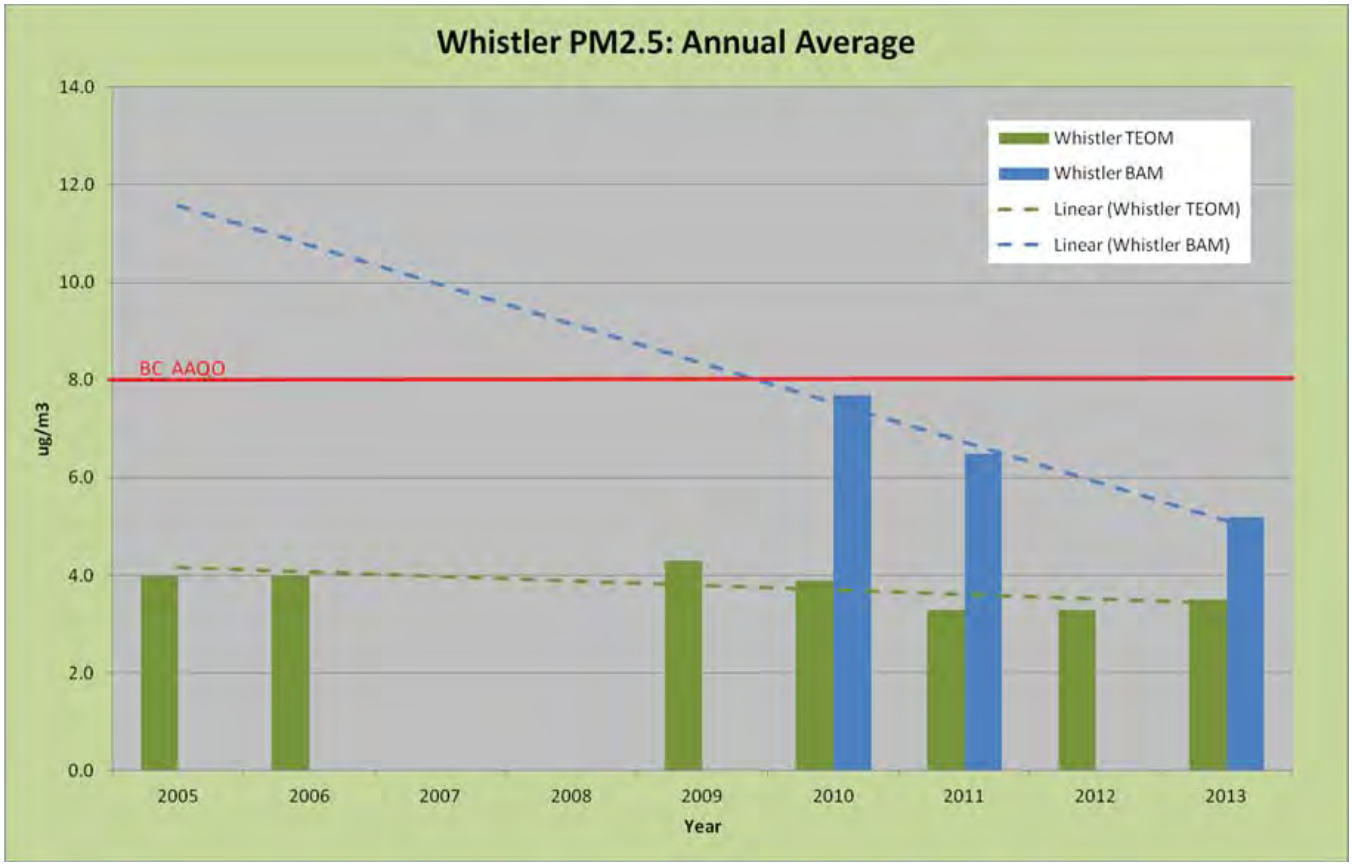


Table 6: Trends for $PM_{2.5}$ in Whistler – 98th Percentile Daily Average 2005-2013

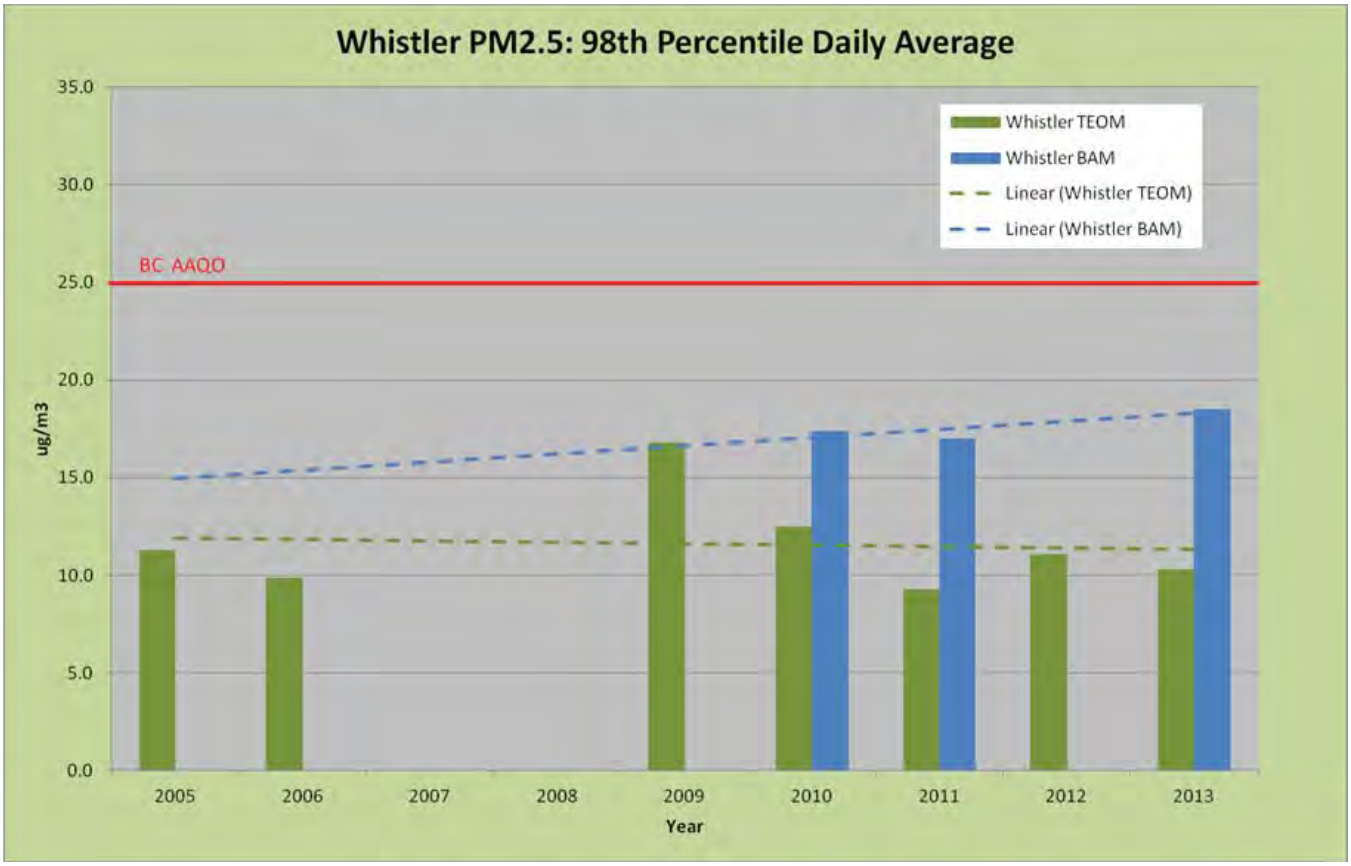
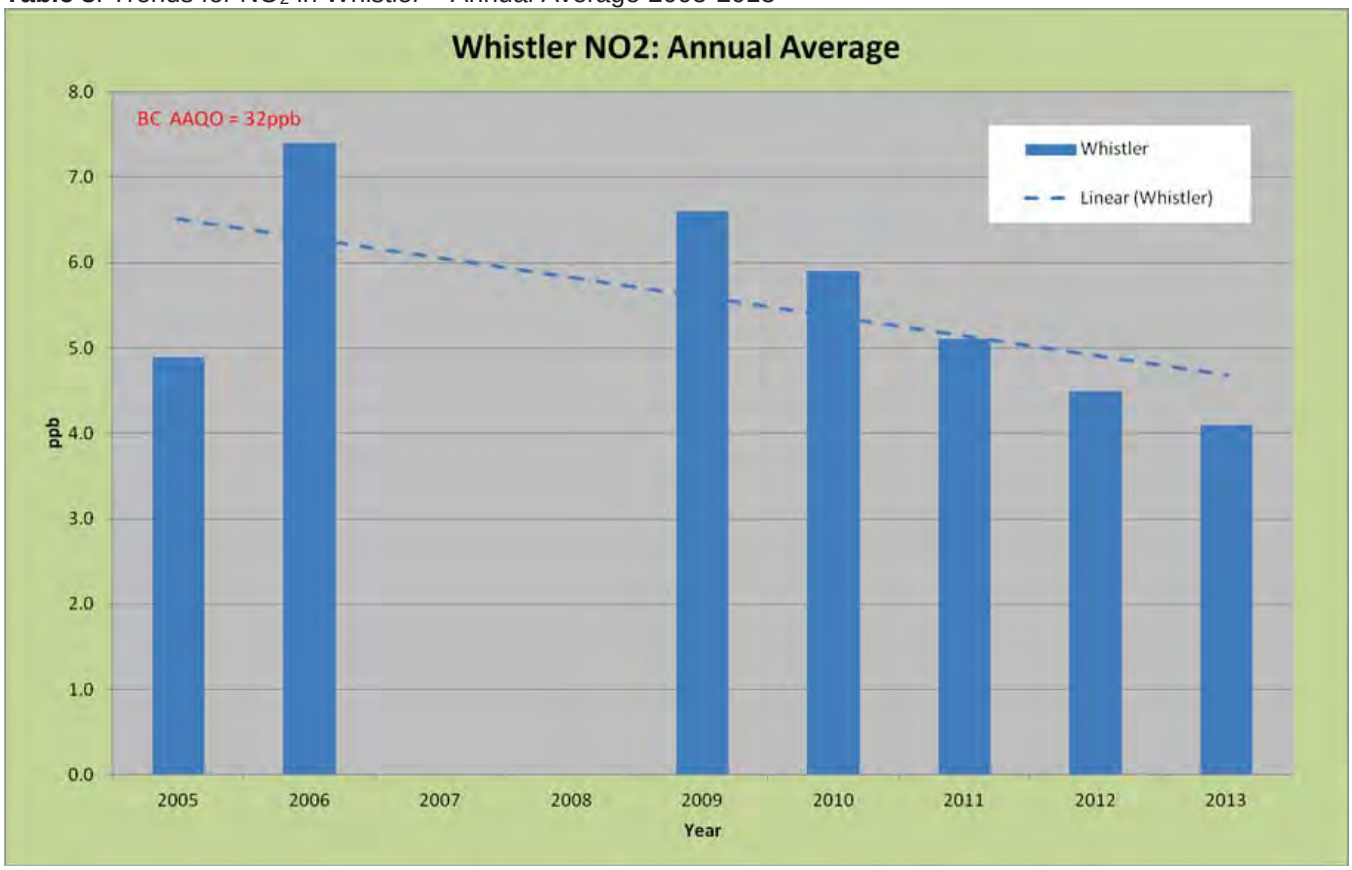


Table 7: Trends for O_3 in Whistler – 1-hour Maximum 2005-2013


Whistler Ozone: 1-hr Maximum
100
90
80
70
60
50
40
30
20
10
0
ppb
BC AAQO
Whistler
Linear (Whistler)
2005
2006
2007
2008
2009
2010
2011
2012
2013
Year

Table 8: Trends for NO_2 in Whistler – Annual Average 2005-2013



With respect to the AQHI, according to the BC MOE there have been no instances of a High or Very High AQHI rating in Whistler since a four-hour occurrence in August 2010. Results for 2011-2013 are presented in Table 9 below, in conjunction with results for Squamish (BC MOE).

Table 9: Number of hours where AQHI for Whistler & Squamish was rated worse than Low (2010 – 2013)

Again, it is presumed too early to infer trends for air quality in Whistler based on available data. Future reports will attempt to identify air quality trends over time.

2.8 Programs and Projects

In 2013, the RMOW Environmental Stewardship department focused on several initiatives related to air quality. Working with the SSCAS, the RMOW supported and celebrated Clean Air Day and Bike to Work Week in June, culminating in Whistler's annual EnviroFest celebration of the natural environment, with interactive displays, activities, workshops and information related to air quality and other environmental stewardship objectives.

Participating in the development of the Burning and Smoke Control Framework for the Sea to Sky region, led by the SSCAS, was an important first step towards a Regional Smoke Plan. This plan will help guide relevant practices in the corridor to address pollutant levels and associated visual impacts throughout the Sea to Sky.

The RMOW was a key supporter of the 2013 Sea to Sky Habitat Improvement Project, when 1000 native trees were planted by SSCAS and RMOW staff and volunteers along a riparian area in Spruce Grove.

The RMOW also supports SSCAS transportation initiatives such as the Clean Air Commute program, targeting vehicle emissions by reducing single occupancy vehicle use, as well as an anti-idling campaign to reduce tailpipe emissions.

An updated emissions inventory for the Sea to Sky/Howe Sound airshed is considered highly important and SSCAS and MOE are currently exploring funding sources to enable this inventory update. Recent proposals for waste incineration, liquefied natural gas (LNG) industries and other potential facilities could represent significant new point source pollutants, should they be approved.

Going into 2014, the RMOW is working with SSCAS towards a full review of the Sea to Sky AQMP, including a review of progress to date and additional recommendations for the next five years. This review was completed in April 2014 and, as per the scope of this report, results of the review will be discussed in the next 2014 State of the Environment report. The resulting recommendations will provide SSCAS and its partners (including the RMOW) with an opportunity to revise or add new actions in order to achieve the vision and goals of the AQMP by 2025. The RMOW Environmental Stewardship department, in collaboration with other internal departments, continues to support implementation of the AQMP through regional cooperation and integration on air quality initiatives in the Sea to Sky corridor.

2.9 Conclusions

Air quality throughout in Whistler has been generally good throughout 2012 and 2013. There were no exceedances of air quality objectives, nor were there any air quality advisories issued by the BC MOE. Occasional 2013 winter occurrences of elevated $PM_{2.5}$ levels detected at the BC MOE monitoring station were likely related to local weather conditions combined with high resort community occupancy and increased wood smoke from fireplaces. There have been no High or Very High AQHI ratings in Whistler since 2010.

Current favourable air quality in Whistler does not mean there is room for complacency. Community growth, increased visitor numbers, increased use of wood-burning appliances, wildfires (regional or even international), changing industrial infrastructure and increased motorized recreation and/or transportation can lead to increased pollutant levels and deteriorating air quality. Air quality objectives provide thresholds that we should strive to remain well below and the aim for managers should be to continually reduce pollutant levels. Projects and programs targeting emissions reduction for all levels of activity should continue to maintain high priority, including industrial, transportation, residential, commercial and recreational activities.

For information on air quality data and trends for the broader Sea to Sky/Howe Sound airshed, please refer to the website for the Sea to Sky Clean Air Society and the annual State of the Air reports by the BC Lung Association. The BC Air Quality website provides additional information and real-time BC air quality data can be obtained here.

3 WATER

3.1 Values

Water is one of Whistler's most important assets, supporting natural areas, wildlife, residents and visitors. Using water resources wisely is fundamental to an environmentally-responsible approach to living. Improved ecosystem management and increased awareness of the value of freshwater resources must be achieved for Whistler to move towards its sustainability objectives. These values are expressed in several high level policies, including Whistler2020 and the Official Community Plan. Measuring and reporting on water quality is an important aspect of managing human impacts and preserving the fundamental values that healthy waterways provide.

3.2 Background

The RMOW works with a number of partners to test and report on water quality towards protecting human health and ecosystems. Some of the key partners and programs are as follows:

- The BC Lake Stewardship Society (BCLSS), in collaboration with the Ministry of Environment, has designed a program to monitor and address concerns on and around lakes in relation to impacts of human development and recreational activities.
- The municipal swimming beach water quality monitoring program was developed in 2003 by the RMOW in cooperation with Vancouver Coastal Health for public safety purposes. The program routinely checks that fecal coliform concentrations do not exceed the Canadian Recreation Water Quality Guidelines (CRWQG).
- Kerr Wood Leidal Associates (KWL) prepared the Integrated Stormwater Management Plan (December 2010). A partnership between the RMOW and MOE was formed to examine the quality of storm and melt water runoff in key Whistler creeks for the purpose of stormwater management planning.
- Baseline water quality information has also been collected by the RMOW and MOE in Alta, Alpha, Nita and Lost Lakes. The MOE is in the process of collating results to analyze and to establish water quality objectives, monitoring parameters, and guidelines for these Whistler lakes.
- The RMOW monitors and reports on water quality in local waterways as part of the broader Ecosystems Monitoring Program.

The data collected through these and other programs and partnerships forms the basis for the water quality reporting on stormwater, aquatic habitat water quality and swimming beach water in the following sections.

Stormwater Quality

The RMOW collects data on an ongoing basis in regards to stormwater runoff and is in the process of developing a long term water monitoring and management program. Kerr Wood Leidal Associates (KWL) prepared the initial Integrated Stormwater Management Plan for the RMOW (December 2010). This Plan includes a description and management plan for stormwater runoff through biofiltration settling ponds located near the Whistler Village, as well as a recommended stream monitoring program aimed at identifying trends in water quality related to runoff inputs. The two biofiltration areas, which manage stormwater runoff from the main Whistler Village parking lots, are the Montebello and Day Lot 5 runoff ponds. The Montebello biofiltration pond collects the water that runs off from Whistler Village including the pedestrian walkways, roof tops, roads and underground parking. The Day Lot 5 settling pond is located just beyond the main Whistler Village parking lots, where snowmelt and stormwater runoff from the central parking areas accumulates before flowing into Fitzsimmons Creek.

Aquatic Habitat Water Quality

Water quality data for streams and lakes within the RMOW have been collected on an ongoing project by project basis and is in the process of being collated and added to an online data depository (WaterTrax). These data will be used as a baseline for future monitoring once it is compiled and evaluated, likely in 2014/2015.

In addition, the BC Lake Stewardship Society (BCLSS), in collaboration with the BC MOE, has designed a program to monitor and address concerns on and around lakes in relation to impacts of human development and recreational activities. Baseline water quality information has also been collected by the RMOW and BC MOE in Alta Lake, Alpha Lake, Nita Lake and Lost Lake. The BC MOE is in the process of collating results to analyze and to establish specific water quality objectives, monitoring parameters, and guidelines for these Whistler lakes. Once established, this monitoring program will be followed by the RMOW. In addition, local volunteers monitor temperature and water turbidity using Secci disks within Whistler lakes on an ongoing basis and this information is sent to the BCLSS for addition to their provincial database.

Swimming Beach Water

A municipal swimming beach water quality monitoring program was developed in 2003 by the RMOW in cooperation with the BC Ministry of Health to sample for water quality, primarily fecal coliform contamination, in relation to public health. Within the Whistler municipality, most lakes are used for swimming and other water sports during the summer months, with three lakes (Alpha Lake, Alta Lake and Lost Lakes) seeing the most traffic from both local and seasonal users.

3.3 Scope

This report includes the water quality findings for 2013, including swimming beach water quality and aquatic habitat water quality in specific Whistler locations. No stormwater data is available for 2013.

The general monitoring parameters for stormwater ponds and creeks susceptible to urban runoff are based on recommendations from the Whistler Integrated Stormwater Management Study Final Report (Kerr Wood Leidal, December 2010), outlined below in Table 10. Stormwater monitoring is also conducted at the Montebello and Day Lot 5 sites in Whistler village. When data is collected, water samples should be tested for parameters including organic and inorganic pollutants and indicators of ecosystem health (13 organic and 34 inorganic analytes).

Table 10: RMOW Integrated Stormwater Management Plan – Water Quality Sampling Locations, Times and Parameters

LAKE TESTING **(BC MOE water quality objective setting)** Lost Lake and Alta Lake	
May, October (spring and fall overturn)	Metals (total & dissolved), N, P, Cl, DOC, TOC, TSS, turbidity, silica
July, September	N, P, Cl, DOC, TOC, TSS, turbidity, silica, chlorophyll a, E.Coli, fecal
BACTERIOLOGICAL **(KWL recommended)** Gonzales Creek, 19 Mile Creek, Crabapple Creek, Whistler Creek, and Write-off Creek	
Sampling during base flows Aug/Sept 5 sampling days at each 5 Creeks in 30	Fecal coliform, *E. Coli*
Rideau Brook was originally recommended but not regularly monitored due to intermittent flows	
CREEKS – EXTENSIVE ANALYSIS **(KWL recommended)** 19 Mile Creek, Crabapple Creek and Write-off Creek	
3 sample days in September each creek upstream and downstream during non rain events.	Metals (total & dissolved), N, P, Cl, TOC, TSS, turbidity
SEDIMENT SAMPLING	

(KWL recommended) Write-off Creek and Crabapple Creek	
1 sample day in September each creek upstream and downstream during low base flows.	Metals (total), TOC
74 SITES GENERAL WATER QUALITY **(KWL recommended)** Only 39 of the 74 sampling sites were sampled in 2011 due to a shortage of time and resources.	
Plan for 2 technicians to sample during base flows in early August or September	Temperature, pH, D.O.,specific conductivity (requires a YSI borrowed from MOE)
STORMWATER MONITORING **(CERG recommended)** See individual reports for specific parameters and results	
Lot 5 Biofiltration Pond	Parking lot runoff
Village stormwater Pond (Montebello)	Sediment from village
AUTOMATIC LOGGER **(BC MOE and KWL recommended)** Whistler Creek	
June-Sept to monitor re-alignment in Whistler Creek	Data managed by MOE
KWL also recommends auto loggers for Crabapple Creek and River of Golden Dreams	

General water quality sampling of Whistler's lakes and streams is conducted in accordance with the directives in Table 10 above, as priorities and resources allow.

The Integrated Stormwater Management Plan's recommended monitoring locations and parameters are reviewed annually by the RMOW and monitoring is established as priorities and resources allow. Basic aquatic habitat water quality parameters are tested on an as-needed basis by the RMOW Fish and Wildlife technicians, including temperature, pH, conductivity, and turbidity, again in accordance with Table XX above. These parameters are designed to give a good baseline estimate of water quality for freshwater fish and aquatic life.

Five municipal swimming beaches are tested for fecal coliform on a weekly basis through the summer in collaboration with Vancouver Coastal Health.

3.4 Methodology

Typically, stormwater water samples are collected during spring freshet and at the end of snowmelt in midsummer from Montebello and Lot 5 stormwater filtration ponds and sent for analysis for a range of pollutants including heavy metals and petrochemicals. The RMOW follows the BC approved water quality guidelines for the protection of freshwater aquatic life, wherever possible and relevant. In situations that BC guidelines are not yet approved or finalized, the BC working guidelines are used, and/or a comparison to the Ontario guidelines is made, as these are more complete. This list is continually updated by the Province of BC, and the RMOW manages the local assessment maintenance of aquatic habitat water quality in relation to these guidelines. If and when elevated levels of certain parameters are notes, they are compared to the contaminated sites regulations.

Aquatic habitat water quality sampling is ideally carried out in alignment with the recommendations in Table 10 above, although monitoring locations and parameters are reviewed annually by the RMOW and monitoring is determined as priorities and resources allow. Project-specific monitoring also provides an opportunity to collect additional data. The RMOW has been working in collaboration with CERG to collect baseline water quality data (temperature, pH, conductivity, turbidity, total suspended solids (TSS) in conjunction with the RMOW Ecosystems Monitoring program. These data are collected while conducting monitoring surveys (E.g. electrofishing) for ecosystem indicator species within the municipality, such as Coastal tailed frogs, Rainbow trout or Kokanee salmon.

With respect to swimming beach water, the RMOW, in collaboration with Vancouver Coastal Health, tests the main five municipal swimming beaches (Rainbow Park, Lakeside Park, Wayside Park, Alpha Lake Park, and Lost Lake Park) on a weekly basis throughout the summer to ensure that fecal coliform concentrations do not exceed the Canadian Recreation Water Quality Guidelines (CRWQG). Safe levels of contamination are set to determine what is safe for primary recreation activities including swimming, sailing, etc. Each week, the RMOW collects one 100mL sample per swimming beach, at the same time and at the same location each week. If fecal coliform bacteria exceed 400 per 100mL in a single sample, the RMOW re-samples immediately. If the geometric mean over the past five weeks of sampling exceeds 200 fc/100mL, the beach is again immediately re sampled, or a closure is considered. These weekly readings of fecal coliform are recorded and monitored by the RMOW, as well as by Vancouver Coastal Health.

3.5 Targets

Stormwater quality targets are set according to the BC MOE approved water quality guidelines for the protection of freshwater aquatic life. The RMOW follows these guidelines wherever possible, and in the case that an approved limit has not been agreed upon in BC, the RMOW defaults to the next readily available limit for the maintenance of freshwater aquatic life (E.g. BC working guidelines; Ontario provincial guidelines).

Aquatic habitat water quality targets have yet to be established by the RMOW. The BC MOE is involved with setting targets for lake and creek water quality monitoring and this is still in progress.

For swimming beach water quality, fecal coliform concentrations ideally do not exceed the Canadian Recreation Water Quality Guidelines (CRWQG). Safe levels of contamination are established by these guidelines to determine safe levels for primary recreation activities including swimming, sailing, etc. According to the methodology outlined above, if the levels exceed the parameters of these guidelines, then a beach closure is considered by Vancouver Coastal Health.

3.6 Results

Stormwater Quality

For the biofiltration ponds at Montebello and Day Lot 5, water quality monitoring is in the early stages at these sites and it remains to be seen if these ponds are working appropriately and/or if potentially contaminated sediments or water should be removed and remediated. In 2012, sediment sampling conducted on the ponds determined that the sediment accumulated at the pond intake was contaminated. This could indicate that the ponds were working properly to collect and trap contaminants before the water flows into Fitzsimmons Creek. For 2013, no data was available to determine whether ponds are functioning correctly and/or if contaminant removal is required to help ensure the proper functioning of these systems (see Table 11; baseline water quality data only). Currently in 2014, these sites are being monitored and sampled regularly and a system for contaminant removal is in the planning stage, should it be required.

Results from the 2013 basic water quality samples at the Lot 5 stormwater biofiltration pond (see Table 11) were compared to BC's Approved or Working Water Quality Guidelines. Some exceedances were noted, including elevated turbidity and conductivity at the inlet. However, normal readings at the outlet likely indicate that the ponds are working as planned to trap contaminants prior to entry into Fitizsimmons Creek. Dissolved oxygen levels in the ponds were slightly below the acceptable range. The data results do not indicate any negative impacts to Fitzsimmons Creek. With limited data to account for fluctuations in conductivity and turbidity readings in the treatment pond, it is difficult to make inferences regarding water quality. To adjust for this, monitoring in 2014 will be expanded and mid-wetland sampling points used to map out water quality trends to help understand the reasons for these variances.

Table 11: Day Lot 5 Water Quality Data, May 8, 2013: Baseline water quality results suggesting overall water health at the input to Fitzsimmons Creek

RMOW Lot 5 Stormwater Treatment Wetland Results for Water Sampling	Treatment Wetland	Fitzsimmons Creek

			8-May-13			
Field Measurements	**Units**	**RDL**	**inlet**	**outlet**	**upstream**	**downstream**
Flow	m^3/s		0.000199134		7.649	
Wetland retention time	hrs		26.1 days		n/a	
Temperature	°C		10.07	13.84	5.51	5.59
Dissolved Oxygen	**%**		151.93	83.10	93.83	93.81
Dissolved Oxygen	mg/L		17.11	8.58	11.82	11.79
pH	pH		5.82	6.22	7.20	7.39
Specific Conductivity	µS/cm[C]		1948.67	286.13	69.64	68.21
Turbidity	NTU		140.13	39.87	20.48	15.57
Salinity	mg/L		0.99	0.13	0.03	0.03

Aquatic Habitat Water Quality

Limited data was available for 2013 to report an overall result in the water quality of Whistler's lakes. Sampling for water quality in Lost Lake was conducted once with collaboration with the BC MOE and all parameters tested were detected at levels within the BC Guidelines limits for healthy freshwater aquatic life. Without consistent lake water testing and related comparable data, this single sample is has limited value for monitoring purposes.

Aquatic habitat water quality sampling for Whistler creeks and rivers was limited and insufficient to provide a clear trend for 2013. The only creek monitored for complete organic and inorganic pollutants in 2013 was Crabapple Creek and all tested analytes were within the recommended limits for freshwater aquatic life according to the BC Water Quality Guidelines (BCWQG), except for dissolved aluminum on one occasion, and cadmium (Cd) on all samples. While the levels of dissolved aluminum in Crabapple Creek exceeded the BCWQG, the Integrated Stormwater Management Plan report (2010) suggests that the relative contribution of natural geologic sources (as opposed to anthropogenic pollution) is not known but could lead to naturally-high levels of aluminum. Crabapple Creek also tested higher for cadmium than the BCWQG 2012 as well as 2013. Cadmium is a natural element found in the earth's crust and can leach into surface and groundwater. It is also a common metal found in urban stormwater runoff, one source coming from tire wear. Cadmium is an environmental concern as it readily bioconcentrates in aquatic organisms, biomagnifies in the food chain and is toxic to freshwater fish, invertebrates and aquatic plants. (Bull, 2009) This parameter should continue to be monitored and snow-clearing operators (RMOW and private) should continue to be advised to avoid pushing snow into creeks.

Other creeks were sampled periodically for basic water quality parameters in conjunction with the Ecosystems Monitoring Program, as outlined in Table 12 below. Results from the basic water quality tests (see Table 12) are compared to BC's Water Quality Guidelines. The 2013 results do not indicate any exceedances of the guidelines. Several of the conductivity and turbidity levels are elevated but not of significant concern.

Table 12: Select 2013 Whistler Aquatic Habitat Water Quality Data

Site	Date	Water Temperature (ºC)	Conductivity (µS/s)	pH	TSS (ppm)	Turbidity (NTU)
Fitzsimmons Creek	2013.08.19	6.7	65	8.8		39.6
Jordan Creek #1	2013.09.04	16.8	61	7.81		3.9
Jordan Creek #2	2013.09.04	16.8	61	7.81		3.9

River of Golden Dreams	2013.09.06	16.9	225	7.66		7.26
Crabapple Creek	2013.09.05	13.6	227	7.89	113	
River of Golden Dreams	2013.09.12	13.1	68	7.30	34	

(Source: Compiled from the 2013 Ecosystems Monitoring Report)

Swimming Beach Water Quality

In 2013, the highest reading at Whistler's swimming beaches was 335 fc/100mL from a single sample in August at Alpha Lake Park (see Table 13). An abundance of geese were observed in the area at the day of sampling. No further sampling was required. No swimming beaches in Whistler were closed for any duration due to coliform levels.

Table 13: 2013 mean fecal coliform (E.coli/100 mL) data from five major swimming beaches within Whistler municipality. (Note: Individual samples over 400/100 mL prompt re-sampling, while a geometric mean over the past 5 samples over 200 prompts a beach closure by Coastal Vancouver Health)

	Alpha Lake	Lakeside Park	Lost Lake	Rainbow Park	Wayside Park
Highest result (e.coli/100mL)	335	64	25	350	10
Geometric mean over the summer	15.76	11.99	6.24	21.14	5.24
Days beach closed	0	0	0	0	0

3.7 Trends

Continuous monitoring of general water quality parameters related to runoff and stormwater is useful to assess both short-term impacts of development, such as increasing turbidity from construction, and long-term changes due to pollution, or other effects to the watershed. The biggest threat to Whistler's overall water quality appears to be increased stormwater runoff carrying contaminants and sediment related to urban development. Construction-phase turbidity due to poor management has been identified by the RMOW as a critical issue in the past, but due to the relatively low levels of urbanization on a watershed basis, this does not appear to be a significant issue at this time. Over time, water quality in Whistler's creeks and lakes has remained consistently high, while stream habitat in some lower reaches is negatively affected by the regular infilling of sediment. Temperature fluctuations resulting from climate change may also become increasingly important, but as of yet these data are incomplete.

One important water quality concern within Whistler is parking lot runoff from the central village parking lots and the associated risk of contaminated soils from petrochemical spills and heavy metals deposition to nearby streams and wetlands. The RMOW has conducted water and soil sampling for several years years (although not in 2013) and results for the Montebello pond show sediment contamination but it is too early to identify a solid trend in pollution levels from stormwater runoff in the Lot 5 stormwater pond.

Through ongoing monitoring as per some of the items recommended in Table 10 above and the Ecosystems Monitoring Program, the RMOW will continue to refine and improve the database of water quality parameters for storwmater and local streams and lakes of interest. In addition, the compilation of RMOW water quality data into an online central depository (WaterTrax) will enable more consistent and sophisticated analysis of sampling results to help understand baseline conditions and emerging concerns and trends in stormwater quality and aquatic habitat health.

With respect to water quality at local swimming beaches, fecal coliform levels have been monitored in Whistler from 2003 to present. The trend seems to be holding steady, with only slight variances year to year. Of some concern in the past were elevated and fluctuating coliform levels detected at some of the beaches on Alta Lake, a prime swimming location. Fortunately, extensive monitoring conducted in 1997-1998 and 2007 reveal that overall, water quality in Alta Lake has not seen major changes in the last ten years for the parameter described. In general, fecal coliform levels have been low throughout the swimming season and increase slightly in late summer as temperatures rise, geese activity continues, and human use increases. Of the five major swimming beaches, those on Alta Lake (Lakeside Park, Wayside Park, and Rainbow Park) occasionally exhibit elevated coliform levels, prompting re-sampling, but these beaches have never been closed due to contamination. A full beach closure due to fecal coliform has not occurred in Whistler in recent years.

3.8 Programs and Projects

The RMOW continues to improve the stormwater monitoring and management programs to minimize risks of contamination from urban runoff into streams and aquatic habitat, particularly around the location of the village parking lots.

The integration of water quality monitoring with the broader Ecosystems Monitoring Program will help improve consistency and ability to track trends over time. Data entry of water sampling results into an online depository (WaterTrax) will be an important step towards inventory and analysis of water quality in Whistler's waterways over time. It is also recognized that the development of a more refined comprehensive water quality monitoring plan for Whistler is an important step towards ensuring the consistent and accurate collection and reporting of data into a system that facilitates analysis and can provide needed information to the RMOW about the water quality in specific lakes and streams over time. Efforts by BC MOE and the RMOW to confirm long-term water quality objectives for Whistler's lakes will also be important for monitoring and understanding changes in lake health over the long term.

The RMOW continued its swimming beach water quality monitoring program in 2013, in conjunction with Vancouver Coastal Health. Plans are in place to manage considered closures as circumstances arise.

3.9 Conclusions

Healthy water quality is an indicator of healthy ecosystems able to support thriving aquatic and wildlife species and providing clean, safe places for recreation. As per historical monitoring results, Whistler has consistently exhibited good water quality results over time. In 2013, there was limited available data upon which to draw solid conclusions, however the available data for this year did not indicate any significant concerns with aquatic habitat water quality or swimming beaches.

In 2012, stormwater in the two village biofiltration ponds was identified to be contaminated, which could indicate that the ponds are working as planned to collect and trap contaminants before the water flows into Fitzsimmons Creek. In 2013, limited data was available for water quality in these biofiltration ponds, making it difficult to determine whether the ponds are working correctly and/or if contaminant removal is required to help ensure the proper functioning of these systems. The biofiltration ponds were not sampled specifically for stormwater contaminants in 2013. Limited sampling of basic water quality parameters in the ponds showed exceedance levels of turbidity and conductivity, with dissolved oxygen levels slightly below acceptable range. However, normal readings at the pond outlets likely indicate that the ponds are working as planned to trap contaminants prior to entry into Fitizsimmons Creek. The data available for 2013 does not indicate any negative impacts to Fitzsimmons Creek. Currently in 2014, this data gap has been recognized and the area is being monitored and sampled regularly and a system for contaminant removal is in the planning stage.

Aquatic habitat water quality sampling for Whistler creeks and rivers was also limited in 2013. The only creek monitored for complete organic and inorganic pollutants was Crabapple Creek and all parameters were within the recommended limits for freshwater aquatic life according to the BC Water Quality Guidelines (BCWQG), except

for dissolved aluminum on one occasion, and cadmium on all samples. Both of these water quality issues were previously identified in 2012 for Crabapple Creek. These elevated levels of cadmium and dissolved aluminum are likely a result of local development and/or stormwater runoff from roads and parking areas. Other Whistler creeks were sampled periodically for basic water quality parameters pertaining to aquatic habitat. The 2013 results indicate some elevated conductivity and turbidity levels but nothing of significant concern and no exceedances of the relevant guidelines. Continued water quality monitoring for aquatic habitat is planned.

Generally, as per historic monitoring data, water quality in Whistler's streams and lakes has remained consistently good over time. The village stormwater biofiltration ponds and a limited number of streams appear to be negatively impacted by the regular infilling of sediment and/or contaminants from roads and parking areas. The biggest threat to Whistler's overall water quality, as per historical and 2013 data, seems to be stormwater runoff depositing contaminants and sediment related to urban development into streams and aquatic habitats.

Continued monitoring and appropriate management response is essential for ensuring that urban development and infrastructure is suitably managed so as not to negatively affect our water resources. It is recommended that the RMOW continue to work towards establishing permanent and consistent monitoring sites and associated parameters for stormwater and aquatic habitat water quality sampling in key Whistler creeks. Efforts by BC MOE and the RMOW to confirm long-term water quality objectives for Whistler's lakes are important for monitoring and understanding changes in lake health over the long term. Reviewing water quality results in conjunction with other indicators of aquatic ecosystem health, such as fish and invertebrate populations, will help the RMOW to evaluate trends in the state of local ecosystems and biodiversity.

There were no beach closures due to elevated fecal coliform levels at Whistler's swimming beaches in 2013, nor have there been any in recent years. Continued monitoring of swimming beach water quality will help to ensure the safety of recreational waters for Whistler residents and visitors.

4 LAND

4.1 Values

Whistler values the importance of our land-based natural environment to the success of the resort community and the RMOW continues to strive toward the protection of this asset. These values are expressed in several high level policies, including Whistler2020 and the OCP. Development and recreation amenities have undoubtedly contributed to the success of Whistler as a destination resort, however, some aspects of these activities have negatively impacted and may continue to place pressure on the integrity of local ecosystems. Habitat loss and fragmentation is one of the leading causes of loss of local and global biodiversity. To remain successful, Whistler must continue to protect and steward the ecological integrity and aesthetic qualities of our natural environment throughout the municipality as growth in the Sea to Sky corridor continues. Measuring and reporting on the state of our land resources is an important aspect of managing human impacts and preserving the fundamental values that our natural environment provides.

4.2 Background

The development of natural areas comprising Whistler's land base, resulting in the elimination and/or fragmentation of plant communities and wildlife habitats, is both a local and global concern. Through Whistler2020 and the OCP, the RMOW has committed to protect native biodiversity locally and has enacted growth and environmental management policies, plans and bylaws to help meet this commitment. Reviewing the state of developed areas and sensitive ecosystems can help provide a sense of how Whistler is managing the land base to preserve biodiversity and natural areas.

Natural resource extraction can also impact Whistler's land-based environment. The RMOW is one of three partners in the management of the Cheakamus Community Forest (CCF) tenure, which occupies over 30,000

hectares surrounding Whistler. The approach to harvesting in the CCF is grounded in Ecosystem Based Management (EBM), which places additional constraints on harvesting as it emphasizes the need to maintain ecosystem functions while accommodating human uses. Upon agreement of the use of the EBM plan in its initial tenure with the BC Ministry of Forests, Lands and Natural Resource Operations in 2009, the CCF successfully negotiated an Allowable Annual Cut or AAC of 20,000m^3. This is helping to decrease the environmental impacts of forestry in Whistler. A review of annual timber harvesting activities by the CCF can provide an important perspective on how forests are being managed in Whistler.

In the 2012 SOE report, species at risk and invasive species were addressed in the Land section. In this report, species at risk and invasive species are addressed in a new Plants and Wildlife section 5.0.

4.3 Scope

The geographic scope addressed in this report is the approximately 24,400 hectare (approximately 244 km^2) area within Whistler's municipal boundaries. The reporting period is the year 2013. The topics to be addressed in this Land section include developed and developable areas, sensitive ecosystems and the harvesting activities of the CCF.

4.4 Methodology

This 2013 SOE report uses RMOW and Whistler2020 data sources to represent the state of developed areas. The total area of developed or developable land is based on the Whistler2020 monitoring program's Development Footprint indicator. Developed and developable areas include the land area within the boundaries of all zoned land except for those areas zoned as parks, protected areas or extremely low density parcels of land. Please note that many roads (including Highway 99, Village Day Lots) are not included in the calculation.

The total area of sensitive ecosystems is based on the RMOW's 2003 Terrestrial Ecosystem Mapping (TEM) inventory of wetlands, riparian areas and other sensitive ecosystems. This mapping informed the creation of the Protected Areas Network (PAN) map series, which in turn evolved into Development Permit areas for the protection of the natural environment in the 2013 OCP.

It should be noted that there is currently no process in place for regular assessment or adjustment of inventoried sensitive ecosystem areas. As such, this inventory is unlikely to change year to year, until a new mapping inventory is undertaken.

A summary of key harvesting activities within the CCF will be presented based on the 2013 CCF annual report (Richmond Plywood Corporation Limited, 2014).

4.5 Targets

Whistler2020 sets a sustainability goal of reducing, and eventually eliminating Whistler's contribution to ongoing degradation of natural systems. Our quality of life and ecosystem integrity depend upon the capacity of natural systems to support biodiversity. As such, it is important to reduce activities that systematically destroy life-sustaining ecosystems and biodiversity. Ensuring that land-based areas comprising sensitive ecosystems and important habitat do not decline significantly is an important target for preserving healthy natural systems.

No defined quantitative targets are identified for developed areas or sensitive ecosystems in this or the previous SOE report. A significant increase year to year or an overall significantly increasing trend in the amount of developed areas would likely indicate some decline in the overall state of Whistler's land-based natural environment. The same would apply if a decrease were detected, either year-to-year or as a long-term trend, in the amount sensitive ecosystems. However, as mentioned above, there is currently no annual comprehensive assessment of Whistler's sensitive ecosystem areas.

Within the CCF, timber harvesting levels not exceeding the AAC are preferred to minimize impacts to Whistler's forested environment. Continued successful implementation of Ecosystem-Based Management within the CCF is ideal for the environmentally-responsible management of forests in the Whistler area.

4.6 Results

Developed Areas

Of Whistler's total 24,300 hectare area, 1,139 hectares are designated as developed or developable in 2013 as per municipal zoning. This represents a minor increase of 1.2 hectares from 2012. There were 41 Development Permits issued in 2013, however none were for new significant developments other than the Audain Art Museum which was rezoned to accommodate the new museum (this accounts for the increase of 1.2 hectares).

Sensitive Ecosystems

Listed below is the total area of wetlands, riparian areas and other sensitive ecosystems within the RMOW, as identified through the RMOW's TEM mapping, PAN mapping initiative and the OCP update in 2013.

- Wetlands: 489 hectares
- Riparian areas: 2,600 hectares
- Other sensitive ecosystems, including forested floodplains, old growth and mature forest, early succession forest, high mountain ecosystems and avalanche tracks: 19,931 hectares

The total area of wetlands, riparian areas and other sensitive ecosystems combined, adjusted as possible to avoid duplication due to overlap of the above categories, is 23,020 hectares.

The TEM maps depicting wetlands, riparian areas and other sensitive ecosystems within the RMOW are included in Appendices A–C.

Cheakamus Community Forest

In 2013, the total log production of the CCF was 23, 280.5m^3. A total of 42 openings created a total gross harvest area of 51.1 hectares with an average opening size of 1.2 hectares (this does not account for additional internal trees or tree patches). Some new road construction was required to access timber. 62% of the total log production was of Hemlock and Balsam species.

For the Cut Control Period 2009-2013, the timeframe for forest managers to meet the Allowable Annual Cut (AAC) objectives, total harvesting in the CCF represented approximately 61% of the Allowable Annual Cut, with an estimated total harvest of 48,954m^3 over a five year period (note: the cutting permit and associated contracts were issued in November 2010, essentially resulting in only four-years of operations within the Cut Control Period).

4.7 Trends

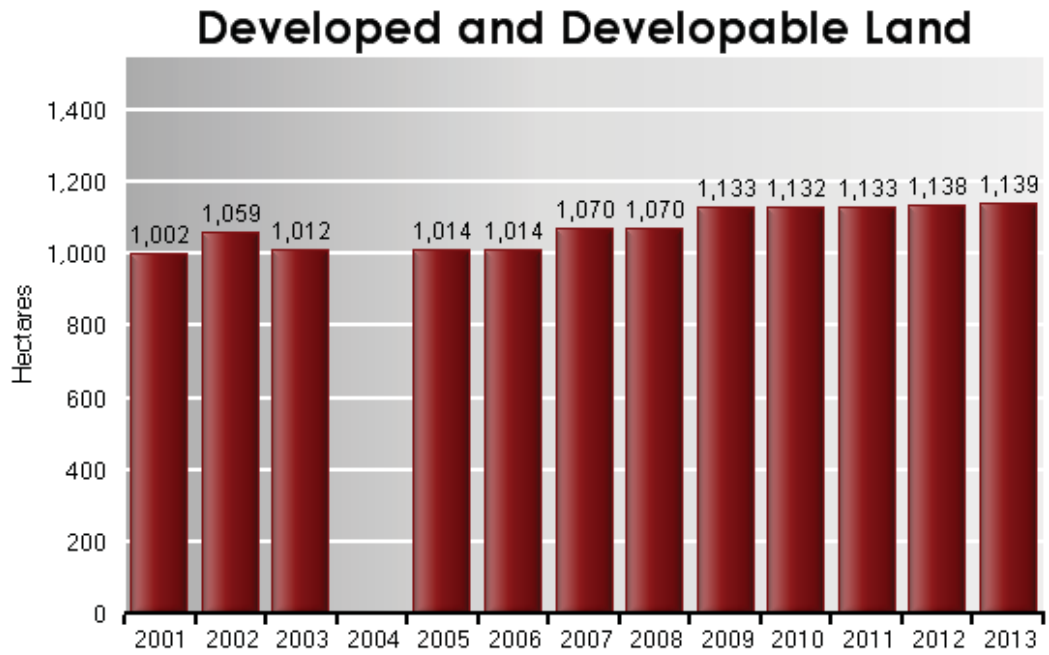
This report aims to provide a snapshot of the state of Whistler's land-based environment in 2013 with a coarse assessment of trends over time. Due to challenges with data sources and consistency, it can be complex to assess year-to-year changes in land development and sensitive ecosystems status. Trends in the harvesting activities of the CCF are linked to the tenure's AAC.

Developed Areas

As Whistler approaches build out, or the point where development reaches the maximum approved developable units, we are seeing less growth and expansion and more diversification and redevelopment of existing sites. In 2013, the RMOW had a total developed or developable area of 1,139 hectares, compared to 1138 hectares in 2012, representing only a small increase of 1.2 hectares. With 41 Development Permits issued in 2013, only one was for a significant new development (1.2 hectares rezoned for the new Audain Art Museum) and the remainder were primarily for improvements or upgrades to existing sites.

Since 2009, there have been relatively minor increases in Whistler's annual development footprint, as displayed in Table 14 below. This trend is expected to continue due to limited growth opportunities within the RMOW.

Table 14: Developed and Developable Land 2001 – 2013 (source: Whistler2020)



Sensitive Ecosystems

The 2012 SOE report cited data from the Whistler2020 monitoring program, indicating that the RMOW identified 8,774 hectares of sensitive habitat. This result was generated using sensitive ecosystem mapping from 2003, which was the most current available data at the time. This total area included including permanent wetlands, old forests, forested floodplains and riparian areas. There was no annual review or update to this mapping inventory and therefore this result remained unchanged from 2003-2012.

In 2013, with an updated mapping inventory, the RMOW has identified a total 23, 020 hectares of sensitive ecosystems, including wetlands, riparian areas and other sensitive ecosystems combined.

The significant difference between 2012 and 2013 results can be explained largely by the evolution of the sensitive ecosystem map series, overlap between various types of sensitive ecosystems (i.e. double counting) and the RMOW boundary expansion in 2007 which resulted in an increase of total RMOW area from 16,500 to 24,300 hectares.

There is currently no process in place for regular assessment or adjustment of inventoried sensitive ecosystem areas within the RMOW. As such, this 2013 result for the total area of sensitive ecosystems is unlikely to change until such a process is initiated and/or a new sensitive ecosystem mapping inventory is undertaken.

Cheakamus Community Forest

In 2013, the total log production of the CCF was 23, 280.5m^3 comprising 51.1 ha. This was the largest production year to date for the CCF. Below are the harvest totals for 2009-2013:

- 2009 – 0m^3 / 0 ha
- 2010 – 2,366m^3 / 4.6 ha
- 2011 – 15,963m^3 / 38 ha

- 2012 – 7,195m^3 / 18 ha
- 2013 – 23,280m^3 / 51 ha

The coastal wood market was improved in 2013, with better prices for harvesters and increased demand.

For the Cut Control Period 2009-2013, the timeframe for forest managers to meet the Allowable Annual Cut (AAC) objectives, total harvesting in the CCF represented approximately 61% of the Allowable Annual Cut, with an estimated total harvest of 48,954m^3 over the 2010–2013 period. The CCF conducted minimal harvest in 2009 and 2010, resulting in heavier production in later years to ensure achievement of the AAC.

4.8 Programs and Projects

Developed Areas and Sensitive Ecosystems

Whistler's 1993 OCP established a maximum bed unit capacity and clearly defined Development Permit Areas (DPAs). The Zoning and Parking Bylaw establishes specific land uses for all areas throughout the resort community. These are the most significant municipal tools to manage the amount, type and location of development within the RMOW.

In 2013, the RMOW endeavoured to update its OCP as per provincial regulations. The updated 2013 OCP reinforced limits to growth through a maximum bed unit capacity and introduced the Whistler Urban Development Containment Area to enclose all development and urban land uses. The 2013 OCP established a revised suite of DPAs based on the 2003 TEM mapping and associated guidelines to manage the nature of development within specific areas in order to protect and enhance relevant community goals and values including protection of the natural environment. The revised DPAs included wetlands, riparian areas and other sensitive ecosystems, based on a new series of sensitive ecosystem maps developed in conjunction with the OCP update. These DPAs designated for the protection of the natural environment included a set of rigorous guidelines for each type of ecosystem, designed to maximize environmental protection and limit potential negative impacts.

The RMOW's updated OCP was approved by the B.C. Minister of Community, Sport and Cultural Development on April 15, 2013 and then adopted by Council on May 7, 2013. Subsequent to that approval, the Squamish and Lil'wat First Nations successfully challenged the Province of British Columbia and the Minister's approval of the OCP in court. Little more than a year after adoption, Whistler's 2013 OCP was quashed by the BC Supreme Court on June 4, 2014. At this time, the RMOW reverted back to the 1993 OCP.

Cheakamus Community Forest

In late 2012/early 2013, the CCF presented its Ecosystem-Based Management Plan which guides forestry activities with consideration of tourism, recreation, conservation of high value forest areas, First Nations interests, stakeholder engagement and wildfire risks.

The CCF held two community open houses and met with commercial recreation operators. It reports monthly to the RMOW Forest and Wildland Advisory Committee which advises Council on forestry related issues. It participated in the Trail Planning Working Group regarding the development of alpine recreation trails on Sproatt and Rainbow Mountains. It also participated with other community groups and volunteers to improve the Ancient Cedars trail and parking area.

4.9 Conclusion

With minimal new development in 2013 (only 1.2 hectares), the state of Whistler's land-based systems appears fairly established. As Whistler approaches build out, development activities focused on maintaining the bed unit capacity and remaining consistent with current zoning. In 2013, development primarily consisted of redevelopment of existing sites.

With significant steps taken to identify and protect sensitive ecosystems through mapping and land use policy and legislation, the RMOW demonstrated a firm commitment toward protecting Whistler's natural environment. The RMOW undertook actions within its jurisdiction and mandate to protect biodiversity by identifying and protecting sensitive ecosystems and habitat and managing the amount, type and location of development activities. The RMOW implemented various initiatives toward environmental protection, including a comprehensive mapping inventory of sensitive ecosystems and indicator species and, for a period when the 2013 OCP was in effect, related new Development Permit Areas for the protection of the natural environment. In addition to these efforts to preserve ecosystem integrity and biodiversity, initiatives to address species at risk and invasive species are addressed in the Plants and Wildlife section 5.0.

2013 was the highest production year to date for the CCF, with a total log production of 23, 280.5m^3 comprising 51 ha of land. Overall, the Ecosystem-Based Management approach of the CCF continues to support the minimization of environmental impacts to Whistler's forests and land-based ecosystems.

Despite progressive policies and a cap on Whistler's growth, human activities continue to place pressure on land systems, threatening biodiversity. An ecosystem-based approach should continue to be applied to human activities and development projects and be integrated into land use policies and plans. With the quashing of the 2013 OCP and related DPAs for the protection of the natural environment, the RMOW is now working with existing tools and exploring other means by which to integrate the current sensitive ecosystem mapping with land-use decision making, which is key for effective environmental protection and stewardship.

Forestry will continue to impact Whistler's natural environment, particularly with the demands of the AAC. Future activities of the CCF should continue to be managed and assessed to most effectively minimize environmental impacts to Whistler's land base.

5 PLANTS & WILDLIFE

5.1 Values

Plants and wildlife provide some of Whistler's most important and valued natural assets and they depend on healthy habitat including high quality air, water and land systems as discussed in sections 2.0, 3.0 and 4.0. These values are expressed in several high level policies, including Whistler2020 and the Official Community Plan. Many species can provide an excellent indication of biodiversity and the health of local ecosystems. Reviewing the state of local plants and wildlife populations, including species at risk and invasive species is an important aspect of managing human impacts and preserving biodiversity.

5.2 Background

Biodiversity has intrinsic value and renders ecological services that are important to human health and support economic, aesthetic and recreational values. BC has more biodiversity than any other province or territory in Canada and also the highest number of endangered species (South Coast Conservation Program: http://www.sccp.ca/sites/default/files/species-habitat/documents/sccp%20booklet%202013final.pdf). Protecting species from threats posed by habitat loss and fragmentation is vitally important and supported by our community's highest level policies, as discussed in the Land section 4.0. Identifying and taking measures to protect species at risk and protecting local plants and wildlife from threats posed by invasive species are other critical aspects of maintaining healthy ecosystems and biodiversity. Monitoring local plant and wildlife populations can also provide important indications as to the state of the local environment.

In 2013, the RMOW contracted CERG develop a standardized Ecosystems Monitoring Program. In an effort to build off existing work commissioned by the RMOW, this monitoring program uses a previous study, *A Proposed Framework for the Use of Ecological Data in Monitoring and Promoting the Conservation of Biodiversity in Whistler*, as a foundation document (Golder 2008). CERG also consulted data provided through the Whistler

Biodiversity Project (WBP). This new monitoring program identifies key indicator species and habitats and directs annual vegetation, wildlife, fish and amphibian surveys and assessments, including some species at risk. This program presents a starting point for development of an ongoing program with the capacity to evolve and expand over time and that will create a baseline record of abundance. As the program is developed and refined over subsequent years, and as the standardized, replicable inventories generate more depth to the database, it is presumed that trends and conclusions will become evident. Knowledge of such trends can provide critical information that may help guide and support land use planning and management decisions within Whistler toward protecting biodiversity and ecosystem health.

Species at Risk

Species at risk can be a useful indicator of ecosystem health. An increasing number of species at risk in an area may simply indicate that presence of certain species at risk has been confirmed for the first time in a region, or that a range has been corrected or extended. Or it may indicate that certain populations are in serious decline due to reasons such as habitat loss, fragmentation or degradation, disease or displaced by invasives. A declining number of species at risk in a region may indicate that certain populations have increased to a healthier level that warranted their removal from the Red or Blue list.

This report will examine how many plants and wildlife species at risk occur in the Squamish Forest District, specifically Red and Blue listed species as registered by the BC Conservation Data Centre (CDC). Red and blue listed species are defined by the CDC as follows:

- Red listed species – extirpated, endangered or threatened in BC; and
- Blue listed species – of special concern in BC.

This CDC list necessarily includes all Species at Risk Act (SARA) Schedule 1 listed species, Parts 1-3, which are federally protected species.

Invasive Species

As referenced in the RMOW's initial 2012 SOE report, the displacement of native species by invasive species is one of the greatest threats to local and global biodiversity. Invasive species are used here as an indicator of health of Whistler's ecosystems.

Invasive species can disrupt natural habitats, decrease biodiversity, cause environmental and economic harm and even cause harm to human health. Whistler is in a fairly good position where the most damaging invasives are small in number and are being managed and we must continue to take action in order to stay ahead of the issue.

With the risks of invasive species increasing in Whistler, the RMOW has been working closely with the Sea to Sky Invasive Species Council (SSISC) since 2009 to understand and manage the risk of invasives in Whistler. SSISC is a charitable organization that works cooperatively with other organizations, governments and industry on the south coast of British Columbia and Sea to Sky region to minimize the negative impacts caused by invasive species. SSISC is currently recognized as the leader in invasive species management in the Sea to Sky region. SSISC not only provides technical direction and support for multiple stakeholders but also plays a leadership role in driving collaboration and coordinated efforts in the management of invasives throughout the corridor.

SSISC maintains a current, comprehensive and prioritized list of invasive species present and encroaching within the region. This list is a critical resource for the management of invasives by the RMOW, as it is directly relevant to the invasive species threatening the Whistler area. The RMOW uses this SSISC species list as the primary guide to prioritizing and managing invasive species in the resort community.

The CERG annual Ecosystems Monitoring Program will also assess invasive species. Methodology from 2013, which used sample inventory plots, will be revised for future years in order to get a better sense of invasive species abundance and trends throughout Whistler over time, using SSISC and provincial Invasive Alien Plant Program (IAPP) databases.

This report will examine approximately how many invasive species have been identified to date in Whistler, as well as the amount of control work was done to contain, control or eradicate invasive species in 2012.

Other Plants and Wildlife
Wildlife species can offer insights into the health of local ecosystems and this section will review some highlights of recent wildlife monitoring. Since 2004, the Whistler Biodiversity Project has been identifying plants and wildlife species in Whistler to form a current inventory of over 3,000 species. Now that we are building a clearer picture of which species are present in Whistler, we can make increasingly more informed decisions on land use and ecosystem protection. That said, there is still a lot of information yet to be discovered and documented. The Ecosystems Monitoring Program will annually assess specific wildlife habitat and specific species and contribute to this growing knowledge base with an eye toward protecting biodiversity and overall ecosystem health. This report will discuss some of the highlights of the first annual Ecosystems Monitoring Report.

Bears
The RMOW has been a key partner in preventing and managing human-bear conflict in the valley for many years, specifically in relation to black bears. As a member of the Whistler Bear Working Group since its inception in 1996, the RMOW has initiated and supported numerous programs to help reduce human-bear conflict. Many positive outcomes have been achieved towards the goal of minimizing human-bear conflicts and Whistler has been recognized by BC MOE as one of the first Bear Smart Communities in the province. However, with large seasonal populations, high visitor numbers, a focus on outdoor recreation activities, and a valley full of black bears, challenges to minimizing human-bear conflict remain ever present.

This report will review the number of reported human-bear conflicts in 2013 using data from the BC Conservation Officer Service. While not an indicator of biodiversity or ecosystem health, this can provide insight on how Whistler is doing toward its goal of minimizing human-bear conflict in the resort community.

Western Toads
Western toads are on the CDC Blue list as a species of special concern in BC. Since 2006, the RMOW has been working to protect Western toads during their migration from Lost Lake to nearby forested areas, as their routes generally cross bike/pedestrian trails and roadways resulting in high toad mortality. Objectives of the RMOW's Western toad initiatives include minimizing mortality during migration from lake to forest, preserving natural toad habitat to support a thriving local population and documenting long-term population and migration trends.

5.3 Scope

The scope of this section of the report will address the year 2013. With respect to data results, this report focuses on invasive species, species at risk and other indigenous plants and wildlife as general indicators of Whistler's ecosystem health and biodiversity.

5.4 Methodology

Species at Risk
The Whistler2020 monitoring program has been reporting annually on species at risk. This indicator measures the number of plant and wildlife species at risk in the Squamish Forest District, specifically all Red and Blue listed species as listed by the BC Conservation Data Centre (CDC) which are defined as follows:

- Red listed species – extirpated, endangered or threatened in BC; and
- Blue listed species – of special concern in BC.

Invasive Species
Monitoring of invasive species is performed by SSISC and the Ministry of Forests, Lands and Natural Resource Operations, through its Invasive Alien Plant Program.[1] The Whistler Biodiversity Project also maintains a current

[1]Ministry of Forests, Lands and Natural Resources, Invasive Alien Plant Program (IAPP), Accessed March 2012 (available at: http://bit.ly/GSh4z4).

list of plants identified in Whistler, including invasives. CERG also performed some monitoring in 2013 regarding invasive species, but the methodology for future years will be revised for future years in order to get a better sense of invasive species abundance throughout Whistler using SSISC and provincial databases.

This report will review the total number of invasive species identified to date in Whistler by the Whistler Biodiversity Project, as well as quantify the sites where SSISC performed control work to contain or eradicate specific invasives.

Other Plants and Wildlife

Species monitoring is performed regularly by the Whistler Naturalists and annually by way of the Whistler Biodiversity Project, which shares information with the RMOW. The Ecosystems Monitoring Program outlines replicable, consistent monitoring protocols for the regular assessment of specific indicator habitat and wildlife species, including the following for 2013:

- Kokanee salmon;
- Bull trout;
- Rainbow trout;
- Tailed frog;
- Beaver;
- Carabid beetle;
- Pileated woodpecker; and
- Red-backed vole.

Bears

The BC Conservation Officer Service tracks reported human-bear conflict incidents occurring in Whistler. Key aspects of this will be reported on below, including the total number of bears destroyed due to human-bear conflict.

Western Toads

The RMOW conducts annual visual and hand-capture surveys to assess the Lost Lake Western toad population and migration patterns. Full methodology is discussed in the *RMOW 2013 Western Toad Population at Lost Lake Report.*

5.5 Targets

There are currently no specific targets established in this report for species at risk, invasive species or other plants and wildlife.

A declining number of species at risk could indicate that healthier populations warrant species' removal from the CDC Red and Blue lists, which would be ideal.

A decreasing number of invasive species sites to control could indicate that Whistler is successful in prevention, eradication and containment efforts.

Ideally, no bears would be destroyed due to human-bear conflict, nor humans harmed by bears. Fewer human-bear conflicts could indicate that Whistler is implementing effective initiatives in this area. Increased knowledge about other key indicator species and habitats can provide valuable population details and trend information to help the RMOW and other organizations make better decisions to protect biodiversity and local ecosystems.

There are no specific targets with respect to the Western toads, other than the general objectives established by the RMOW for general Western toad programs, which include minimizing the mortality of toads during migration

from lake to forest, preserving natural toad habitat to support thriving local populations, and annually assess this local toad population and migration patterns.

5.6 Results

This section presents 2013 results for species at risk, invasive species and other plants and wildlife.

Species at Risk

In 2013, the BC CDC identified 17 Red listed and 39 Blue listed species at risk in the Squamish Forest District.

New on the Red list for the Squamish Forest District in 2013 were the following species:

- Dun Skipper
- Propertius Duskywing
- Silver-spotted Skipper, californicus subspecies

The following species was removed from the Squamish Forest District's Red list:

- Keen's Myotis (moved to Blue list).

Invasive Species

The Whistler Biodiversity Project is an ongoing project aimed at cataloguing and conserving Whistler's native species. The Whistler Biodiversity Project conservatively confirms that as of 2013, there are over 150 invasive species of plants in Whistler. Approximately 20% of the total plant species documented thus far by the WBP are invasive.

During the 2013 field season, SSISC coordinated invasive species control work at 106 sites within Whistler. Priority species included Scotch broom, Japanese knotweed, Himalayan blackberry, Canadian horseweed and purple loosestrife. Control sites from 2012 were revisited and removals were generally found to be successful. A total of 24 new sites received control work. Three new invasive plant species were identified in Whistler.

Other Plants and Wildlife

The Ecosystems Monitoring Program outlines replicable, consistent monitoring protocols for the annual assessment of specific habitat and wildlife species. Below is a small sampling of some select results from the 2013 monitoring program:

a) Kokanee salmon – Electrofishing surveys for Kokanee salmon were conducted in Fitzsimmons Creek, Jordan Creek and the River of Golden Dreams. Relatively low abundance was detected through surveys in Fitzsimmons Creek, no presence was detected at the location surveyed in Jordan Creek, and no presence was detected in the River of Golden Dreams. Kokanee spawning surveys were conducted in two creeks and resulted in a count of 168 individuals in the River of Golden Dreams and six in Whistler Creek.

b) Tailed frog – Tailed frog relative abundance surveys were conducted at three locations, one on Alpha Creek and two on Scotia Creek. Results indicated a low abundance of frogs detected in Alpha Creek. No frogs were observed in Scotia Creek, which was concerning as they are known to occur in that area. Survey locations and methodology may be adapted to cover a larger sampling area. Tailed frogs are sensitive to habitat destruction and degradation and the initial survey results may reflect an impacted population in these areas.

c) Beaver – Beaver population census in 2013 surveyed 28 beaver lodges and an estimated beaver population of 58 beavers. The total population of beavers has decreased significantly from 2008 surveys (est. 158 beavers), but represents an increase from the 2007 population estimate of 52.

d) Carabid beetle – Sampling detected relatively low abundance of carabid beetles. Species richness also appeared to be low. Sampling will be increased in future monitoring efforts.

e) Pileated woodpecker – One single pileated woodpecker was detected during call-playback survey efforts. With one specimen encountered for 134 hectares surveyed along two transects, the population density (a key value for monitoring ecosystem health) is estimated at 0.007 per hectare.

f) Red-backed vole – Surveys at two locations resulted in the capture and release of 25 red-backed voles. Increasing sampling sites will help improve precision in detecting and monitoring vole abundance.

For detailed information on the complete monitoring results for the species above and more, including sampling methodology, locations, and survey and abundance results, please refer to the *RMOW Ecosystems Monitoring Report 2013*.

Bears
In 2013, the BC Conservation Officer Service recorded the following data related to human-bear conflict incidents in Whistler:

- Bears destroyed: 2
- Bear hazing: 11 incidents
- Bears relocated or trans-located: 0
- Dangerous Wildlife Protection Orders issued by the Conservation Officer Service: 0
- Nuisance bear calls: 48
- Incidents of property damage by bears: 48
- Reports of aggressive bear behavior: 5
- Bears killed by motor vehicles: 2

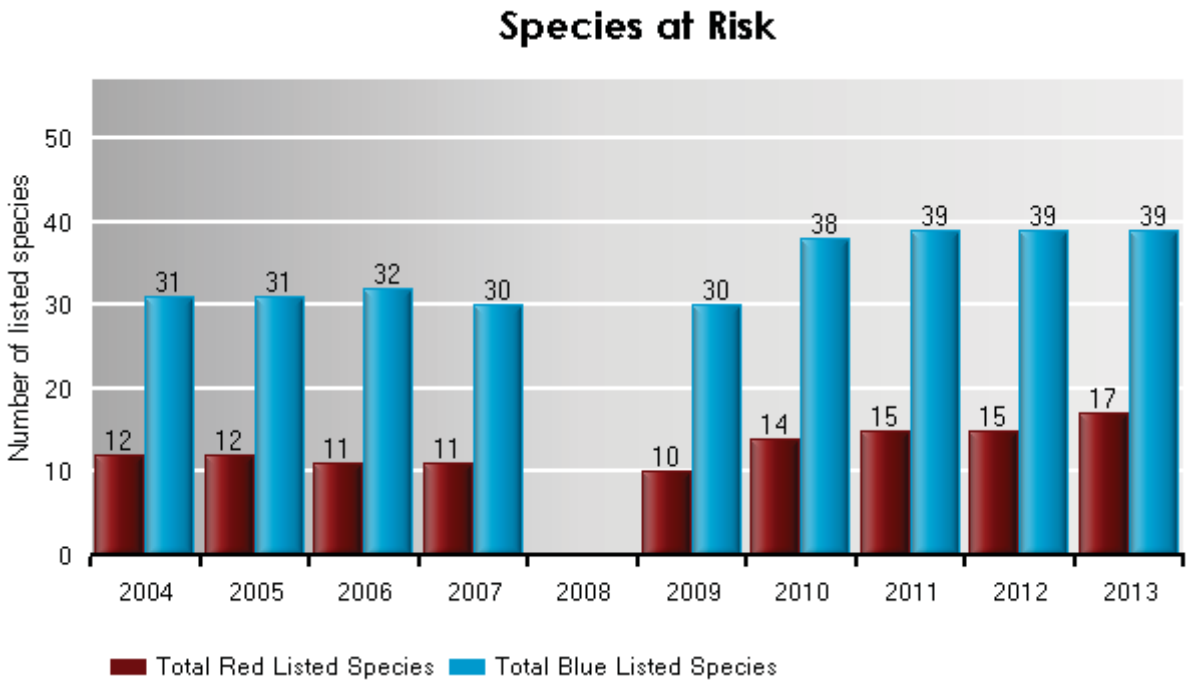
Western Toads
2013 was a record-breaking year for the Western toad migrating population at Lost Lake, with around 40,000 tadpoles and later 35,000 juvenile toadlets observed. The overall health of the toad population is determined by the number of breeding adults along with abundant survival of offspring. There were approximately 1060 juvenile toadlet human-caused mortalities observed during migration.

5.7 Trends

Through grass-roots efforts by local researchers and community members, with municipal and non-governmental support, knowledge about the number of plant and wildlife species, including species at risk and invasive species, has increased significantly in recent years. Yet with limited and potentially inconsistent data over relatively short time periods, it is difficult to infer trends regarding species at risk, invasive species and other plants and wildlife.

Species at Risk
Table 15 below represents the number of CDC Red and Blue listed species in the Squamish Forest District for the period 2004 – 2013. The number of Red and Blue listed species has increased noticeably in the past 10 years. This could be due to various reasons, such as declining populations of existing species, changes in methodology, or recently confirmed presence of new species at risk in the region.

Table 15: Red and Blue Listed Species at Risk in the Squamish Forest District 2004 – 2013



(Source: BC Conservation Data Centre)

Invasive Species

Tracking the appearance and distribution/spread of priority invasive species can help indicate encroachment and corresponding threats to native biodiversity. As of this reporting period, there were over 150 species of invasive plants confirmed in Whistler, with three new invasive plants identified in 2013. Data is currently insufficient to determine how this indicator is trending.

Other Plants and Wildlife

2013 was the initial year for the RMOW Ecosystems Monitoring Program conducted by CERG. Trends are expected to emerge over time, as replicable, consistent monitoring protocols for the assessment of specific habitat and wildlife species are implemented annually.

Bears

Two bears were destroyed by the BC Conservation Officer Service due to human-bear conflict. Conflict incident data for past years is not assessed here. General observed trends show that in years where berries and other natural bear-food source yields are abundant, human-bear conflict numbers are low. In seasons where natural food sources are less abundant, human-bear conflict numbers tend to increase.

Western Toads

No trend information regarding the Western toads at Lost Lake has been gathered for this report.

5.8 Programs and Projects

Species at Risk

In 2013, the RMOW participated in the Species and Ecosystems at Risk Local Government Working Group, aimed at supporting local government efforts to protect species and ecosystems at risk. This in turn sparked a new relationship for the RMOW with the South Coast Conservation Program, which brought local government and other stakeholders together in a regional dialogue on land use planning for species and ecosystems at risk in the

Squamish-Lillooet Regional District. In late 2013, the RMOW began scoping out a plan for reviewing and improving the integration of species at risk into municipal monitoring programs, plans, policies and regulations, as well as communication and stewardship initiatives, in order to support more effective protection of local species at risk.

Invasive Species

In 2013, the RMOW continued its partnership with SSISC in support of an invasive species education and control initiatives. The RMOW also initiated the development of an Invasive Species Management (ISMP) plan, intended to guide the prevention, reduction, control and mitigation of the detrimental effects of invasive species on natural areas, native species, human and animal health within Whistler. This plan will emphasize the importance of working collaboratively with partners like the Sea to Sky Invasive Species Council and Invasive Plant Council of BC, and with other stakeholders and residents. The ISMP was completed in 2014 and will be discussed in the next SOE report.

Other Plants and Wildlife

The Ecosystems Monitoring Program emphasizes the identification of biodiversity and ecosystem health indicators. This annual monitoring program will continue, with refinements and expansions, with the objective that future results can reveal trends that can be used to understand and measure changes in biodiversity and ecosystem health for Whistler.

Bears

Bylaw, BC Conservation Officer Service and the Whistler Bear Working Group continue to work closely to implement effective solutions for reducing human-bear conflict in Whistler.

In order to continue to reduce human-bear conflicts in Whistler, the RMOW and Whistler Bear Working Group identified a short list of plants that are particularly attractive to bears and serve to draw them into areas where the plants are located. The plants on the list include:

- Sorbus aucuparia (Mountain Ash, single stem tree);
- Sorbus sitchensis (Mountain Ash, shrub, multi-stem);
- Vaccinium (blueberries & huckleberries); and
- clover.

As of 2013, these plants will no longer be approved for landscape plans that require municipal approval.

The RMOW supported bear aware outreach in 2013 through funding to the Get Bear Smart Society. In 2014, the RMOW plans to directly fund and manage a seasonal outreach position.

Western Toads

The RMOW has been active in its efforts to protect Western toad habitat and reduce mortality during migration from Lost Lake to nearby forested areas. In 2013, these efforts included:

- wildlife fencing and the construction of a toad bridge to help direct the toads away from human traffic (and associated potential mortality) during migration from lake to forest;
- increased communications and signage in the area to raise awareness about the presence of migrating toads; and
- temporary closure of some lakeshore areas to provide more room for toadlets.

The RMOW will review these efforts annually and adapt plans and practices as needed to achieve the goals established regarding the Lost Lake Western toad population.

5.9 Conclusions

In 2013, the BC CDC identified 17 Red listed and 39 Blue listed species at risk in the Squamish Forest District. The number of Red and Blue listed species has increased noticeably in the past 10 years. This could be due to

various reasons, such as declining populations of existing species, changes in methodology, or recently confirmed presence of new species at risk in the region.

The Whistler Biodiversity Project conservatively confirms that as of 2013, there are over 150 invasive species of plants in Whistler. During the 2013 field season, SSISC coordinated invasive species control work at 106 sites within Whistler. Priority species included Scotch broom, Japanese knotweed, Himalayan blackberry, Canadian horseweed and purple loosestrife. Three new invasive plant species were identified in Whistler.

In 2013, two bears were destroyed by the BC Conservation Officer Service due to human-bear conflict incidents. The RMOW will continue its efforts in cooperation with the Whistler Bear Working group and the BC Conservation Officer Service to try and reduce or eliminate human-bear conflict and related mortality of bears. General observed trends show that in years where berries and other natural bear-food source yields are abundant, human-bear conflict numbers are low. In seasons where natural food sources are less abundant, human-bear conflict numbers tend to increase.

The Lost Lake Western toad population appeared to be thriving in 2013, with around 40,000 tadpoles and later 35,000 juvenile toadlets observed. The overall health of the toad population is determined by the number of breeding adults along with abundant survival of offspring. There were approximately 1060 juvenile toadlet human-caused mortalities observed during migration.

As the number of species at risk and the threats of invasive species continue to increase in the region, it is critical for the RMOW to implement effective monitoring programs and integrate these aspects of ecosystem health into plans, policies and regulations. RMOW's new partnership with the South Coast Conservation Program will be an important first step towards improving municipal efforts in protecting local species at risk. With the Ecosystems Monitoring Program in place, we will be able to increase baseline data and build a more complete picture and identify occurring trends, which is integral to measuring ecosystem health and biodiversity. With a strong partner in SSISC to help prevent and control invasive species, Whistler will continue to minimize the risks to local ecosystem health and biodiversity. As a core member of the Whistler Bear Working Group, the RMOW will continue to develop and adapt initiatives to reduce human-bear conflict in the valley. In the face of continued development and increasing human activities that place pressure on indigenous plants and wildlife, the RMOW must remain diligent in its efforts in all of these areas.

For more information on species at risk, visit the BC Species and Ecosystem Explorer at http://www.env.gov.bc.ca/atrisk/toolintro.html and the federal Species at Risk Act Public Registry at http://www.sararegistry.gc.ca/default_e.cfm.

For more information on invasive species in Whistler, visit http://www.ssisc.info/blog.

For more information on Whistler species and local biodiversity, visit www.whistlerbiodiversity.ca.

For information on bears in Whistler, visit http://www.whistler.ca/services/environmental-stewardship/bears.

For more information on the Western toads at Lost Lake, visit http://www.whistler.ca/services/environmental-stewardship/environmental-protection.

6 RECOMMENDATIONS

Whistler should continue to implement, adapt and evolve the comprehensive Ecosystems Monitoring Program, which will be a key tool to help the RMOW identify trends in the overall health of our ecosystems and target planning and management accordingly. Incorporating the spatial and attribute data being collected into the municipal Geographic Information System (GIS) where relevant (E.g. species at risk, invasive species) could support the development of readily accessible, geographic-based information for management. An ecosystem-

based approach should guide decision-making across all departments at the RMOW. Management actions, developed through coordination and collaboration with other municipal departments, agencies and stakeholders should be practical, supported by science and local data, and aligned with RMOW's environmental policies. Building on programs and initiatives already underway, the RMOW can demonstrate its commitment to progressive environmental stewardship and more ably measure and achieve success in environmental protection and stewardship.

7 CONCLUSION

The 2013 State of the Environment Report provides a snapshot of the health of Whistler's natural environment, reviewing indicators for local natural systems broadly categorized as air, water, land, plants and wildlife. Through Whistler2020, the OCP, and the Corporate Plan, the RMOW has committed to protecting the natural environment. The RMOW continues to implement a number of policies and programs and collaborates with other agencies, for example the Sea to Sky Clean Air Society, BC MOE and SSISC, to help meet these commitments. Additional data is needed on these complex systems in order to begin to recognize clear trends and manage human activities accordingly.

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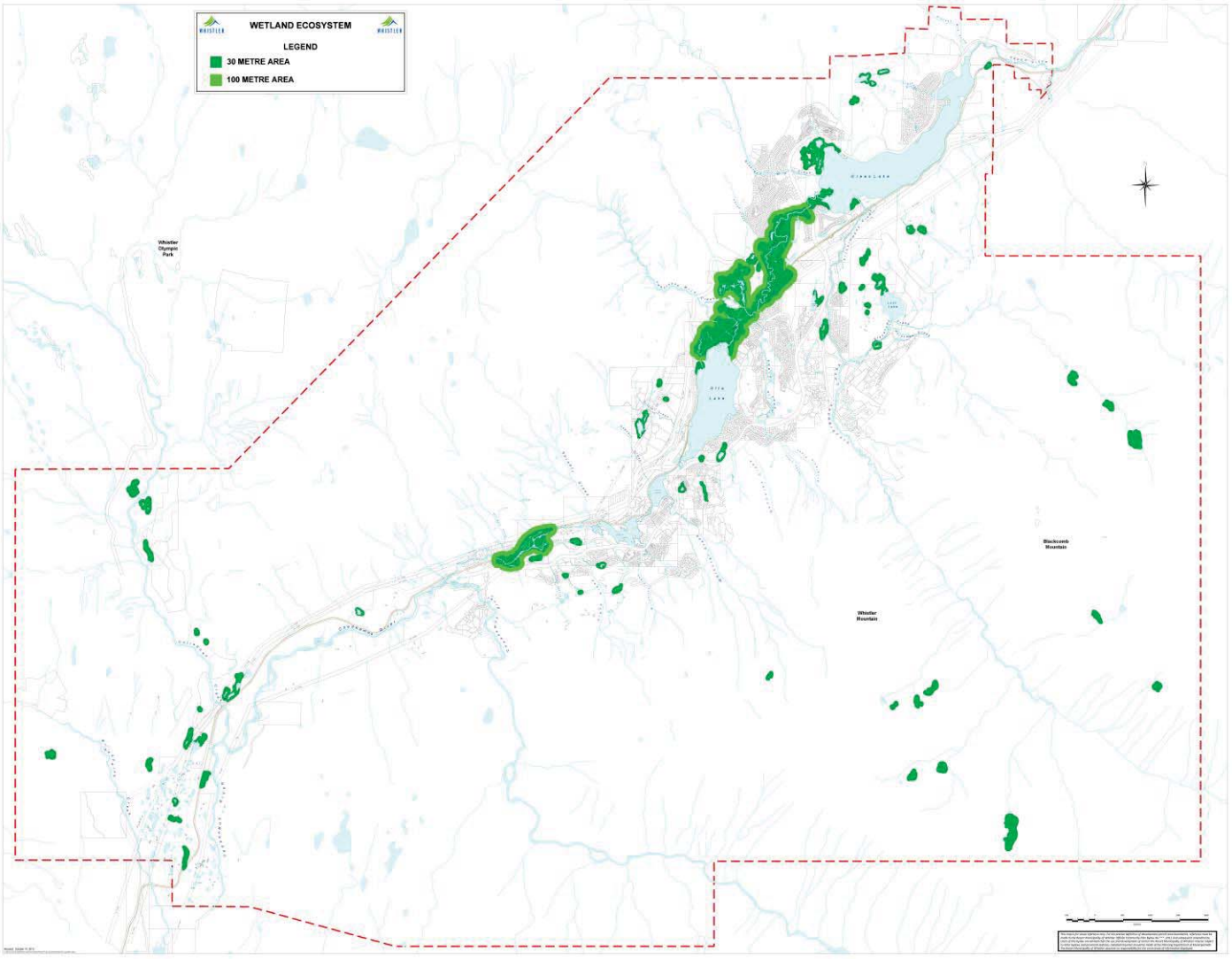
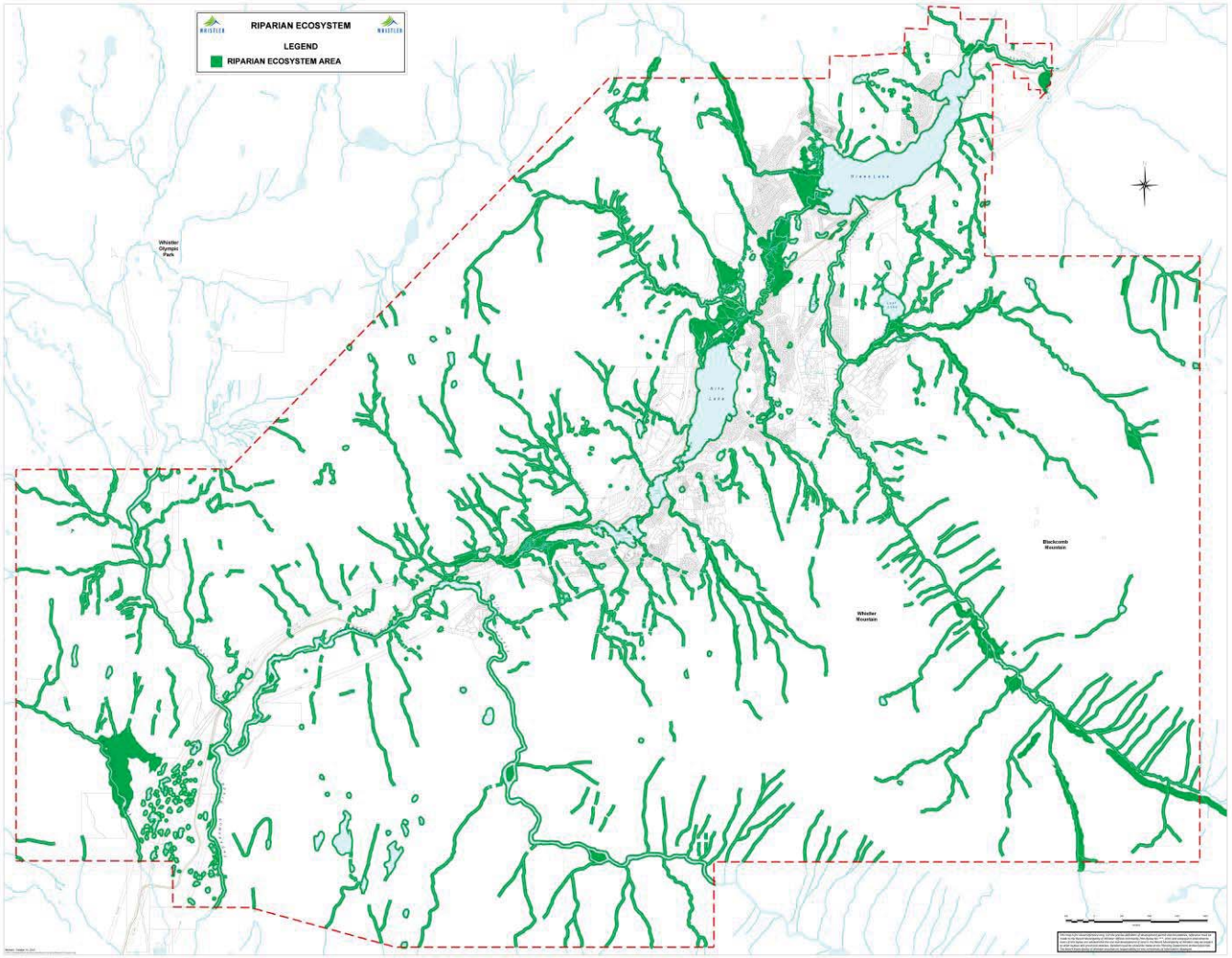
9 APPENDICES

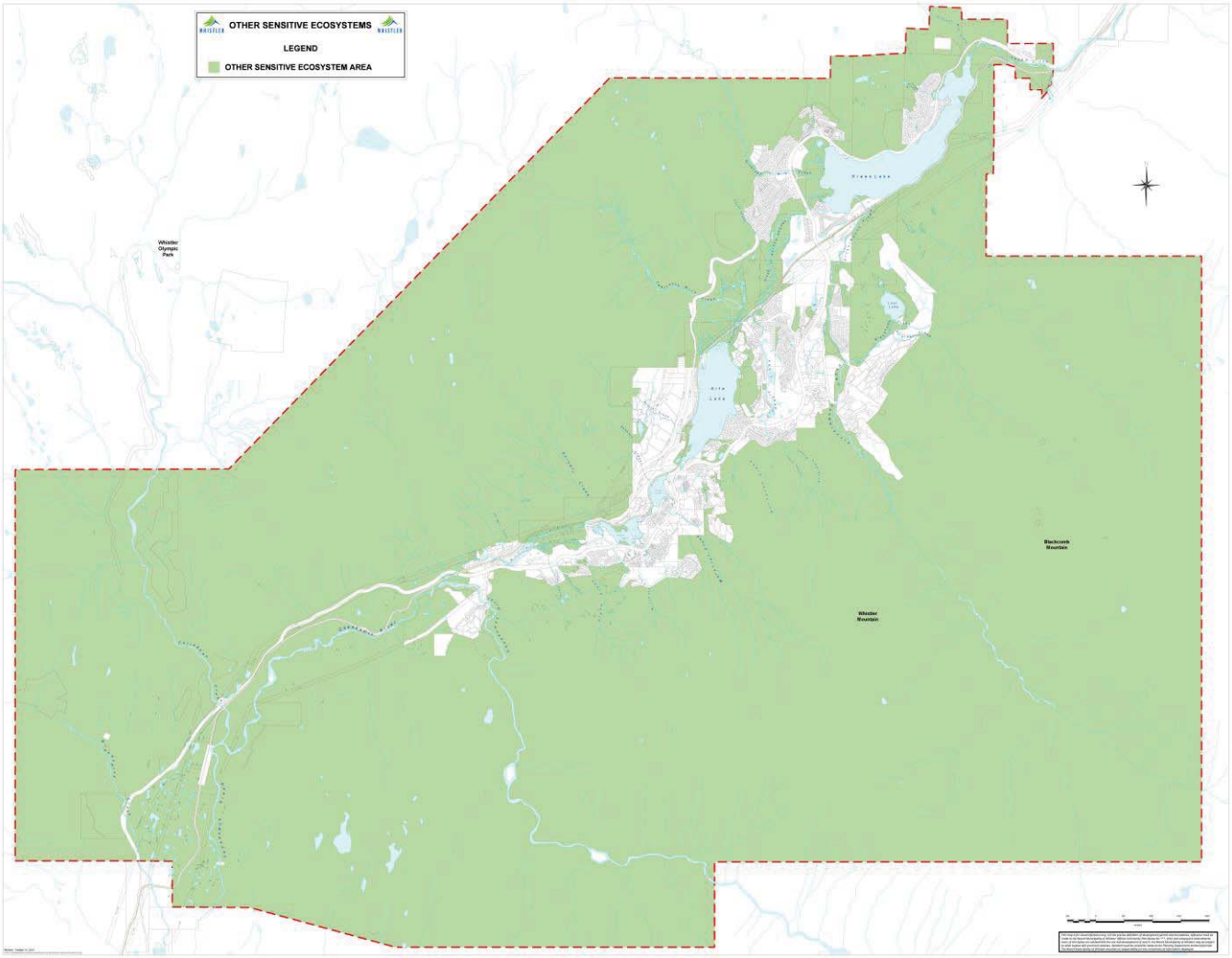
9.1 Appendix A: Sensitive Wetland Ecosystems within the Resort Municipality of Whistler



9.2 Appendix B: Sensitive Riparian Ecosystems within the Resort Municipality of Whistler



9.3 Appendix C: Other Sensitive Ecosystems within the Resort Municipality of Whistler (including forested floodplains, old growth and mature forest, early succession forest, high mountain ecosystems and avalanche tracks)



WHISTLER

REPORT | ADMINISTRATIVE REPORT TO COUNCIL

PRESENTED:	September 16, 2014	**REPORT:**	14-106
FROM:	Resort Experience	**FILE:**	DVP 1084
SUBJECT:	DVP 1084 – 7127 NANCY GREENE DRIVE RETAINING WALL VARIANCES		

COMMENT/RECOMMENDATION FROM THE CHIEF ADMINISTRATIVE OFFICER

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

RECOMMENDATION

That Council approve Development Variance Permit DVP 1084 to:

1. Vary the south side setback to 0.0 metres from the property line and vary the height to 1.5 metres for a proposed rockstack retaining wall; and
2. Vary the rear setback to 1.0 metres from the property line and vary the height to 1.6 metres for a proposed rockstack retaining wall,

as shown on the plans prepared by Murdoch Company Architecture + Planning Ltd., dated July 31, 2014, and attached to Administrative Report No. 14-106 as Appendix B, subject to receipt of a planting plan for the area between the base of the proposed retaining wall and the property line to the satisfaction of the General Manager of Resort Experience.

REFERENCES

Location:	7127 Nancy Greene Drive
Legal Description:	Lot 4, District Lot 4753, Group 1, NWD, Plan LMP31561
Owner:	Luciano and Tiziana Fadi
Zoning:	RS1 (Single Family Residential One)
Appendices:	"A" – Location Plan
	"B" – Proposed Plans

PURPOSE OF REPORT

This report seeks Council's consideration for variances to "Zoning and Parking Bylaw 303, 1983" for a proposed retaining wall at 7127 Nancy Greene Drive.

DISCUSSION

Background

The land that is subject of the Development Variance Permit application is located at 7127 Nancy Greene Drive (see Appendix A). The property is currently undeveloped and contains many significant trees. The property is roughly triangular in shape and is bounded on two sides by street and on one the southwest side by an existing detached dwelling. The existing grades on the site vary with a change in grade from the Nancy Green Drive (upper) side to the Blackcomb Way (lower) side of approximately 5.8 metres, or two stories. The existing detached dwelling to the southwest is accessed from Nancy Greene Drive and is built closer to the uphill elevation.

Given the existing elevation of the uphill side of the lot and some existing rock outcroppings, the owners determined it was more desirable and efficient to fill the front edge of the lot to meet existing grades of the neighbouring home and create some vertical separation from the adjacent valley trail. It is not desirable for the owners to build in a hollow and be overshadowed by the neighbouring home.

In May of 2014 the owners applied to the Board of Variance to:

1. Vary the south side setback to 0 metres and vary the height to 1.1. metres for a proposed retaining wall, and
2. Vary the rear setback to 0 metres and vary the height to 2.5 metres for the 1^{s} tier retaining wall and to 1.6 metres for the 2nd tier retaining wall.

Staff did not support the impact of a 52 metre long stepped retaining wall with a total height of 4.1 metres at 0 metres to the property line along Blackcomb Way; staff commented that the requested variances were not considered minor in nature, would result in inappropriate development of the site and would be immense immediately adjacent to the existing valley trail along Blackcomb Way. The owners subsequently withdrew their Board of Variance application and reconsidered their design, and in July submitted a Development Variance Permit application.

Current Application

The owners have modified the design of the proposed retaining wall at the rear of the property to reduce the total length of the retaining wall to 37 metres, reduce the height to 1.6 metres and to set the retaining wall back 1.0 metre from the rear property line. The owners are still requesting a side setback and height variance for the proposed retaining wall to tie into the neighbour's existing rockstack retaining wall. The requested variances are described below:

Requested Variances	Zoning and Parking Bylaw No. 303, 1983 regulation
1. Vary the south side setback to 0.0 metres from the property line and vary the height to 1.5 metres for a proposed retaining wall.	Section 5.7.1 states: "The following features are permitted in setback areas: (d) landscape features including planters, stairs, walkways, decks, **retaining walls** and decorative walls provided such features are **not greater than 0.6 metres in height** above any point of the adjacent grade and are **set back at least one metre from any side parcel line and at least two metres from the front or rear parcel lines**."
2. Vary the rear setback to 1.0 metre from the property line and vary the height to 1.6 metres for a proposed retaining wall.	

The proposal will provide for a resolution which closely resembles the adjacent properties, preserves the most significant trees on the site, lifts the house out of the lower poor drainage areas of the site, provides some backyard space accessible from the main floor of the house and provides the owner with an improved sense of privacy from the street.

DVP Criteria

Staff have developed internal evaluation criteria for DVP applications. The table below shows how DVP 1084 compares to these criteria.

Potential Positive Impacts	Comment
Complements a particular streetscape or neighbourhood.	The proposal will create a more cohesive layout across the neighboring lots with a terraced solution stepping down towards the Nancy Greene Drive and Blackcomb Way intersection. A condition of approval is receipt of a planting plan for the area between the base of the proposed retaining wall and the property line to soften the streetscape.
Works with the topography on the site, reducing the need for major site preparation or earthwork.	A solution could be found that works with the topography of the site however, the home would be potentially overshadowed by the neighbouring home and have less privacy from the busy street. Site preparation is not considered to be extensive.
Maintains or enhances desirable site features, such as natural vegetation trees and rock outcrops.	The existing mature vegetation in the localized depression in the northeast corner of the site will be retained.
Results in superior siting with respect to light access resulting in decreased energy requirements.	n/a
Results in superior siting with respect to privacy.	The proposal will provide the owner with an improved sense of privacy from the valley trail and Blackcomb Way.
Enhances views from neighbouring buildings and sites.	n/a

Potential Negative Impacts	Comments
Is inconsistent with neighbourhood character.	The proposal will create a more cohesive layout across the neighboring lots with a terraced solution stepping down towards the Nancy Greene Drive and Blackcomb Way intersection.
Increases the appearance of building bulk from the street or surrounding neighbourhood.	n/a
Requires extensive site preparation.	Site preparation is not considered to be extensive.
Substantially affects the use and enjoyment of adjacent lands (e.g. reduces light access, privacy, and views).	No letters have been received from neighbours either for or against the project. Staff supports the proposal's improved relationship with the valley trail and street.
Requires a frontage variance to permit greater gross floor area, with the exception of a parcel fronting a cul-de-sac.	n/a
Requires a height variance to facilitate gross floor area exclusion.	n/a
Results in unacceptable impacts on services (e.g. roads, utilities, snow clearing operations).	No impact. The retaining wall is 3.6 metres away from the edge of the valley trail at its closest point.

WHISTLER 2020 ANALYSIS

W2020 Strategy	TOWARD Descriptions of success that resolution moves us toward	Comments
Built Environment	The built environment is attractive and vibrant, reflecting the resort community's character, protecting viewscapes and evoking a dynamic sense of place.	The proposal will create a more cohesive layout across the neighboring lots and preserve the most significant trees on the site.
W2020 Strategy	**AWAY FROM Descriptions of success that resolution moves away from**	**Mitigation Strategies and Comments**
None		

OTHER POLICY CONSIDERATIONS

The Local Government Act, through Section 922, allows Council to vary regulations contained in the Zoning Bylaw by way of a development variance permit. This proposal is consistent with criteria established for consideration of development variance permits.

BUDGET CONSIDERATIONS

There are no significant budget implications with this proposal. Development variance permit application fees provide for recovery of costs associated with processing this application.

COMMUNITY ENGAGEMENT AND CONSULTATION

A sign describing DVP 1084 is posted on the property. Notices were sent to surrounding property owners in August of 2014. No responses to the notification had been received at the time of writing this report.

SUMMARY

Development Variance Permit 1084 proposes variances to "Zoning and Parking Bylaw 303, 1983" for a proposed retaining wall at 7127 Nancy Greene Drive for Council's consideration.

Respectfully submitted,

Melissa Laidlaw
SENIOR PLANNER
for
Jan Jansen
GENERAL MANAGER OF RESORT EXPERIENCE

APPENDIX A

LOCATION MAP

Development Stats

Civic Address: 7127 Nancy Greene Drive, Whistler BC

Legal: Plan LMP 42509, Lot 4 District Group 1, Lot 4763
PID: 023 656 760

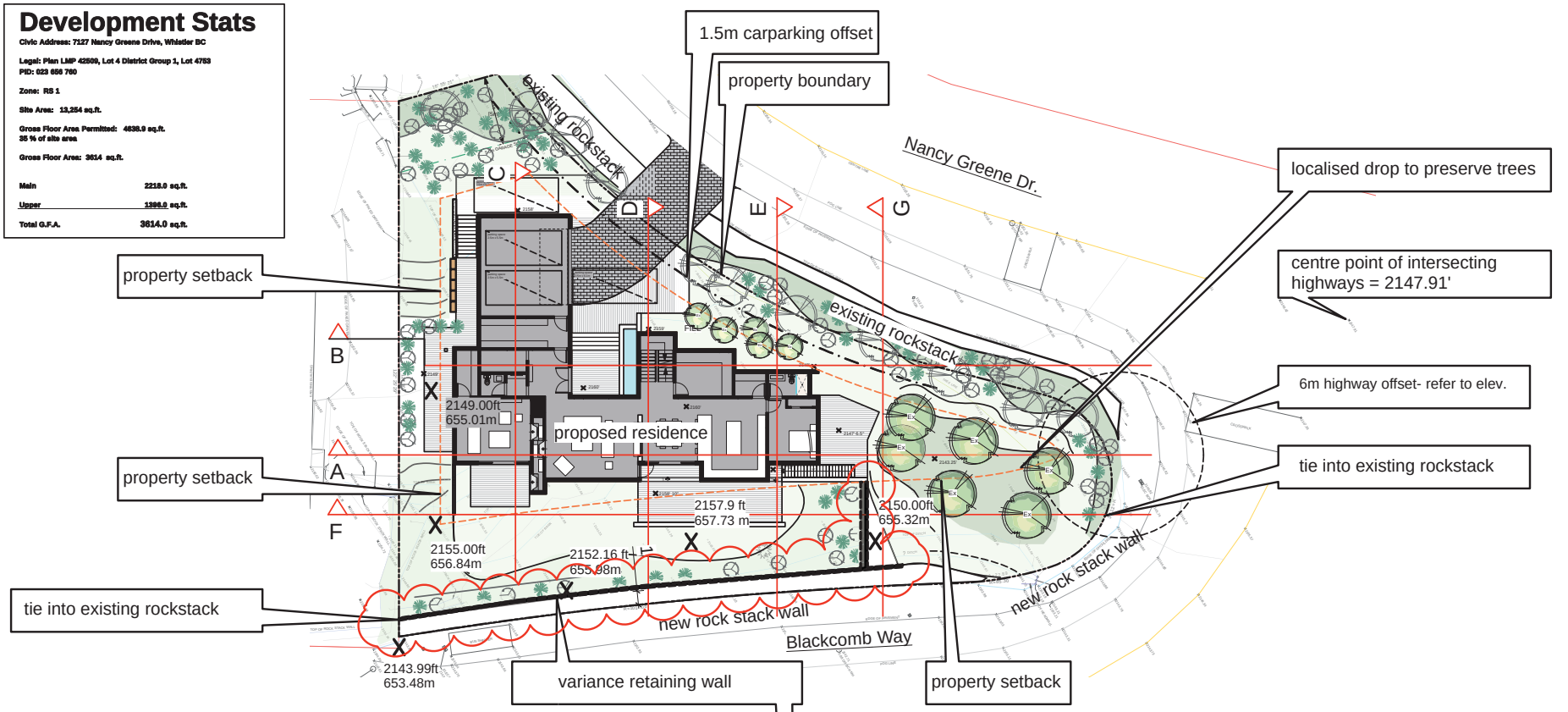
Zone: RS 1

Site Area: 13,254 sq.ft.

Gross Floor Area Permitted: 4638.9 sq.ft.
35 % of site area

Gross Floor Area: 3614 sq.ft.

Main	2218.0 sq.ft.
Upper	1396.0 sq.ft.
Total G.F.A.	3614.0 sq.ft.



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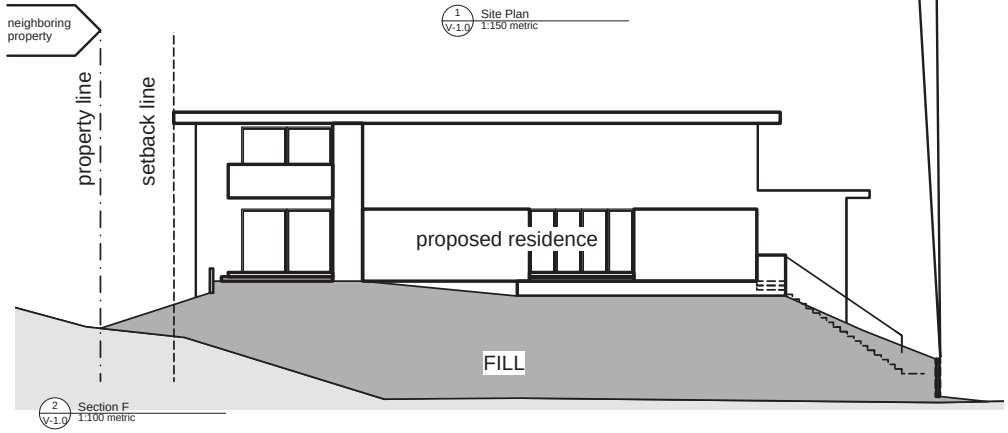
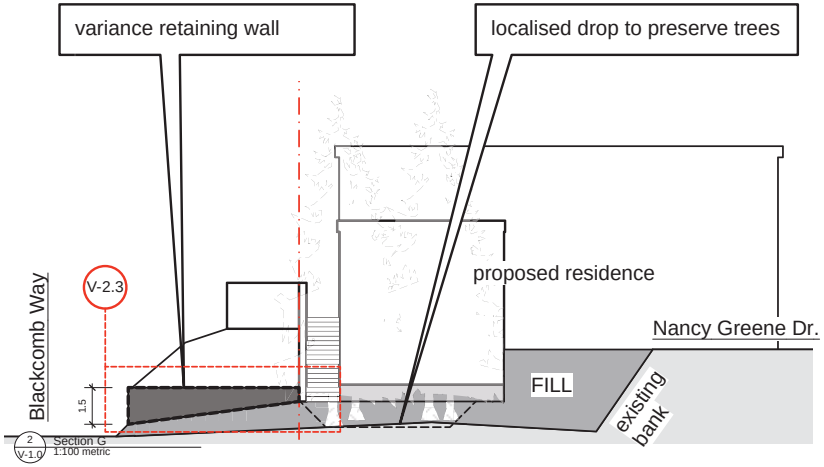


2 V-1.0 Section F 1:100 metric



2 V-1.0 Section G 1:100 metric

DVP 31.07.2014

No:	Revision:	Date:

UPPER FLOOR - 2171'
MAIN FLOOR - 2160'
GARAGE - 2158' 10"
LOWER FLOOR - 2149' (655.015m)

FCL - 2147.63' (654.6m)

drawings at half scale when printed at 11x17"

Title: SITE PLAN

Project: **FADI RESIDENCE**
7127 NANCY GREENE DRIVE, WHISTLER, B.C.

MURDOCH & COMPANY
ARCHITECTURE + PLANNING LTD.
7281 Fitzsimmons Road South
P.O. Box 1394
Whistler, B.C. V0N 1B0
Ph. 905-6922 Fax 905-6983
e-mail murdoch@telus.net

Sealed By:

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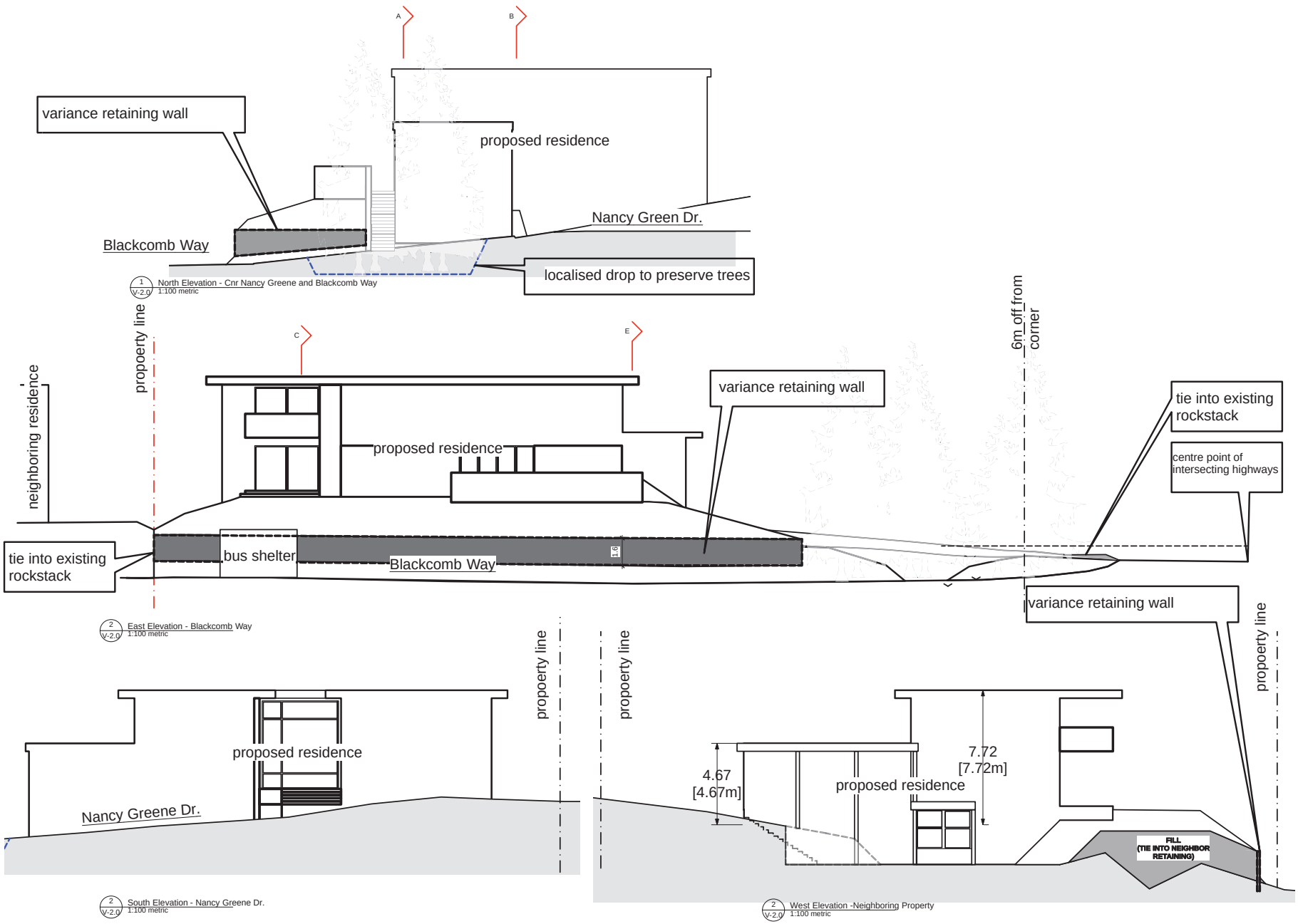

1 V-2.0 North Elevation - Cnr Nancy Greene and Blackcomb Way
1:100 metric

2 V-2.0 East Elevation - Blackcomb Way
1:100 metric

2 V-2.0 South Elevation - Nancy Greene Dr.
1:100 metric

2 V-2.0 West Elevation -Neighboring Property
1:100 metric

Issued For:	Date:
DVP	31.07.2014

No:	Revision:	Date:
△		

drawings at half scale when printed at 11x17"

Title: STREETSCAPE ELEVATIONS

Project: **FADI RESIDENCE**
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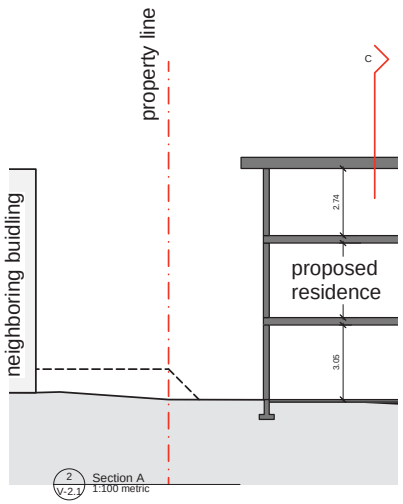

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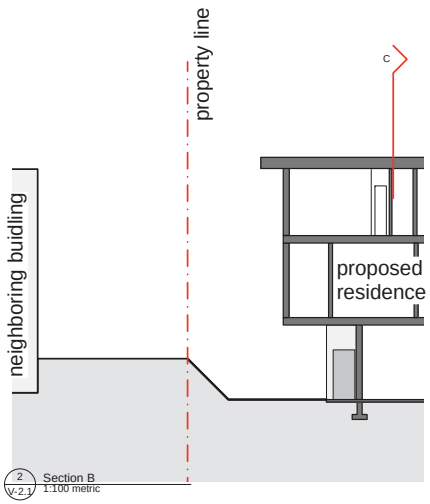

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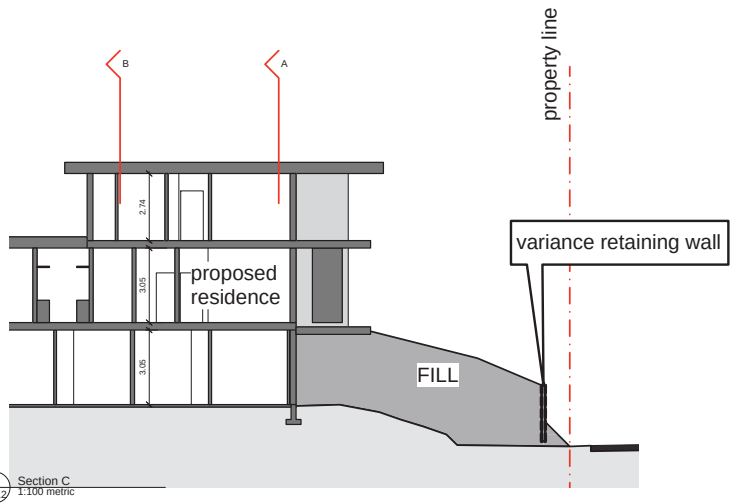

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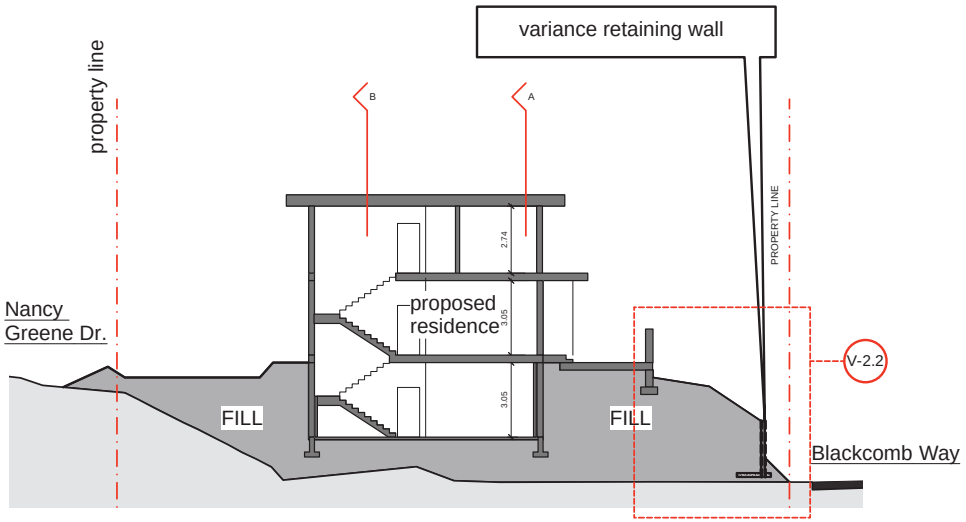

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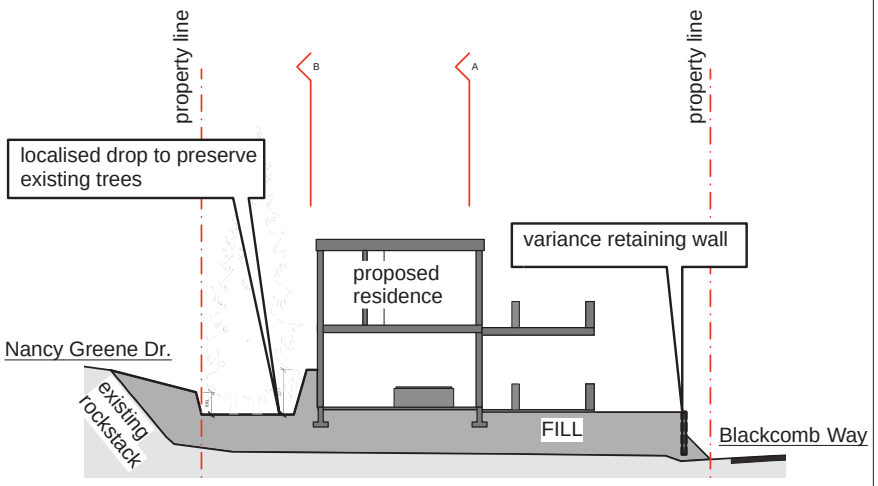

1 / V-2.2 Section E 1:100 metric

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DVP	31.07.2014

No:	Revision:	Date:
△		

drawings at half scale when printed at 11x17"

Title: SITE SECTION

Project: **FADI RESIDENCE**
7127 NANCY GREENE DRIVE, WHISTLER, B.C.

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Project No:	Sheet No:
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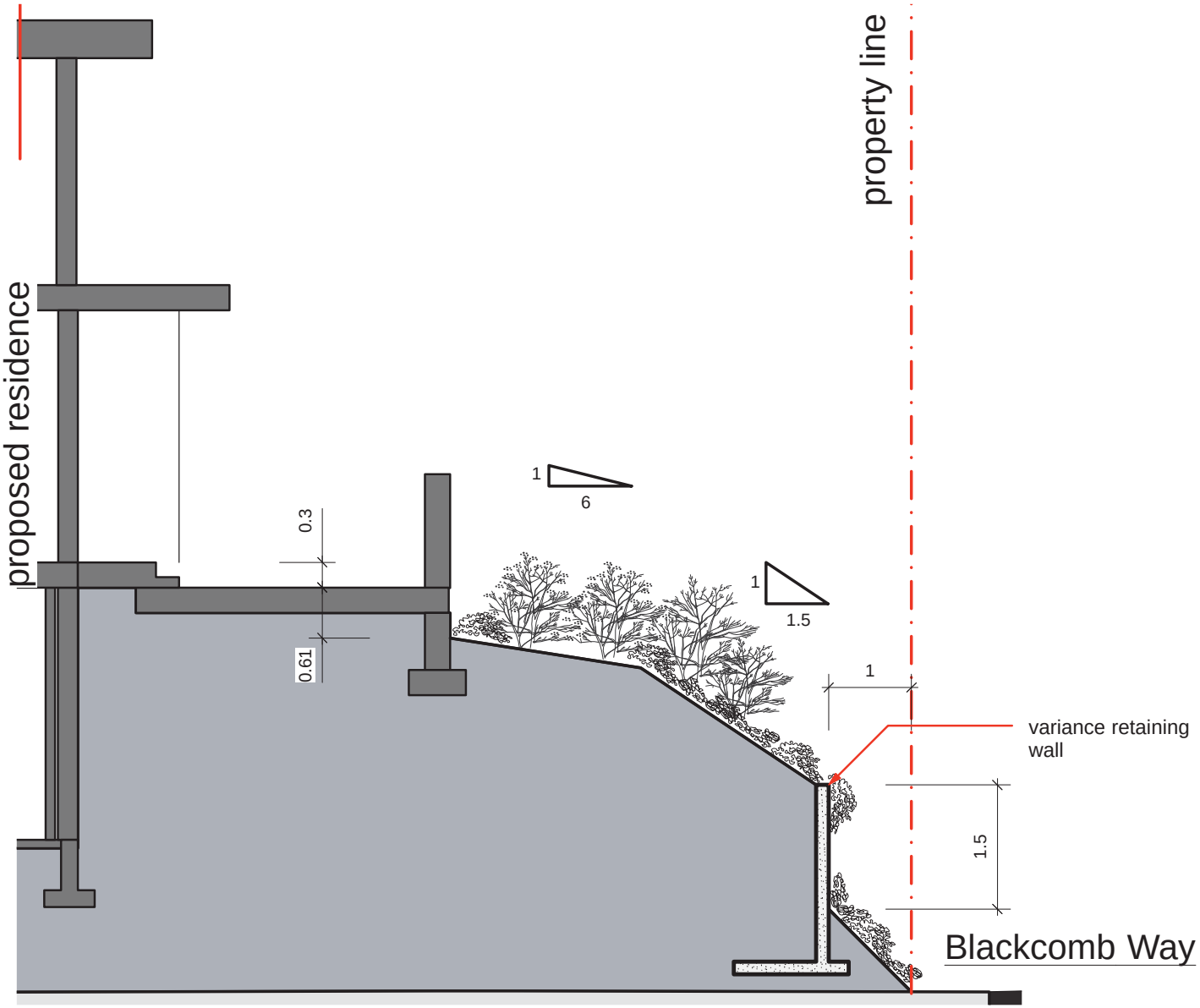

1 / V-2.2 DVP Request
1:50 metric

Issued For:	Date:
DVP	31.07.2014

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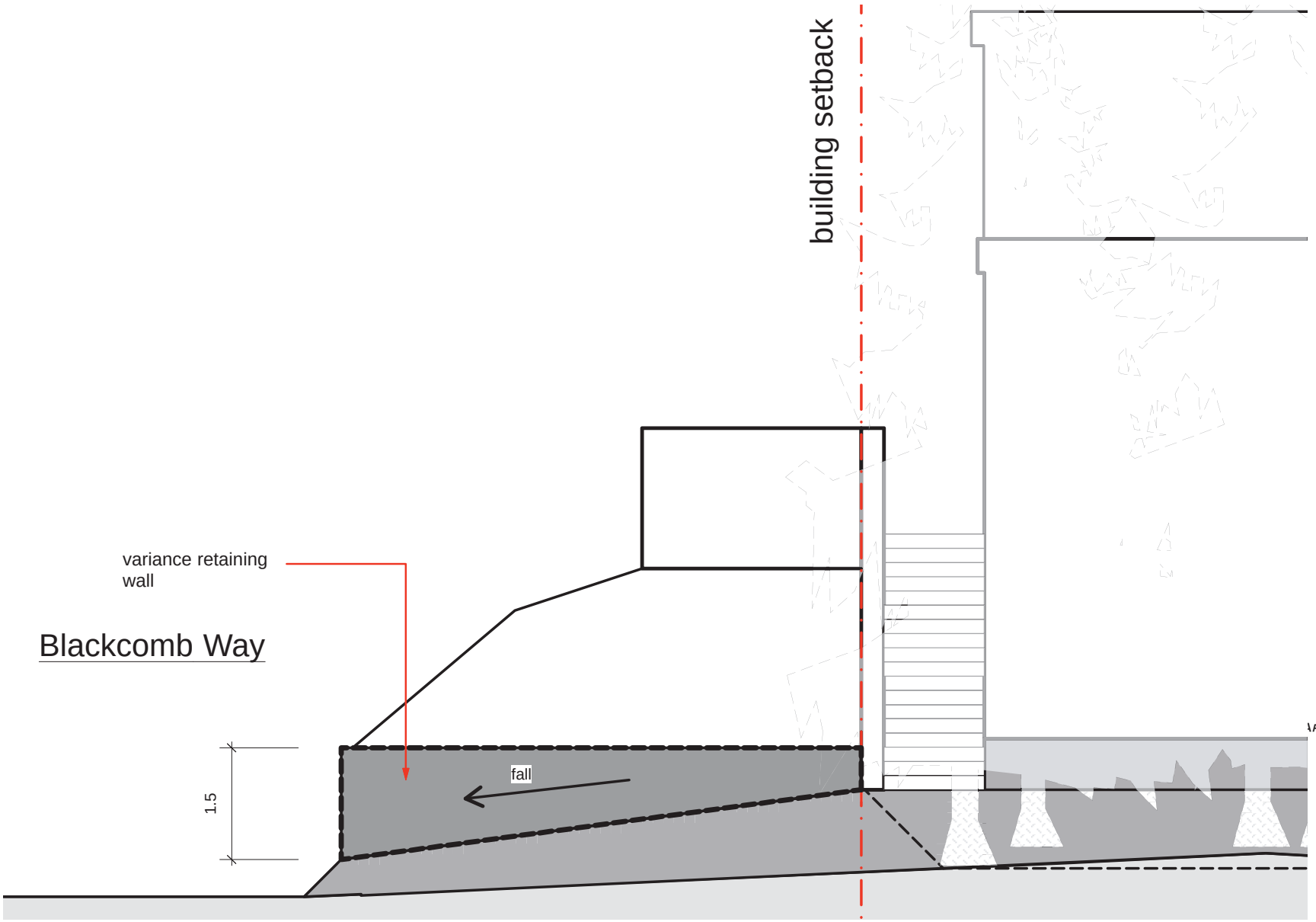

1 / V-2.0 North Elevation - Cnr Nancy Greene and Blackcomb Way
1:100 metric

Issued For:	Date:
DVP	31.07.2014

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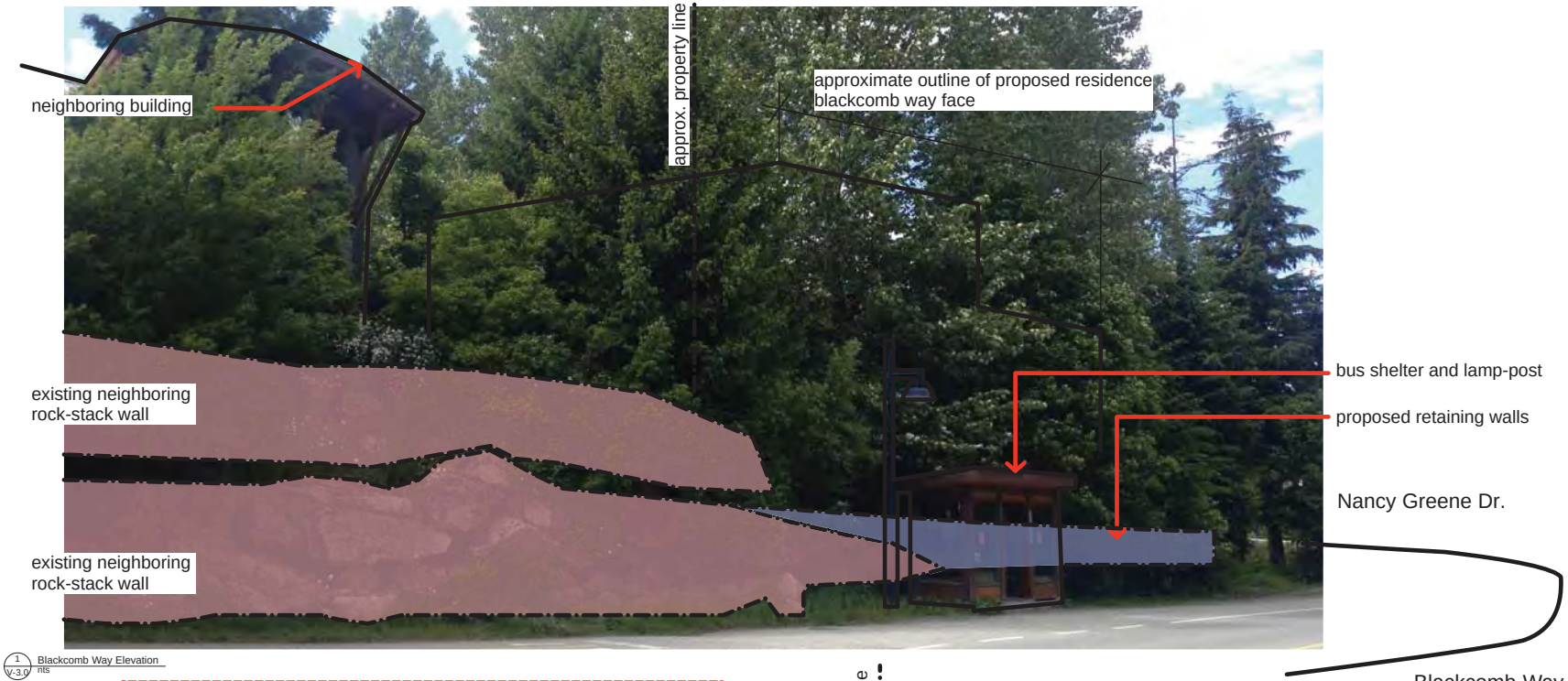

1 V-3.0 Blackcomb Way Elevation
nts

2 V-3.0 Existing Rockstack behind Bus Shelter
nts

3 V-3.0 Bus Shelter and Lamp-post
nts

Issued For:	Date:
DVP	31.07.2014

No:	Revision:	Date:
1		

Title: EXISTING ROCKSTACK AND BUS SHELTER

Project: **FADI RESIDENCE**
7127 NANCY GREENE DRIVE, WHISTLER, B.C.

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Project No:	Sheet No:
1204	V-3.0

WHISTLER

REPORT | ADMINISTRATIVE REPORT TO COUNCIL

PRESENTED:	September 16, 2014	**REPORT:**	14-107
FROM:	Resort Experience	**FILE:**	DVP 1085
SUBJECT:	DVP 1085 – 1205 MOUNT FEE ROAD BUILDING, RETAINING WALL AND PARKING VARIANCES		

COMMENT/RECOMMENDATION FROM THE CHIEF ADMINISTRATIVE OFFICER

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

RECOMMENDATION

That Council approve Development Variance Permit DVP 1085 to:

1. Vary the front setback from 5.50 metres to 0.0 metres for a retaining wall;
2. Vary the rear setback from 6.0 metres to 0.0 metres and to 1.0 metre in height for retaining walls;
3. Vary the side setback from 3.0 metres to 2.48 metres for a proposed column;
4. Vary the front setback from 5.5 metres to 5.04 metres for a proposed duplex;
5. Vary the parking space width in the garage from 3.0 metres to 2.5 metres;
6. Vary the parking requirements to allow vehicles to back out into the public street;
7. Vary the front parcel line setback from 1.5 to 0.0 metres to allow for a parking space at 0.0 metres from the front parcel line; and
8. Vary the uncovered parking space width from 3.0 metres to 2.4 metres and the parking space length from 6.1 metres to 5.0 metres,

all as shown on the architectural plans prepared by DVAD Inc., dated May 5, 2014, and the landscape plan prepared by Tom Barratt Ltd., dated April 30, 2014, attached as Appendices C and D to Council Report No. 14-107.

REFERENCES

Location:	1205 Mount Fee Road
Legal:	Lot 12, District Lot 8073, Plan EPP277
Owner:	Benbow Enterprises (2013) Ltd.
Zoning:	RM59 (Residential Multiple Fifty-Nine)
Appendices:	“A” Location Map
	“B” Existing Conditions
	“C” Architectural Plans
	“D” Landscape Plan
	“E” Advisory Design Panel Comments
	“F” Letters from neighbours

PURPOSE OF REPORT

This report seeks Council's consideration for variances to "Zoning and Parking Bylaw 303, 1983" for building setbacks, retaining wall setbacks and height, and parking requirements at 1205 Mount Fee Road. The proposed development and associated variances were previously considered and approved by Council on May 20, 2014 under DP1321. As the municipality's updated OCP was quashed a Development Variance Permit is now first required in order for the development to proceed.

DISCUSSION

Background

The subject lands are located at 1205 Mount Fee Road in the Cheakamus Crossing neighbourhood (see Appendix A). The subject property has frontage on Mount Fee Road and Legacy Way, both municipal road. To the west is the parking for the Falls apartment complex, and to the south is The Rise multi-family residential development. The site was used during the 2010 Olympics as officials' trailers and is previously disturbed land (see Appendix B).

On May 20, 2014 Council approved Development Permit Application DP321 for subdivision and the development of 3 duplex dwellings at 1205 Mount Fee Road, with variances. With the subsequent quashing of the municipality's Official Community Plan on June 4, 2014 that application did not take effect. The owners have since applied for a development variance permit. All of the variance requests under DVP 1085 are the same as the variances previously approved by Council under DP1321 except for variance to the parking space width in the garage which previously referenced the garage width and now references the parking space width.

A site excavation permit has been issued.

Current Application

The applicant is proposing to develop the first of three duplex dwellings. The requested variances are described below:

Current Variance Request (DVP 1085)	**Applicant's Rationale for Variance Request**	**Zoning Bylaw No. 303, 1983 Regulation**
1. Vary the front setback from 5.50 metres to 0.0 metres for a retaining wall.	To reinstate the natural topography retaining walls are required to be constructed inside the setback area at the front of the property between the driveways.	Section 5.7.1 states: "The following features are permitted in setback areas: (d) landscape features including planters, stairs, walkways, decks, retaining walls and decorative walls, provided such features are not greater than 0.6 metres in height above any point of the adjacent grade and are set back at least one metre from any side parcel line and at least two metres from the front and rear parcel lines."
2. Vary the rear setback from 6.0 metres to 0.0 metres and to 1.0 metre in height for retaining walls.	Reinstating the natural topography requires a retaining wall to be constructed inside the setback area, along the property and strata lines between unit A and B at the rear of the property to create a viable building platform with flat backyard space.	

<table>
<tr><td>3. Vary the side setback from 3.0 metres to 2.48 metres for a proposed column.</td><td>The narrow directional lots dictate separate entryways past the garages; these have been designed with covered walkways along the side of the building, creating a private entry through the block wall for the residents of the dwellings.</td><td>Section 12.60.5.1 states:
“The minimum setback of buildings for the uses set out in the accompanying table in respect of the front, rear and side parcel lines shall be set out in the table, except that if a duplex is constructed with a party wall at a side parcel line, no setback from that parcel line is required.”</td></tr>
<tr><td>4. Vary the front setback from 5.5 metres to 5.04 metres for a proposed duplex.</td><td>the concrete wall extends past the cedar clad walls and adds to the overall structural hierarchy that is featured throughout the design of the building.</td><td><table><tr><th>Use</th><th>Front Parcel Line</th><th>Rear Parcel Line</th><th>Side Parcel Line</th></tr><tr><td>Apartment</td><td>6.0 m</td><td>6.0 m</td><td>6.0 m</td></tr><tr><td>Townhouse</td><td>5.5 m</td><td>6.0 m</td><td>4.0 m</td></tr><tr><td>Duplex</td><td>5.5 m</td><td>6.0 m</td><td>3.0 m</td></tr><tr><td>Detached Dwelling</td><td>5.5 m</td><td>6.0 m</td><td>3.0 m</td></tr></table></td></tr>
<tr><td>5. Vary the parking space width in the garage from 3.0 metres to 2.5 metres.</td><td>The proposed narrow lots have been widened as much as possible to accommodate a two car garage. The garage will help with snow management and ease vehicle access to the site.</td><td>Section 6.5.1(e) states:
“Despite subsections 6.5.1(a)(i) and 6.5.1(b)(i), if a parking space abuts a fence, wall or other obstruction on one or both sides, the minimum unobstructed width of the parking space shall be 3 metres.”</td></tr>
<tr><td>6. Vary the parking requirements to allow vehicles to back out into the public street.</td><td>Limited room to have turnaround on subject property due to lot depth and width.</td><td>Section 6.2.6 states:
“Except in the RS, RTA, RM25, RT or TB zones, all manoeuvring required to gain access to a parking or loading space shall occur within the parcel on which the parking or loading is located so that it is not necessary for vehicles to back into any street or public right of way.”</td></tr>
<tr><td>7. Vary the front parcel line setback from 1.5 to 0.0 metres to allow for a parking space at 0.0 metres from the front parcel line.</td><td rowspan="2">Allows for surface parking for visitors to be appropriately situated on property without disturbing landscape screening.</td><td>Section 6.4.1.4(b) states:
“In all RM (Residential Multiple) zones, not more than 50 percent of setback areas shall be used for parking spaces and driveways but in no case shall any parking space be located within 1.5 metres of a parcel boundary.”</td></tr>
<tr><td>8. Vary the uncovered parking space width from 3.0 metres to 2.4 metres and the parking space length from 6.1 metres to 5.0 metres.</td><td>Section 6.5.2 states:
“All uncovered parking spaces paved in asphalt or concrete shall have a minimum width of 2.6 metres and a minimum length of 6.1 metres and all other uncovered stalls shall have a minimum width of 3 metres and the same minimum length.”</td></tr>
</table>

The requested variances are identified on the architectural and landscape plans attached as Appendices C and D.

DVP Criteria

Staff have developed internal evaluation criteria for DVP applications. The table below shows how DVP 1085 compares to these criteria.

Potential Positive Impacts	Comment
Complements a particular streetscape or neighbourhood.	The proposal complements the streetscape and neighbourhood.
Works with the topography on the site, reducing the need for major site preparation or earthwork.	Site preparation is not considered to be extensive.
Maintains or enhances desirable site features, such as natural vegetation trees and rock outcrops.	Existing mature trees are maintained on the north side of the property.
Results in superior siting with respect to light access resulting in decreased energy requirements.	Not applicable.
Results in superior siting with respect to privacy.	Not applicable.
Enhances views from neighbouring buildings and sites.	Not applicable.

Potential Negative Impacts	Comments
Is inconsistent with neighbourhood character.	The proposal is consistent with the character of the neighbourhood.
Increases the appearance of building bulk from the street or surrounding neighbourhood.	The proposed variances to not increase the appearance of building bulk. It is considered that designing the development as 3 duplexes breaks up the building mass, thereby reducing building bulk.
Requires extensive site preparation.	Site preparation is not considered to be extensive.
Substantially affects the use and enjoyment of adjacent lands (e.g. reduces light access, privacy, and views).	Four letters have been received from neighbours not supporting vehicles backing into the public street (variance request #6). Most duplex zoning in Whistler is RS, RTA or RT and vehicles can back onto a street. The restriction is a function of the RM zoning. There are no other driveways on this section of Mount Fee Road and there is precedent of a duplex further up the street with the same condition.
Requires a frontage variance to permit greater gross floor area, with the exception of a parcel fronting a cul-de-sac.	Not applicable.
Requires a height variance to facilitate gross floor area exclusion.	Not applicable.
Results in unacceptable impacts on services (e.g. roads, utilities, snow clearing operations.	No unacceptable impacts.

Advisory Design Panel Review

The project was reviewed by the Advisory Design Panel April 16, 2014. The Panel had comments concerning landscaping, grade separation between units, and prominence of the garage from the street and colour and materials. Panel comments are attached as Appendix E. The applicant has addressed the Panels comments to work more with existing site grades, resulting in a fewer retaining wall setback requests.

WHISTLER 2020 ANALYSIS

W2020 Strategy	TOWARD Descriptions of success that resolution moves us toward	Comments
Built Environment	The built environment is attractive and vibrant, reflecting the resort community's character, protecting viewscapes and evoking a dynamic sense of place.	The proposed duplex is well integrated into the site and neighbourhood, well scaled and proportioned.
	Building design and construction is characterized by efficiency and durability.	Building materials are considered sufficiently durable and detailed to withstand Whistler's harsh climate.

W2020 Strategy	AWAY FROM Descriptions of success that resolution moves away from	Mitigation Strategies and Comments
N/A	N/A	N/A

OTHER POLICY CONSIDERATIONS

The Local Government Act, through Section 922, allows Council to vary regulations contained in the Zoning Bylaw by way of a development variance permit. This proposal is consistent with criteria established for consideration of development variance permits.

Council Policy G-22: Cheakamus Area Legacy Neighbourhood (Athlete's Village) Design Guidelines

The guidelines support variable setback widths along the front of buildings to create visual interest and along the streetscape, and where appropriate, reduced front setbacks to create a strong street presence.

BUDGET CONSIDERATIONS

There are no significant budget implications with this proposal. Development Variance Permit application fees provide for recovery of costs associated with processing this application.

COMMUNITY ENGAGEMENT AND CONSULTATION

A sign describing DVP 1085 is posted on the property Notices were sent to surrounding property owners in August of 2014.

At the time of writing this report, four letters have been received from neighbours not supporting vehicles backing into the public street (variance request #6). Most duplex zoning in Whistler is RS, RTA or RT and vehicles can back onto a street. The restriction is a function of the RM zoning. The street is sloping, however, there are no other driveways on this section of Mount Fee Road and there is precedent of a duplex further up the street with the same condition.

SUMMARY

Development Variance Permit 1085 proposes variances to "Zoning and Parking Bylaw 303, 1983" for variances to "Zoning and Parking Bylaw 303, 1983" for building setbacks, retaining wall setbacks and height, and parking requirements at 1205 Mount Fee Road for Council's consideration.

Respectfully submitted,

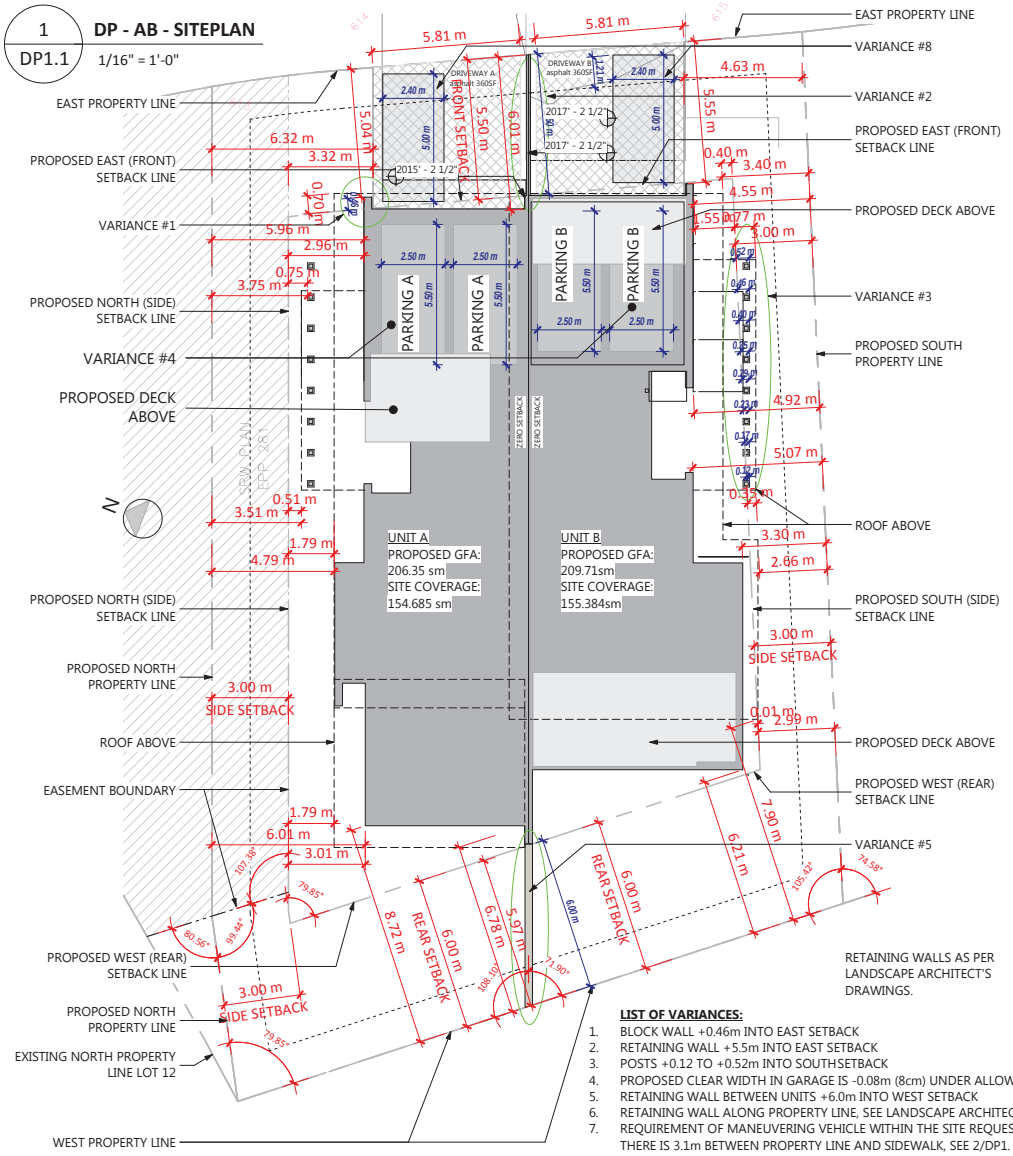
Melissa Laidlaw
SENIOR PLANNER
Jan Jansen
GENERAL MANAGER OF RESORT EXPERIENCE

Location Plan

Subject Property

1 / DP1.1 **DP - AB - SITEPLAN**

1/16" = 1'-0"



BUILDING PROGRAM: DUPLEX

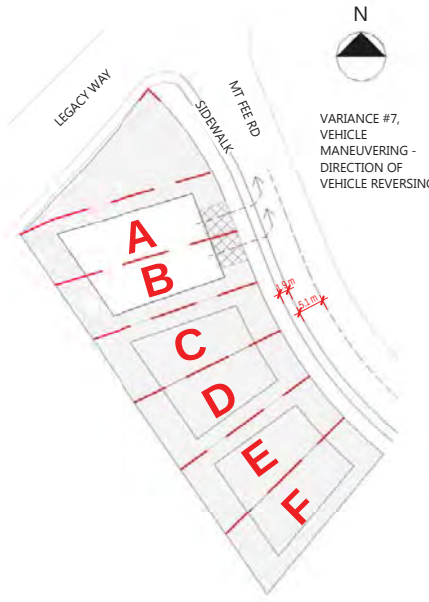
GFA ALLOWED: **233.00 sm**
GFA UNIT A: 206.35 sm
GFA UNIT B: 209.71 sm

FSR ALLOWED: **60%**
FSR UNIT A: 206.35/477.67=43.20%
FSR UNIT B: 209.71/413.75=50.69%

SITE COVERAGE UNIT A-B: 310.1sm / 891.42 = 34.8% (N/A IN RM59)

REQUIRED OFF STREET PARKING: 2 PARKING SPOTS/UNIT

PROPERTY SCHEDULE		
Name	Mark	Area
STRATA	COMMON PROPERTY	369.98 m²
TOTAL AREA	PROPERTY - LOT 12	2906.90 m²
UNIT A	A - SETBACK	250.55 m²
UNIT A	A - STRATA	477.67 m²
UNIT A & B	A, B - STRATA (LOT 1)	891.42 m²
UNIT B	B - SETBACK	208.49 m²
UNIT B	B - STRATA	413.75 m²
UNIT C	C - SETBACK	197.62 m²
UNIT C	C - STRATA	410.74 m²
UNIT C & D	C, D - STRATA (LOT 2)	821.86 m²
UNIT D	D - SETBACK	199.82 m²
UNIT D	D - STRATA	411.12 m²
UNIT E	E - SETBACK	201.06 m²
UNIT E	E - STRATA	410.54 m²
UNIT E & F	E , F - STRATA (LOT 3)	823.64 m²
UNIT F	F - SETBACK	199.95 m²
UNIT F	F - STRATA	413.11 m²



LIST OF VARIANCES:

1. BLOCK WALL +0.46m INTO EAST SETBACK
2. RETAINING WALL +5.5m INTO EAST SETBACK
3. POSTS +0.12 TO +0.52m INTO SOUTH SETBACK
4. PROPOSED CLEAR WIDTH IN GARAGE IS -0.08m (8cm) UNDER ALLOWED (6m), SEE DP2.0
5. RETAINING WALL BETWEEN UNITS +6.0m INTO WEST SETBACK
6. RETAINING WALL ALONG PROPERTY LINE, SEE LANDSCAPE ARCHITECT'S DRAWING L1 FOR DETAILS
7. REQUIREMENT OF MANEUVERING VEHICLE WITHIN THE SITE REQUESTED TO BE VARIED SO ALL VEHICLES ON THE PARCEL ARE PERMITTED TO BACK ONTO LEGACY WAY, NOTE THERE IS 3.1m BETWEEN PROPERTY LINE AND SIDEWALK, SEE 2/DP1.
8. VISITOR PARKING SPOT TO FIT A COMPACT CAR PARK WITH THE DIMENSIONS OF 2.4m x 5.0m AND TO EXTEND UP TO 5.3m INTO THE SETBACKS FOR ALL LOTS ON PARCEL.

2 / DP1.1 **DP - PROPOSED LOT LAYOUT**

1" = 80'-0"

DVAD Inc. (MAIBC)
www.dvad.org
info@dvad.org
604 962 1177

The Couloir at Cheakamus Crossing

1205 Mount Fee Road, Whistler, BC

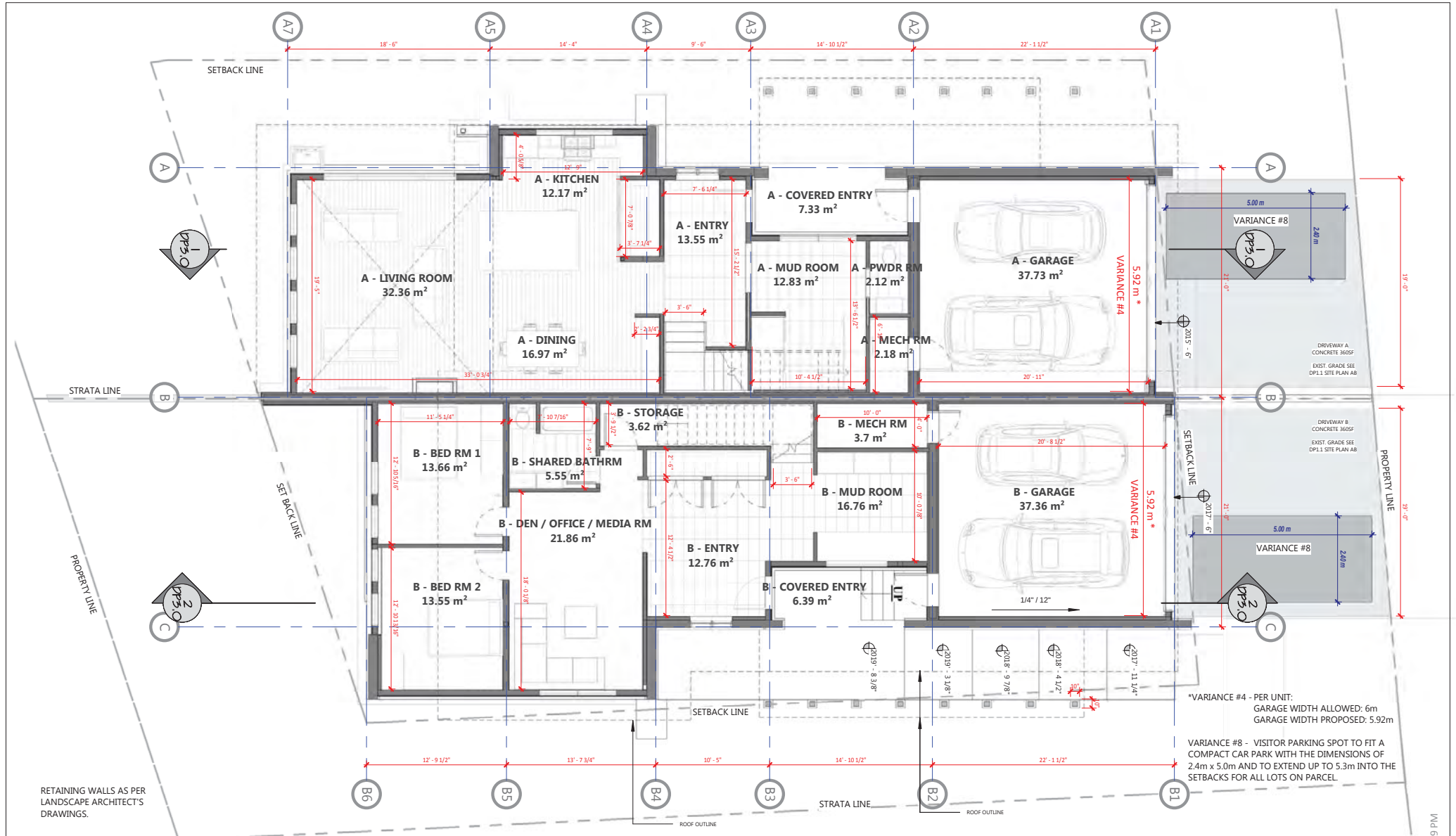
1.	Issue for Development Permit Application	Rev A	20130911
2.	Issue for Development Permit Application	Rev B	20140212
3.	Issue for Development Permit Application	Rev B	20140310
4.	Issue for Development Permit Application	Rev C	20140320
5.	Issue for Development Permit Application	Rev D	20140428
6.	Issue for Development Permit Application	Rev E	20140505

SITE PLAN AB

DP1.1

Scale: As indicated

5/5/2014 5:31:26 PM



*VARIANCE #4 - PER UNIT:
GARAGE WIDTH ALLOWED: 6m
GARAGE WIDTH PROPOSED: 5.92m

VARIANCE #8 - VISITOR PARKING SPOT TO FIT A COMPACT CAR PARK WITH THE DIMENSIONS OF 2.4m x 5.0m AND TO EXTEND UP TO 5.3m INTO THE SETBACKS FOR ALL LOTS ON PARCEL.

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The Couloir at Cheakamus Crossing

1205 Mount Fee Road, Whistler, BC

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2.	Issue for Development Permit Application	Rev B	20140212
3.	Issue for Development Permit Application	Rev B	20140310
4.	Issue for Development Permit Application	Rev C	20140320
5.	Issue for Development Permit Application	Rev D	20140428
6.	Issue for Development Permit Application	Rev E	20140505

LOWER FLOOR PLAN

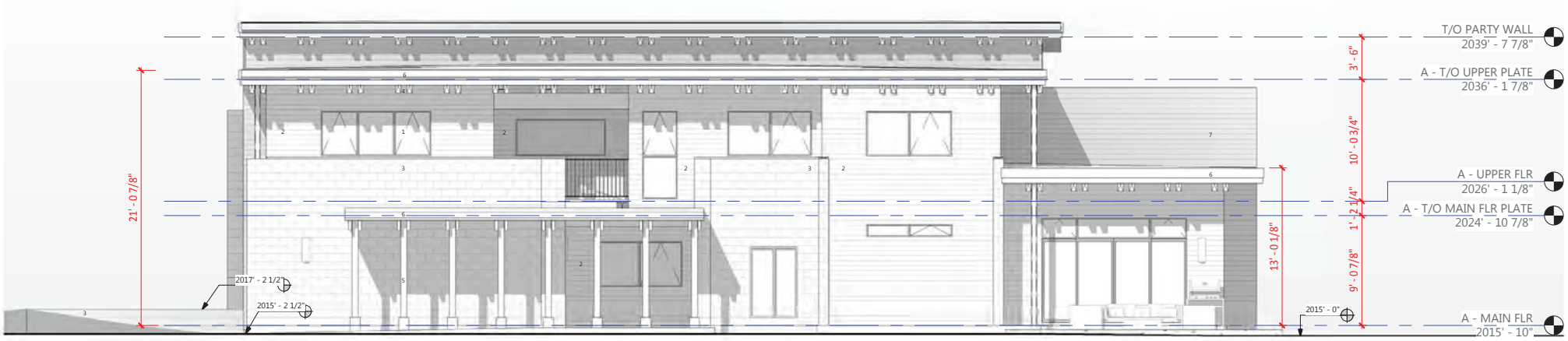
DP2.0

Scale: 1/8" = 1'-0"

5/5/2014 5:31:29 PM

1 / DP4.0 **DP - B - SOUTH ELEVATION**

1/8" = 1'-0"



2 / DP4.0 **DP - A - NORTH ELEVATION**

1/8" = 1'-0"

DVAD Inc. (MAIBC)
www.dvad.org
info@dvad.org
604 962 1177

The Couloir at Cheakamus Crossing

1205 Mount Fee Road, Whistler, BC

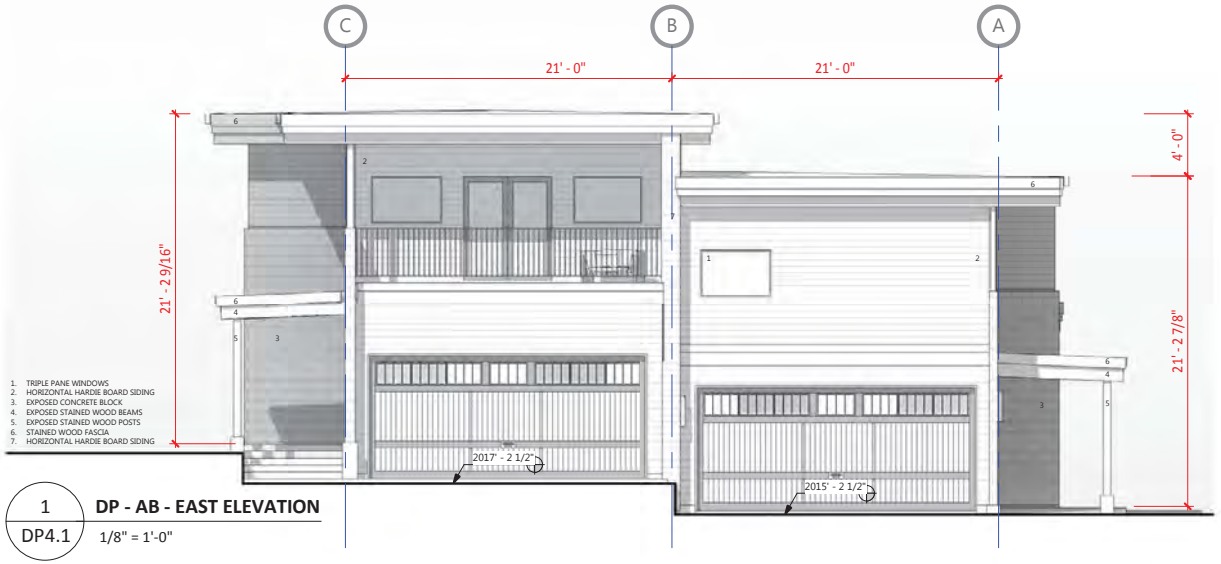
1.	Issue for Development Permit Application	Rev A	20130911
2.	Issue for Development Permit Application	Rev B	20140212
3.	Issue for Development Permit Application	Rev B	20140310
4.	Issue for Development Permit Application	Rev B	20140320
5.	Issue for Development Permit Application	Rev C	20140428

ELEVATIONS

DP4.0

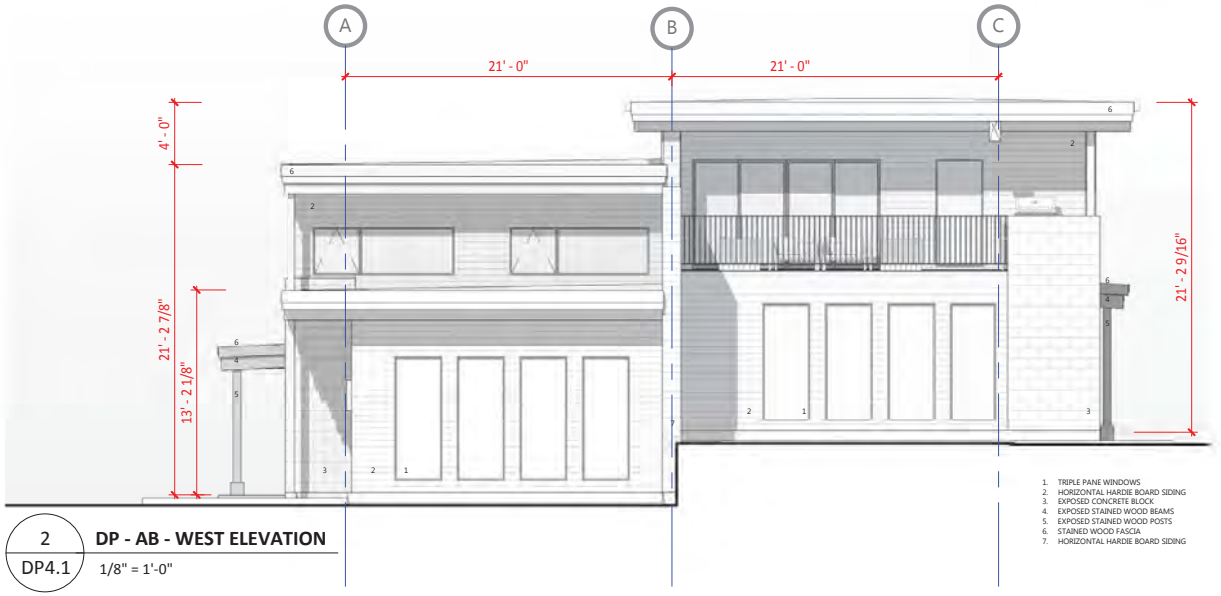
Scale: 1/8" = 1'-0"

5/5/2014 5:31:52 PM



1 DP4.1 **DP - AB - EAST ELEVATION**

1/8" = 1'-0"



2 DP4.1 **DP - AB - WEST ELEVATION**

1/8" = 1'-0"

MATTE BLACK
MILGARD FIBERGLASS

WOOD STAIN EARLY
AMERICAN' MIN WAX

EXPOSED ARCHITECTURAL
CONCRETE BLOCK

IRON GREY
HARDIE BOARD SIDING

DVAD Inc. (MAIBC)
www.dvad.org
info@dvad.org
604 962 1177

The Couloir at Cheakamus Crossing

1205 Mount Fee Road, Whistler, BC

1.	Issue for Development Permit Application	Rev A	20130911
2.	Issue for Development Permit Application	Rev B	20140212
3.	Issue for Development Permit Application	Rev B	20140310
4.	Issue for Development Permit Application	Rev B	20140320
5.	Issue for Development Permit Application	Rev C	20140428

ELEVATIONS

DP4.1

Scale: 1/8" = 1'-0"

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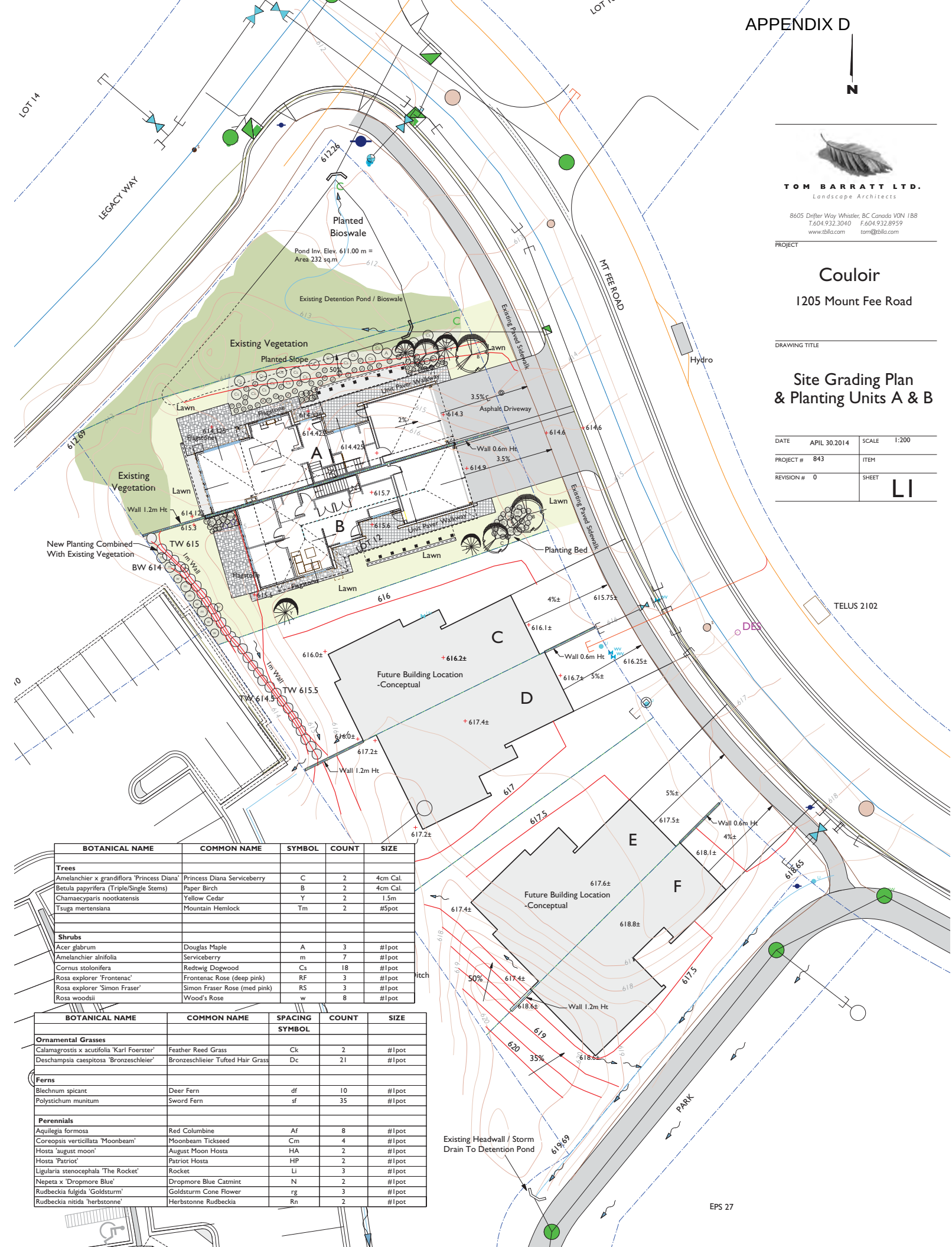
APPENDIX D



BOTANICAL NAME	COMMON NAME	SYMBOL	COUNT	SIZE
Trees				
Amelanchier x grandiflora 'Princess Diana'	Princess Diana Serviceberry	C	2	4cm Cal.
Betula papyrifera (Triple/Single Stems)	Paper Birch	B	2	4cm Cal.
Chamaecyparis nootkatensis	Yellow Cedar	Y	2	1.5m
Tsuga mertensiana	Mountain Hemlock	Tm	2	#5pot
Shrubs				
Acer glabrum	Douglas Maple	A	3	#1pot
Amelanchier alnifolia	Serviceberry	m	7	#1pot
Cornus stolonifera	Redtwig Dogwood	Cs	18	#1pot
Rosa explorer 'Frontenac'	Frontenac Rose (deep pink)	RF	3	#1pot
Rosa explorer 'Simon Fraser'	Simon Fraser Rose (med pink)	RS	3	#1pot
Rosa woodsii	Wood's Rose	w	8	#1pot

BOTANICAL NAME	COMMON NAME	SPACING SYMBOL	COUNT	SIZE
Ornamental Grasses				
Calamagrostis x acutifolia 'Karl Foerster'	Feather Reed Grass	Ck	2	#1pot
Deschampsia caespitosa 'Bronzeschleier'	Bronzeschlieier Tufted Hair Grass	Dc	21	#1pot
Ferns				
Blechnum spicant	Deer Fern	df	10	#1pot
Polystichum munitum	Sword Fern	sf	35	#1pot
Perennials				
Aquilegia formosa	Red Columbine	Af	8	#1pot
Coreopsis verticillata 'Moonbeam'	Moonbeam Tickseed	Cm	4	#1pot
Hosta 'august moon'	August Moon Hosta	HA	2	#1pot
Hosta 'Patriot'	Patriot Hosta	HP	2	#1pot
Ligularia stenocephala 'The Rocket'	Rocket	Li	3	#1pot
Nepeta x 'Dropmore Blue'	Dropmore Blue Catmint	N	2	#1pot
Rudbeckia fulgida 'Goldsturm'	Goldsturm Cone Flower	rg	3	#1pot
Rudbeckia nitida 'herbstonne'	Herbstonne Rudbeckia	Rn	2	#1pot

TOM BARRATT LTD.
Landscape Architects
8605 Drifter Way Whistler, BC Canada V0N 1B8
T.604.932.3040 F.604.932.8959
www.tbla.com tom@tbla.com

PROJECT

Couloir

1205 Mount Fee Road

DRAWING TITLE

Site Grading Plan & Planting Units A & B

DATE	APIL 30.2014	SCALE	1:200
PROJECT #	843	ITEM	
REVISION #	0	SHEET	L1

2. A panel member suggested the applicant consider an even more "edgy" Creekside vernacular, colours and details.
3. A panel member expressed maintenance concerns with the use of wood over the aluminum railing and glass.

Moved by T. Bunting
Seconded by C. Wetaski

That Advisory Design Panel supports the project as presented subject to consideration of Panel comments and does not need to see this project return for further review.

CARRIED.

The applicant team left the meeting.

1205 Mount Fee Rd.
The Couloir
1st Review
File No. DP1321

The applicant team of Derek Venter, DVAD Inc. and Tom Barratt, Tom Barratt Ltd. entered the meeting.

Kevin Creery, Planning Analyst, RMOW introduced the project for three new duplex buildings; the proposal includes variance requests. Staff seeks Panel comments regarding design, colour scheme and landscaping.

Derek Venter advised on the following.

1. The site was previously used by 2010 Olympics staff.
2. Three low profile 2 storey high buildings with flat roofs.
3. Materials and colours: concrete block, same as Cheakamus Crossing youth hostel; neutral tone wood colours blend in, glulam beams, black steel brackets, modern tone but with different character.
4. Buildings offset from one another, 4 ft. elevation difference between the buildings to create privacy.
5. Offset uses within the buildings, i.e. kitchen, dining and living room on lower floor; these spaces will be on the floor above in the next unit, thereby enhancing privacy.

Tom Barratt advised on the following.

6. Connections to this site are part of the overall neighbourhood circulation.
7. Overall landscape plan, detention pond, bio swale, storm water designated drainage over lot 9.
8. Planted 50% slopes, useable lawn areas for residents, street tree program, simple straight forward landscape rehabilitation, maintain existing.
9. Requested variances are located at the extremities of the site for over height retaining walls to accommodate flat backyard space.
10. The 4 ft. elevation difference the buildings accommodates the road slope; overall 8% grade in the road.
11. Narrow lots; access to the buildings from the side.

Panel offers the following comments.

Site Context and Landscaping

1. Panel felt the overall design is interesting.

2. Panel felt a more robust landscape plan could further improve the design and help define site movement.
3. Panel felt a comprehensive site plan and subdivision grading plan was needed and expressed concern over variances to 0 metre setback for over height retaining walls, except where adjacent to parking lot.

Form and Character

1. Some panel members felt the design will create a garage door dominated streetscape.
2. Panel felt the elevation split of each duplex creates a problem outside, especially at driveway and suggested the elevation change could be better resolved in landscaping between duplex buildings.

Materials, Colours and Details

1. Panel felt the colours were too muted.
2. Panel felt a material and colour board would have been beneficial.
3. Some members felt the inside deck was odd and would be very dark, and would not receive much sunlight.
4. Some members felt the front wall was blank and unfriendly; there was a suggestion to add a window.

Moved by T. Bunting
Seconded by D. Nelson

That Advisory Design Panel supports the project as presented subject to consideration of Panel comments, in particular the overall site grading and elevation split of each duplex and Panel does not need to see this project return for further review unless there is substantial change.

CARRIED.

The applicant team left the meeting.

OTHER BUSINESS

Gross Floor Area Exclusions Bylaw

Mike Kirkegaard provided an update regarding proposed amendments to the Gross Floor Area Exclusions Bylaw.

ADJOURNMENT

Moved by T. Bunting

That Advisory Design Panel adjourn the April 16, 2014 committee meeting at 4:01 p.m.

CARRIED

CHAIR: Tom Bunting

Melissa Laidlaw

From: Planning
Sent: Wednesday, August 20, 2014 10:24 AM
To: Kevin Creery
Cc: Melissa Laidlaw
Subject: FW: Variance permit application No.1085

FYI

Monica Urbani
RESORT MUNICIPALITY OF WHISTLER
TEL: 604-935-8161

From: Rozel Pallot [mailto:rozel@telus.net]
Sent: Tuesday, August 19, 2014 2:36 PM
To: Planning
Subject: Variance permit application No.1085

Attn Kevin Creery,
The variance applications for 1205 Mount Fee Road will have a huge impact on that relatively busy corner. Variance No.6 in particular, would allow vehicles to back out into the public street. That street slopes downhill, has a curve, is well travelled before and after working hours and, in the winter, is very slippery. I have seen accidents on that slope in the winter and with cars backing into that section the danger will be greatly increased. Reducing all the setbacks (variances 1,2,3,5,7) will also reduce the ambiance of this area where we are all trying to enhance the beauty with plants and trees. That is the first corner in the subdivision and should comply with current zoning. We walk up and down that sidewalk and a green buffer should be expected in keeping with the neighborhood. Having said that, if they want to shift the building site west, away from Mt Fee Rd, that would be fine.
Sincerely,
Rozel Randal-Pallot

1. 1
2. 2
3. 3
4. 4
5. 5

-

Sent from my iPad

Melissa Laidlaw

From: Rick Matthews <dorisrick@hotmail.com>
Sent: Saturday, August 23, 2014 7:47 AM
To: Planning
Subject: 1205 mount fee rd

I object to variance #6 to allow vehicles to back out into the public street. Mount Fee Rd has significant traffic volume as it is the main egress out of Cheakamus Crossing. The road is narrow, on a hill and has curves on it. It seems to me this will create a dangerous precedent inviting possible accidents and traffic delays.
As to the remainder of the variance requests , I am not qualified in planning and the effects of these variance requests to render a judgement. However, I can't help but note that this is rather late in the construction process to make these changes. Why wasn't this done months ago? Surely the owners would be aware of the planning requirements. Are they hoping the advanced stage of site clearing and construction would pressure the Municipality to accept? Please do not hesitate to contact me should you require further input.
Rick Matthews #52 - 1275 Mount Fee Rd. 604 698-7329 dorisrick@hotmail.com

Melissa Laidlaw

From: Planning
Sent: Thursday, August 28, 2014 8:37 AM
To: Melissa Laidlaw
Cc: Kevin Creery
Subject: FW: Variance Permit Application no. 1085

Kay Chow
RESORT MUNICIPALITY OF WHISTLER
TEL: 604-935-8171

From: Les Lawther [mailto:leslawther@gmail.com]
Sent: Wednesday, August 27, 2014 9:28 PM
To: Planning
Subject: Variance Permit Application no. 1085

Hi Kevin,
My concern is that no vehicles should impede other vehicles travelling east/west or west /east on Mount Fee road by backing out onto this road. Mount Fee going east to west is a crescent- shaped curve on a down slope east to west alignment. A vehicle backing out of the subject property will be a problem in winter road conditions for the oncoming driver. If that vehicle backing out is a F150 Silverado truck THEN LOOKOUT! On- site snow removal will be problematic and parking landscape trucks in the fall and spring will be equally difficult.
Also, Mount Fee Road is a bus route which also enables a bad vehicular mix. It will also impede pedestrians, often young mothers with children.
As a past developer of real estate over a 20 year period my reaction is simply that this is a nice but difficult site capable of holding 4 townhouses maximum. Provide an Increase in the allowable floor space per unit for four units only on the site: have the developer negotiate down the land price with the land owner and give this site the opportunity it deserves to complement the existing built environment. I doubt this can be achieved at the densities shown in application no. 1085. I would not support this Development Variance Permit application.
Sincerely,
Les Lawther
#51 – 1275 Mount Fee Road.

Melissa Laidlaw

From: Planning
Sent: Friday, August 29, 2014 3:49 PM
To: Melissa Laidlaw
Cc: Kevin Creery
Subject: FW: variance application 1085
Attachments: Variances 2014.doc

Kay Chow
RESORT MUNICIPALITY OF WHISTLER
TEL: 604-935-8171

From: Don Poirier [mailto:pear.tree@shaw.ca]
Sent: Friday, August 29, 2014 3:42 PM
To: Planning
Subject: variance application 1085

Dear Mr. Creery

We have attached a response to the document “Notice of Development Variance Permit Application No. 1085” which we received as owners in the Cheakamus neighbourhood.

Most of our concerns involve the safety of the neighbourhood and are outlined in the attached document.

However, we are not impressed that work started on the buildings prior to the granting of the variance permit. And this is especially as the variance involves so much about the length and width of the driveways- if the variances are not permitted, will the builder be able to change the footprint of the building at this stage?

Thank you,

Don Poirier
Elizabeth Hardy

#5-1240 Mt. Fee Road
Whistler

NOTICE OF DEVELOPMENT VARIANCE PERMIT APPLICATION NO. 1085

VARIANCES

4. ***Vary the front setback from 5.5 metres to 5.04 metres for a proposed duplex***

6. Vary the parking requirements to allow vehicles to back out into the public street;

7. Vary the front parcel line setback from 1.5 to 0.0 metres to allow for a parking space at 0.0 metres from the front parcel line;

8. Vary the uncovered parking space…. From 6.1 metres to 5.0 metres.

On the "SITE PLAN AB" diagram "DP1.1", and under the List of Variances, number 8 states: ***"Visitor parking spot to fit a compact car park with the dimensions of 2.4m x 5.0 m and to extend up to 5.3 m into the setbacks for all lots on the parcel".***

All of the above variances (4, 6, 7, 8) add up to the fact that the **driveways will be short and up to twelve cars will be parking and backing over a sidewalk onto Mt. Fee Road**.

Our concerns are the safety of the users of the sidewalk. Where townhouses have no basements, people often use their garages for storage and park their vehicles on the driveway. Contrary to the assumption of the developer that compact cars will be in the driveway, many people drive SUVs and trucks. A reviewer of this document just has to walk around the local neighbourhoods to see this illustrated.

How far will these larger vehicles project off the property? Given that vehicles are never parked up against the garage door.

What will prevent residents and guests from parking across the sidewalk and impeding pedestrians?

Where will snow removed from the driveways be placed? Larger snow banks will interfere with viewing pedestrians on the sidewalk for vehicles backing up.

1. Vary the front setback from 5.50 metres to 0.0 metres for a retaining wall;

This retaining wall is between the driveways of the adjoining duplexes. No variance on height is requested so the wall will remain less than 0.6 m tall. There doesn't seem to be any projection above the retaining wall for safety.

With the narrowed driveways, our concern is that cars may slip off the driveway in winter snow.

We also see potential for passengers to exit parked cars over the added height of the retaining wall.

Errors and inconsistencies

Errors: On "SITE PLAN AB DP1.1", Number 7 on the List of Variances states that Requirement of maneuvering vehicle within the site requested to be varied so that all vehicles on the parcel are permitted to back onto Legacy Way,…". The vehicles will actually be backing onto Mt Fee Road.

Inconsistencies: The eight points in the Notice of Development document do not correspond with the eight bullets on the document SITE PLAN AB DP1.1. Reviewers of this document have to sit and figure out how the variances on the written and pictorial documents overlap.

Surely we can expect more from professionals than a document with basic errors!

It is unclear whether the variances are for duplex AB or all three duplexes. The document would appear to refer to duplex AB only, and yet there is a table with all units on the SITE PLAN AB, as well as Variance 7 on the same document which states "all vehicles on the parcel are permitted to back onto Legacy Way.." Can we clarify this?

WHISTLER

REPORT | ADMINISTRATIVE REPORT TO COUNCIL

PRESENTED:	September 16, 2014	**REPORT:**	14-109
FROM:	Corporate and Community Services	**FILE:**	2014.34
SUBJECT:	UBCM 2014 CONVENTION UPDATE AND NEW BID OPPORTUNITIES		

COMMENT/RECOMMENDATION FROM THE CHIEF ADMINISTRATIVE OFFICER

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

RECOMMENDATION

That Council receive the update on the 2014 Union of British Columbia Municipalities (UBCM) Convention; and,

That Council direct staff to submit a bid for the Resort Municipality of Whistler to host the 2016, 2018 and 2020 Union of British Columbia Municipalities (UBCM) Conventions; and further,

That should the bid be successful, Council accept the host responsibilities on behalf of the Resort Municipality of Whistler as outlined in Administrative Report No. 14-109.

PURPOSE OF REPORT

This report provides an update on the 2014 UBCM Convention and seeks Council's approval for staff to submit a bid to host the 2016, 2018 and 2020 Union of British Columbia Municipalities Convention in the Resort Municipality of Whistler (RMOW).

DISCUSSION

Background

The Union of BC Municipalities (UBCM) has existed as the voice of local government in British Columbia for over 100 years and since 1979 has maintained a hundred percent membership of all municipalities in BC. UBCM serves all local governments in BC by representing their common interests, especially with the federal and provincial governments.

The UBCM Convention, held every year near the end of September, is the main forum for UBCM policy-making. It provides an opportunity for local governments of all sizes and from all areas of the province to come together, share their experiences and take a united position. There are typically over 2,000 delegates that attend the convention including local government members, various provincial government representatives, speakers and individuals from related associations, media and staff.

The UBCM Convention is held every second year in Vancouver and in the years when the Convention is not held in Vancouver, another host community in BC can bid. The RMOW successfully hosted the UBCM Convention in September 2002 and 2010. Whistler will again host the UBCM Convention from September 22-26th, 2014

Update on 2014 UBCM Convention

Approximately 2,000 delegates will descend upon Whistler for the 2014 UBCM Convention from September 22nd to 26th.

The theme of this years' convention is 'Leading Edge'. The UBCM website states "Whistler is the ideal venue for pursuing leading edge local governance. Its stunning vistas and legacy of excellence will inspire us to challenge ourselves, carve fresh trails, and find new ways to manoeuvre demanding terrain."

Accommodation for the Convention was booked through Whistler.com. Currently, 3,185 room nights have been booked.

Conference highlights include the following:

Mayors' Caucus	On Monday, September 22nd, Mayor's from across BC will participate in the sixth meeting of the BC Mayors' Caucus, an important half-day session.
UBCM Opening Session	Includes a speech by Mayor Wilhelm-Morden and the National Anthem sung by Whistler's own Rachel Thom on Wednesday, September 24th.
Whistler Welcome Reception	Hosted by the RMOW with delicious BC food and wine as well as photo booths from the Squamish Lil'wat Cultural Centre featuring 'spirit animals' and local artists doing live 'Whistler' activations including Susie Cipolla, Vanessa Stark, Toby Jaxon and Lianne Gulka during the evening of Tuesday, September 23rd.
Delegates Lunch	To be held at the top of Whistler Mountain on Thursday, September 25th.
Walking Tour	To be hosted by RMOW staff on Thursday, September 25th on 'How to Create a Successful Resort Community'.
Partners Program	On Wednesday, September 24th and Thursday, September 25th, partners of delegates will participate in activities including: Treetrek, ATV Tours, Zipline, Whistler Tasting Tours, Canoe Tours, Photo Walks, Squamish Lil'wat Cultural Centre Tours and Blackcomb Glacier Jeep Safari.
Flash You Badge Program	Participating restaurants, retailers and activity operators will offer discounts and value added services to UBCM delegates. UBCM delegates will be provided a list of participating Whistler businesses and the businesses will be displaying signage in their window fronts welcoming UBCM delegates.
Wheelchair Lift	The RMOW assisted in purchasing a permanent wheelchair lift for the main stage, which will help bring future conferences to Whistler.

Invitation to Bid for Future Conventions

The UBCM Executive approved a request to invite bids to host UBCM's Convention in 2016, 2018 and 2020. Communities that participated in the request for proposal (RFP) to host the 2014 conference (which Whistler won) are invited to bid and are not required to complete another RFP.

The proposed convention dates are:

Convention 2016	September 26 - September 30, 2016
Convention 2018	Date in November to be determined. New election legislation will change the 2018 civic election date from November 17, 2018 to October 20, 2018. UBCM Executive approved the request to host the convention in early November 2018.
Convention 2020	September 23 - September 27, 2020

Host Responsibilities

Should the RMOW be successful in securing the proposed UBCM Conventions it will be responsible for the following:

- **Meeting facilities** – contracting and financing.
  The RMOW must provide, without charge to UBCM, facilities, stages, chairs and other setup details for the Convention business, social and associated sessions. The RMOW must secure the entire Conference Centre for this Convention.

- **Delegates Welcome Reception** – organizing and financing.
  Approximately 1,200 delegates attend the welcome reception which would be held at the Whistler Conference Centre.

- **Delegates Partners' Program & Registration** – organizing/staffing (this is designed to be break even or make a profit to help cover other costs). For the 2014 Convention Whistler.com took on this role. The hope would be for this practice to continue for future conferences.

- **Hotel Accommodations** – Securing required hotel blocks (UBCM will sign contracts with hotels). 600-1,200 rooms are needed per night from Sunday to Thursday.

- **Other Administrative duties as agreed upon** (assisting with securing space for Minister Meetings, study tours, additional social events etc.)

Should the RMOW want to secure a bid for one or all of these three years, a letter must be sent to the UBCM Executive by September 30, 2014 confirming the RMOW's interest and commitment in hosting one or all of the conventions and ranking the years wanted in order of preference. Staff recommend that the bid be made for all three years.

WHISTLER 2020 ANALYSIS

Overall, hosting the UBCM Conventions supports the Whistler 2020 strategies of economic, partnership and visitor experience.

W2020 Strategy	TOWARD Descriptions of success that resolution moves us toward	Comments
Economic	Whistler has a diversified and year-round tourism economy.	The UBCM Convention brings convention business to Whistler during the shoulder season when there is accommodation inventory available and where accommodation is at a lower price point which will help UBCM since it a government membership based organization with its membership being particularly price sensitive.
	Whistler proactively seizes economic opportunities that are compatible with tourism and effectively adapts to changing external conditions.	
	Effective partnerships with government and tourism organizations support economic health.	
Partnership	Decisions consider the community's values as well as short and long-term social, economic and environmental consequences.	Hosting the UBCM Conference will economically benefit the entire Resort.
Visitor Experience	The resort community's authentic sense of place and engaging, innovative and renewed offerings attract visitors time and time again.	The Study Tours and Partners Programs will focus on the best that Whistler has to offer and provide a great visitor experience.

W2020 Strategy	AWAY FROM Descriptions of success that resolution moves away from	Mitigation Strategies and Comments
Finance	The resort community effectively and efficiently balances its costs and expenditures.	It is anticipated that any costs that will have to be paid by the municipality to host the Convention will result in higher economic benefits to the resort community.

OTHER POLICY CONSIDERATIONS

None.

BUDGET CONSIDERATIONS

In 2010, it cost approximately $100,000 to host the UBCM Convention. This included the rental of the Whistler Conference Centre, the food & beverage and décor associated with the Opening Reception and other administrative costs. Costs for the UBCM 2014 Convention are believed to be in much the same price range. The RMOW has been in talks with Tourism Whistler to make the Convention more affordable for the RMOW by reducing the room rental fees at the Whistler Conference Centre.

In 2010, the RMOW added a $20 nightly room surcharge to each delegate's hotel room to help cover the RMOW costs to host the Convention. 3,438 room nights were sold within the convention block and the RMOW received a reimbursement of $68,760. As a result of the room surcharge, it

ended up costing the RMOW $31,240 to host the Convention in 2010. As mentioned earlier in this report, thus far Whistler.com has booked 3,185 room nights for UBCM, which will result in $63,700 going back to the RMOW.

For 2014, the RMOW has a budget of $45,000 to cover the remainder of the hosting responsibilities. No significant changes are predicted for 2016, 2018 and 2020. However, during each convention year, there are significant RMOW staff time costs associated with the planning, organization and execution of the convention.

COMMUNITY ENGAGEMENT AND CONSULTATION

The RMOW is currently working with Tourism Whistler to put together the bid proposal. Should Council wish to proceed and the RMOW is successful in being awarded one, or all of the three years of the Convention then the RMOW and Tourism Whistler will be working with Whistler hotels to secure room blocks and competitive room rates.

SUMMARY

This report provides an update on the 2014 UBCM Convention and seeks Council's approval for staff to submit a bid to host the 2016, 2018 and 2020 Union of British Columbia Municipalities Convention in the Resort Municipality of Whistler (RMOW).

Respectfully submitted,

Shannon Story
MANAGER, LEGISLATIVE SERVICES
for
Norm McPhail
GENERAL MANAGER, CORPORATE AND COMMUNITY SERVICES

WHISTLER

MINUTES

REGULAR MEETING OF ADVISORY DESIGN PANEL
THURSDAY, JUNE 12, 2014, STARTING AT 1:30 P.M.

In the Community Room at the Whistler Public Library
4329 Main St., Whistler, BC V0N 1B4

PRESENT:

MAIBC, Doug Nelson
MBCSLA, Pawel Gradowski
UDI, Dale Mikkelsen
Member at Large, Eric Callender
Councillor, John Grills
Senior Planner & ADP Secretary, Melissa Laidlaw
Recording Secretary, Kay Chow
GM Resort Experience, RMOW, Jan Jansen
Director of Planning, RMOW, Mike Kirkegaard
Senior Planner, RMOW, Jake Belobaba
Planner, RMOW, Amica Antonelli

REGRETS:

MAIBC, Dennis Maguire
MAIBC, Chair, Tom Bunting
MBCSLA, Co-Chair, Crosland Doak
Member at Large, Chris Wetaski

Call to Order

Dale Mikkelsen assumed the role of Chair in Tom Bunting's absence. The meeting was called to order at 1:36 p.m.

ADOPTION OF AGENDA

Moved by D. Nelson
Seconded by E. Callender

That Advisory Design Panel adopt the Advisory Design Panel agenda of June 12, 2014.

CARRIED

ADOPTION OF MINUTES

Moved by E. Callender
Seconded by J. Grills

That Advisory Design Panel adopt the Regular Advisory Design Panel minutes of May 21, 2014.

CARRIED

COUNCIL UPDATE

Councillor Grills provided an update of the most current topics being discussed by Council. Longhorn Pub & GLC patio improvements approved by Council; consider a pre-approval process for future development permit applications involving increased liquor license capacities; OCP First Nations litigation, ruling in favour of the petitioner, First Nations.

PRESENTATIONS

Village Gateways & Portals Workshop
File No. 7108.12

The design team of Lynne Werker, 3DS Three Dimensional Services; Dennis Boyle, Boyle Design Corp.; Jessie Gresley-Jones and Joseph Fry, Principal, Hapa Collaborative entered the meeting.

Amica Antonelli, Planner, introduced the Whistler Village Neighbourhood Improvement Project, a part of the Whistler Village 3.0 project that has been under way for several years. The proposed design is built on stakeholder input, with fabrication and installation targeted for 2014. Staff seeks Panel comments regarding the design, longevity and maintenance of materials, proposed fonts and legibility, and patterns and images.

Mike Kirkegaard, Director of Planning advised that this municipal project is led by the RMOW's Planning Department, and is working closely with Parks Planning, Park Operations and the Village Operations departments.

Jan Jansen, GM of Resort Experience advised on the various municipal initiatives stemming from the Economic Partnership Initiative and the need to co-ordinate them so that they all speak to and support each other.

Joseph Fry advised on the following.

1. The design team has met with stakeholders and sought feedback on cultural stories and narratives.
2. Overarching strategy: create cohesiveness in the Whistler Village core and unify the neighbourhoods.
3. Map identifying locations of the village portals & gateways.
4. Businesses fronting the Village Stroll have a front row seat.
5. Challenges exist for perimeter areas along Blackcomb Way, the breezeways between Main St. and Town Plaza. Articulating these gateways would expand the sense of Village out to the perimeter areas and link the Main St. area.
6. Neighbourhood identities are linked to the public spaces that go through them.
7. Propose to link and unify the neighbourhoods through a series of gateways and portals, but also distinguish between the neighbourhoods.
8. Orient portals from the day parking lots along Blackcomb Way to provide direction of travel into the Village. There is some overlap with the Cultural Connector.
9. De-clutter existing way finding and signage.
10. Bold and sculptural portals at the edges, utilize size and illumination to draw attention.
11. Visual bread crumbs to draw you through the Village; a sequence of unifying experiences through the Stroll as well as areas outside the Stroll.

12. Use of banners on existing poles in combination with colour and name to distinctly define the neighbourhoods and to assist with way finding.
13. Street furnishings to complement, a “kit of parts”; benches and bollards tied together in one cohesive package.
14. Represent the culture of Whistler through stories, historical, First Nations, fine art, cuisine and recreation destinations.
15. “Kit of parts” materials will be a combination of rough and refined. The rough material will be corten steel, a weathering steel which will require maintenance over time. The refined material will be Decade, a weather proof, U.V. stable, colour fast, graffiti resistant, polycarbonate material.
16. Overall thickness ¾ inches.
17. Portals located at the outside edges of the Village.
18. Gateways will complement the portals; they are the connectors between the different neighbourhoods.
19. Street furnishings consist of benches and bollards; rough and refined materials; dimensionally thick robust wood for longevity.
20. Bollards will be easy to remove for fire, loading and event vehicle access. Proposed design will be an upside down “U” with potential to be illuminated from below.

Pawel Gradowski entered the meeting at 2:01 p.m.

21. “Kit of parts” includes cultural stories and colours. Pattern examples: fish scales representing Whistler’s early fishing history, forestry and logging, snow grooming and cross country ski tracks, bike tracks, aboriginal patterns; a graphic language.
22. Define and integrate portal names, define the neighbourhood through its name. Simplify the language, for example instead of Marketplace, use the word Market and use it in a graphic manner such as a totem. Applied in an upright version induces curiosity.
23. What should the names be? Further discussion needed.
24. Opportunity to combine Gobo lighting with existing light poles and banners to produce a night time pattern that is visible on the Stroll.
25. Up to three versions for the proposed portals. A 2.5 m tall rigid three sided pylon shape, structural and self-supporting, concrete base. Folded pieces of steel that wrap around and hold the Decade material; apply colour to the Decade material; apply a graphic pattern and also apply additional information onto the surface.
26. Illuminate the portal from the bottom to silhouette the lights against the surface of the Decade material, the material could glow.
27. Strategic location of Gateway markers to draw people and invite curiosity.
28. Project light onto the ceilings and walls of the breezeways, Gobo Four Optics.
29. Banner placement and function: colour and combination of word, each neighbourhood has its own colour; colour shift indicates movement from neighbourhood to neighbourhood.

Panel offers the following comments.

Site Context

1. Panel felt the project concept was exciting, not stock, there is a cool factor.

2. Panel felt the portals could embrace a common theme that represents the whole of the Village.
3. Panel felt the choice of neighbourhood names will be critical.

Form and Character

1. Panel had concerns regarding the climb-ability of the taller items, the lettering punch outs could be potential hand holds for people trying to climb up to the top; climbability could be acceptable if this is accounted for in the design.
2. A panel member felt the benches would provide opportunity for skateboarders or snowboarders to ride and roll on them.
3. A panel member cautioned against using too much lighting. Part of Whistler's treasure is the night sky, you are out of the city, on a clear night the stars are visible. It was recommended that the lighting could be focused and creative rather than just lighting up empty space.

Materials, Colours and Details

1. Panel supported the choice of Corten steel and Decade material and recommend that the durability and maintenance of it be proved out.
2. Panel recommended ensuring safety; maintenance and use-ability aspects are all addressed.
3. Panel recommended that colours be made visible and exciting.

Moved by E. Callender
Seconded by P. Gradowski

That the Advisory Design Panel strongly supports the project direction, concepts, designs and materials as presented subject to consideration of Panel comments and does not need to see this project return for further review and the applicant to work with Staff to resolve outstanding issues.

CARRIED.

The design team, Jan Jansen, Mike Kirkegaard, Jake Belobaba and Amica Antonelli left the meeting.

4890 Glacier Lane
Workshop
File No. DP1359

The applicant team of Doug Forseth, Barb Houghton, John Morley, Whistler Blackcomb; Andrew Terrett, Anni Terrett, Mark Aseltine, ATA Architectural Design Ltd.; Mark Pedlow, Marie-Claude Vanasse, Kenwood Construction and Tom Barratt, Tom Barratt Ltd. entered the meeting.

Robert Brennan, Planner, RMOW introduced the project. This application proposes to replace the Whistler Blackcomb administration buildings that were destroyed in a fire in September 2013. Today's presentation introduces Phase 1 of the three storey building. The applicant has also submitted a rezoning application requesting additional square footage. A separate development permit application with a presentation to the Panel will be required for Phase 2. The Phase 2 building will be a public building with Whistler/Blackcomb's administrative headquarters relocated to this site. Staff seeks Panel comments regarding the design direction.

Mark Aseltine advised on the following.

1. Building site located at the base of the Whistler Sliding Centre. Three of the buildings that were burned down in the fire are proposed to be replaced.
2. Identification of vehicle access, adjacency to parking lot #7 & #8, existing tree stands, Sliding Centre refrigeration plant.
3. Temporary trailers currently on the site.
4. Building layout 50' x 100'; ground floor consists of wood shop, offices on the upper two floors.
5. Built up concrete construction, durable, lasting and quick construction.
6. North elevation for service access; pedestrian access at the south elevation.
7. The Phase 1 building is not a public building, Whistler Blackcomb employees only.
8. Propose brown tone colours.
9. A temporary wood fire exit staircase for phase 1 at the east elevation.
10. Construction to start August 2014.
11. Tom Barratt advised that landscaping will be activated in phase 2; gravel will be used in the interim.

Panel acknowledged the need for cost and construction timing efficiencies and offers the following comments.

Site Context and Landscaping

1. Panel felt it was difficult to assess the phase 1 building given that there would be changing use over time and would have liked to have seen a conceptual plan of the build out.
2. Panel recommended moving the building further to the east to provide more room for landing and arrival.
3. Panel recommended assessment of the surrounding trees prior to construction.
4. A panel member recommended providing outdoor space for staff lunch breaks and or gathering spaces; particularly increased opportunity for shelter, as current awnings/extensions are limited in depth

Form and Character

1. Panel felt the proposed building form was basic and that some articulation or visual interest was needed.
2. A panel member felt the proposed building is an improvement over the previous building; there were no concerns with size and massing.
3. Panel felt that the front entry was an add-on to accommodate the interior stair, rather than a thoughtful articulation of the building; needs more thought

Materials, Colours and Details

1. Panel felt there was a lack of context in the building colours, but acknowledged that the colours are appropriate for an industrial building and its location in the environment.
2. Panel recommended placing a roof structure over the temporary staircase to address snow removal.

3. Panel noted that the large WB signage would be nearly impossible to see in its shown location and some signage may be helpful on the other side of the building

Universal Design

1. Panel felt further resolution of building accessibility was required.

Moved by D. Nelson
Seconded by E. Callender

That the Advisory Design Panel supports the project as presented subject to Panel comments and does not need to see this project return for further review and the applicant to work with Staff to resolve outstanding issues.

CARRIED.

The applicant team left the meeting.

ADJOURNMENT

Moved by P. Gradowski

That Advisory Design Panel adjourn the June 12, 2014 committee meeting at 4:10 p.m.

CARRIED

_____

CHAIR: Dale Mikkelsen

_____

SECRETARY: Melissa Laidlaw

cc: 2034.1

-----Original Message-----
From: Erika & Peter [mailto:peterika@telus.net]
Sent: Tuesday, September 02, 2014 12:04 AM
To: Wanda Bradbury
Subject: NESTERS ENTRANCE

MAYOR AND COUNCIL

TO THE MAYOR AND COUNCIL, WE THANK YOU FOR THE NICE NEW PAVING OF NESTERS ROAD, FROM HWY 99 PAST THE SHOPPING PLAZA.

IT WOULD MOST APPRECIATED IF YOU COULD ALSO SPRUCE UP THE ENTRANCE TO NESTERS SUBDIVISION LANDSCAPE.

IT IS ONE OF THE BUSIER INTERSECTIONS IN THE COMMUNITY, DUE TO THE MUCH VISITED SHOPPING AREA, BUT THE APPROACH IS MOST UNATTRACTIVE.

PLEASE CONSIDER SHARING A LITTLE OF THE WEALTH FROM THE VILLAGE, AND A FEW HOURS OF LABOUR, COULD PUT A SMILE ON EVERYONES FACE COMING AROUND THAT CORNER.

GIVING THE WEEDS A HAIRCUT, AND ADDING A TREE OR SHRUB OR TWO FROM ELSEWHERE WOULD ALREADY BE FRIENDLY SIGHT AROUND THE SIGN. AND ALONG THE RAISED WALKWAY.

NO NEED FOR BIG BUDGET, JUST TIDY UP, AND KEEP UP WITH THE REST OF THE WHISTLER " NEAT LOOK."

THANK YOU

ERIKA AND PETER DURLACHER
7055 NESTERS ROAD.
604 932 1924

From: Rhonda Wittman [mailto:skibums59@gmail.com]
Sent: Wednesday, September 03, 2014 11:39 AM
To: DeputyMinister.Transportation@gov.bc.ca; Minister.Transportation@gov.bc.ca; premier@gov.bc.ca; Mayor's Office; Wanda Bradbury; Duane Jackson; Andrée Janyk; Roger McCarthy; John Grills; Jayson Faulkner; Jack Crompton; edit@piquenewsmagazine.com; smatches@whistlerquestion.com
Subject: HIghway 99 Speed Limit Increase through Emerald Estates

To: Members of Public Service

Please find attached our letter regarding the recent speed limit increases through residential area of Emerald Estates in Whistler.

In brief to the attached, please reduce the posted speed limit from Rainbow to Cougar Mountain on HWY 99 back to 60 km/hr from the newly posted increase of 80 - 90km/hr. The infrastructure along this section of HWY 99 does not support the newly posted speed limit and the overall traffic volume has increased to produce consistently dangerous situations even at the previously posted speed limit of 60 km/hr.

The following are presented to support the requirement of immediate speed limit reduction back to 60 km/hour in the area from Rainbow to Cougar Mountain on HWY 99 .

1) The junctions exiting and entering HWY 99 have no traffic control signals or reduced speed which forces vehicles to go from 0 km/hr to 80 km/hr with no merge lanes or 80 km/hr to 0 km/hour with no designated turn lanes.

2) The BC Government fails to adhere to their own ministry safety guidelines/standards which produces unsafe driving conditions and therefore puts the current 80 km and 90 km/hr speed limits in contravention.

3) The Ministry of Transportation stated speed changes for Highway 99 South of Whistler Heliport Road to Pemberton Boundary (21 km)

- Current speed limit: 80
- New speed limit:90

There is no mention of changing the section of highway through Emerald Estates from 60km to 80km and 90km/hour. In particular, it was stated that these increases are not intended for areas where there are park or road accesses to the highway.

4)The RCMP fail to enforce the requirement of snow tires upon all vehicles that travel this section of HWY 99 which causes vehicles to be unable to handle the tight corners on snow in this area of HWY 99 and therefore puts the current 80 km and 90 km/hr speed limits in contravention.

5) The BC government is required to provide equal access to security of the person as guaranteed by Section 7 of The Canadian Charter Of Rights And Freedoms as stated “7. Everyone has the right to life, liberty and security of the person and the right not to be deprived thereof except in accordance with the principles of fundamental justice.”

What has occurred recently is a blatant disregard for the safety of all persons who travel this stretch of Highway 99.

Regards,
Rhonda Wittman
Chris Armstrong

Rhonda Wittman /Dr. Chris Armstrong
9267 Emerald Drive,
Whistler, BC
V0N1B9
skibums59@gmail.com

September 3rd, 2014

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

To: Mayor Nancy Wilhem-Morden and Council Members
Premier, Honorable Christy Clark,
Minister of Transportation, Honorable Todd Stone
Deputy Minister of Transportation, Grant Main
MLA, Jordon Sturdy

Re: Highway 99 Speed Limit increases through Emerald Estates

Originally this letter was to be written to address the ever increasing traffic on Highway 99 from Whistler to Pemberton. Specifically the need to address the amount of traffic (and noise) travelling past Emerald Estates creating a requirement for exit and entrance lanes for both sides of the highway, sound damping measures and greater police presence to control those travelling well over the posted 60km hour speed zone.

Recently, when trying to cross Highway 99 at Emerald Park to Green Lake with our two dogs, to our disbelief and shock, we noticed that the speed limit has been changed not just to 80km/hour from Rainbow through Emerald Estates, but now 90 km/hour mere yards past Emerald park!! How is this possible? How is the area of Emerald Estates any different than the areas of Creekside, Brio, Whistler Cay, Alpine or Rainbow developments, which target safety through limiting speed to 60km/hr, traffic lights and providing adequate safety features for accessing on and off Highway 99? It should be noted that Lions Bay has a speed limit of 60km/hour throughout its corridor, far past any residential areas. They have been granted noise reducing pavement and merge lanes to enter and exit the highway. Squamish is 60 - 70km/hour through the entire corridor and they also have merge lanes, traffic lights and overpasses to address pedestrian crossings.

Why should the community of Emerald Estates and the traffic passing through this area be treated so differently? Is it because you can't see many of our homes? Well we are there, along with our children and pets. We are all tax payers just like those in the other areas of Whistler who have a 60km/hour speed zone and a police presence for traffic control. Even the Callaghan area, where there are no residences and no pedestrian traffic has a greater police presence than Emerald Estates.

Our area was once a quiet established residential area for long term residents of Whistler. When we first moved to Emerald Estates 14 years ago, you could enjoy sitting on the deck or opening your windows on a summers night and not hear the roar of traffic whizzing by at all hours of the day and night. Emerald Estates residents seem to receive very few amenities and little attention from the Whistler municipality, yet we continue to willingly support the infrastructure of Whistler. However this is a time when our community needs to be treated fairly like many other areas inside Whistler and communities along the Sea to Sky highway.

We are sure the original existence and development of Emerald Estates began due to the proximity of Green Lake and the desire for a secluded residential area. Families/permanent residences continue to enjoy the lake and the park located just off the highway. The safety concerns of trying to cross the highway to Green Lake were a challenge at 60 km/hour. Now I have to get my 78 year old parents and pets across the highway while cars are doing 90 km/hour?? In addition, as drivers we are expected to merge onto a highway from a standstill with traffic travelling 80 km/hour and more, with no merge lanes or turning lanes present. This is dangerous in the summer with good traction and conditions, and we fear what winter may bring. We all know that many drivers will go ten to twenty kilometers over the speed limit, so with a posted limit of 80 to 90 km/hour we can now expect and already see cars, commercial vehicles and motorcycles roar past Emerald at 90 -110 km/hour. Welcome to the new raceway.

Consider the plight and dangers facing the children of Emerald with their school bus letting them off on the side of the highway expecting them to cross with cars doing 80+ km/hour? The local municipal bus stops on the side of the highway to let passengers on and off, how is the bus to safely pull over and re-enter onto the highway? When trying to make a turn off the highway in any direction, vehicles which were recently while travelling 60 km/hour will ride the shoulder to go around you, now they will be doing the same thing at 80? Wedge rafting has multiple trips every day to Green Lake requiring them to exit and enter the highway loaded with tourists and rafts in tow. These vehicles can not stop or speed up quickly enough to merge onto and off of the highway with speeds posted at 80km/hour. Serious accidents are just waiting to happen. Why does a newly established community like Rainbow receive traffic lights, merging lanes to enter/exit their area and benefit from highway speeds of 60 km/hour and yet Emerald is without these safety measures. Our area functioned well with a posted speed limit of 60 km/hour, we need this re-established to prevent pedestrian and vehicle accidents. Emerald Estates did not have the proper infrastructure to support crossing and merging onto Highway 99 at 60 km/hour, let alone the newly posted speeds of 80+ km/hour!

Let's recap, traffic traveling north from Rainbow through Emerald will now go from 60 km to 80 km/hour and pass 6 entrances off the highway (including a viewpoint and a park), within less than 30 meters past Emerald Park increase speed to 90 km/hour, then less than 300 meters away reduce to 70 km/hour to maneuver the tight corners and then back to 90 km/hour. That is 4 speed changes in less than 2.5 kms of road, this seems ridiculous from both a safety and noise perspective.

Speaking of noise, the additional disadvantage of this unsafe evolution is the amount of highway noise that residents in the area are currently subjected to. The increase of traffic travelling 60 km/hour produces a constant noise that has become overwhelming and now it has been raised to 80 and 90km/hour. Now cars and trucks will be slamming on their brakes and commercial vehicles gearing down or using engine and jake brakes to slow in order to facilitate traffic exiting and entering from the numerous locations along the highway through Emerald. Some residents have reverted to installing plexiglass panels onto their decks to reduce the noise while trying to enjoy time outside. For ourselves, we have converted our 'front' yard for sitting (instead of the back) with a waterfall system to try and block out the highway noise, and this was when the speed limit was set at 60km. Now what are we expected to do to further block the increased noise?

It is clear (and was recently stated to us by a Whistler RCMP Constable) that the infrastructure for this area is inadequate even for highway speeds of 60 km/hour and thus needs to be addressed immediately. Many communities along highways including Lions Bay and Squamish have either one or more safety and noise solutions implemented, such as;

- highway speed limits of 60 km/hour

- merge and turning lanes
- pedestrian overpasses or controlled crosswalks
- sound reducing pavement;
- sound walls to absorb and contain the noise from motorcycles, passenger vehicles and commercial vehicle tires, engine brakes and engine deceleration & acceleration; and
- greater police presence to insure that vehicles are adhering to the posted speed limits.

The recent MOTI speed limit increases from 80km to 90 km hour were slated for Heliport Road through to Pemberton boundary, which is north of Emerald. These speed limit increases were for rural highways that specifically did not have intersections or parks present in the area. The highway section from Rainbow to Emerald should never have been changed to 80km, nor to 90km from Emerald Park to Cougar Mountain. As residences of Whistler/Emerald Estates, we need the speed limits to be re-established to 60km/hour past our community prior to a serious accident occurring. Even at the speed of 60km, the infrastructure of the area must be upgraded to establish safe entrance and exit to our community. Sound reducing measures should be established to the north end of Green Lake given the dramatic and continued increase in traffic north of Whistler village. Anything less is a disregard for the safety and well-being of not just the residents of Emerald Estates, but every person who travels this stretch of road. We look forward to your response in addressing these essential issues affecting Emerald Estates and the people traveling north of the village.

Sincerely yours,

Rhonda Wittman

Dr. Chris Armstrong

BCTA Responds to Speed Review Announcement with Industry Safety Message

On July 2, 2014, the Ministry of Transportation and Infrastructure shared a list of "actions" resulting from the *Rural Highway Safety and Speed Review*, including, among others, a decision to increase speed limits on some highway sections to 120 km/h. Given members' lack of support for this change, BCTA was quick to publicize our position on higher speed limits immediately following the ministry's release and generated a great deal of media coverage for our message that with higher speed limits comes even more responsibility for driving safely near commercial vehicles.

The ministry's announcement, which also covers winter tires, keeping right except to pass, and wildlife collisions, is here (http://www.newsroom.gov.bc.ca/2014/07/actions-to-improve-safety-on-bcs-rural-highways.html). For BCTA's response, click here (http://www.bctrucking.com/news/higher-speed-limits-bc-highways-means-greater-need-driving-care-near-commercial-vehicles).

Our submission to the *Rural Highway Safety and Speed Review* in January 2014 indicated that the majority of members who responded to a related BCTA survey had concerns about increased stopping distances at higher speeds, greater force of impact, the need to drive to conditions, and evidence that speed differentials between passenger and commercial vehicles actually increase crash risk, as well as reduced fuel efficiency at higher speeds (for complete details, please see our submission (http://www.bctrucking.com/sites/default/files/moti_-_rural_highway_safety_and_speed_review_-_bcta_final.pdf)).

We were disappointed to learn that the ministry had chosen to go ahead with increasing speed limits in spite of carriers' concerns, although we agree with the ministry's decision to pilot variable speed zones on sections of Highway 1 (between Sicamous and Revelstoke), Coquihalla (from Hope to the old toll booth) and Sea-to-Sky highways (which will provide guidance on speed limits under poor road conditions).

Media interest in BCTA's opposition to the new speed limits has been high, resulting in multiple interviews for Louise Yako, BCTA's President & CEO, with journalists representing TV, radio, newspaper and trade media, including, among others, the *Vancouver Sun*, CBC radio (BC Almanac and the Early Edition), CTV, CHNL and CFJC (both in Kamloops) and Victoria's *Times-Colonist* and CHEK TV (an interview fielded by BCTA's 1st Vice Chairperson Trevor Sawkins).

Numerous publications also incorporated details from our release into their articles on the increases, and the *Vancouver Sun* interviewed Louise on July 3 for a follow-up article about speed limits and fuel consumption.

Posted on Thu, 2014-07-03 15:30 in Headline News (/category/section/industry-news)

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~ SUBMISSION TO THE BC MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE ~

Re: Rural Highway Safety and Speed Review

January 23, 2014

Executive Summary

The BC Trucking Association (BCTA) opposes increasing posted speed limits on rural highways in BC as is currently being contemplated in the BC government's *Rural Highway Safety and Speed Review.* Our position is based on BCTA member input and conclusions reached in a number of international studies suggesting increased highway speeds would compromise safety and increase fuel consumption. Our position remains unchanged since the last review of BC highway speed limits conducted in 2003.

Safety is BCTA's number one priority, and consistent with that, our primary concerns regarding increasing highway speeds are:

- Increased stopping distances – BCTA's analysis shows increasing speed from 90 to 105 km/h (a 17 per increase) leads to a 33 per cent increase in total stopping distance for a passenger vehicle and a 68 per cent increase for a loaded tractor-trailer combination.
- Force of impact - speed (i.e., exceeding the speed limit, excessive speeding and driving too fast for conditions) was the top contributing factor in traffic fatalities in BC in six of the last seven years (2006-2012).
- Road and weather conditions (especially during winter) – the top concern expressed by BCTA members. Slippery roads and poor visibility lead to significant increases in vehicle stopping distances.
- Speed differentials – speed differentials between commercial and passenger vehicles, particularly on congested multi-lane highways and two-lane highways, can increase crash risk due to greater "traffic turbulence", such as dangerous overtaking manoeuvers.

Another key concern for BCTA is the fact that vehicle fuel efficiency decreases as speed increases. As increased fuel consumption leads to greater greenhouse gas (GHG) emissions, increasing highway speed limits appears to run counter to BC's stated GHG reduction goals.

Consistent with BCTA's emphasis on safety, we strongly support safety measures identified in the *Rural Highway Safety and Speed Review,* and others, specifically:

- Building more pull-outs and passing lanes.
- Improving winter maintenance in brake checks and chain-up/chain-off areas.
- Increasing the number and quality of rest areas for commercial vehicles.
- Doing more to reduce wildlife collisions.
- Educating and encouraging drivers to "keep right except to pass."
- Educating drivers on and enforcing the use of winter tires where and when required.
- Increasing education about how to drive safely on highways (i.e., at high speed and in the presence of large trucks).

About the BC Trucking Association

The BC Trucking Association (BCTA) is a member-based, non-profit, non-partisan organization dedicated to promoting and representing the commercial road transportation industry in BC. Since 1913, BCTA has been advising members, protecting their rights, advancing their interests, and advocating for fair government regulations and enforcement thereof.

BCTA members include trucking companies hauling every type of freight, as well as charter and scheduled motor coach companies. Some are among Canada's largest trucking and motor coach companies, but most are small to medium sized BC-based enterprises. Our membership also includes the BC Ready-Mixed Concrete Association, Central Interior Logging Association and Northern BC Truckers Association. In total, BCTA represents about 1,200 truck and motor coach fleets, operating some 13,000 vehicles in BC and throughout North America. BCTA also founded the Trucking Safety Council of BC to improve workplace safety performance and reduce the number and severity of injuries, illnesses and fatalities.

Introduction

Safety is BCTA's top priority, and we are proud of the many initiatives undertaken by our members to reduce crashes to serve the public interest and protect their most important assets – their employees. As part of their safety culture, many have implemented strict speed limit policies, including activating speed limiters on vehicles.

The commercial transport sector in BC has a good and improving safety record. In the last ten years (2003-2012) the number of heavy commercial vehicles (HVCs) registered in BC increased 22 per cent while casualty collisions (those causing injuries or fatalities) involving HVCs increased 6 per cent. In other words, the rate of casualty collisions involving HVCs over the past decade declined 13 per cent. That being said, there is always room for further improvement, and BCTA supports measures aimed at improving safety and reducing crash rates. In keeping with this priority, **BCTA opposes increasing posted highway speed limits,** notwithstanding the significant infrastructure investments made since 2003 by the BC government, the federal government and local municipalities. This is consistent with the position BCTA took in 2003 during the last review.

Highway speed limits are rarely raised as a concern by BCTA members, suggesting changing (raising or lowering) speed limits is not a high priority for our membership. BCTA confirmed this in a December 2013 survey which attracted one of the highest response rates of any BCTA member survey. Nearly three-quarters of survey respondents say they believe current speed limits on rural highways are "about right" and less than a third believe increasing highway speed limits would benefit their operations. The survey also revealed members would have a number of specific

concerns if highway speed limits were increased (including speed differential between cars and trucks, increased fuel consumption, and safety during winter or other periods of inclement weather), but that they are highly supportive of infrastructure improvements and other initiatives aimed at enhancing highway safety.

Importantly, we do not believe the analysis of BC highway speeds to date has sufficiently taken into consideration the operation of heavy commercial vehicles as a group, or the interaction of different vehicle types, when identifying average and 85th percentile speeds. We believe this analysis is critical prior to reaching a conclusion as to whether posted speed limits should be changed.

The rationale for our position is detailed below.

Speed contributes to collisions, injuries and deaths

According to ICBC, speed (i.e., exceeding the speed limit, excessive speeding and driving too fast for conditions) was the top contributing factor in traffic fatalities in BC in six of the last seven years (2006-2012), ranging from a high of 39 per cent in 2007 to a low of 29 per cent in 2010. With respect to HVCs, in 2007 (the last year ICBC published detailed collision statistics) speed was a factor in 13 per cent of collisions causing injuries and deaths, second only to driver inattention.

As noted in the 2003 BC Ministry of Transportation report *Review and Analysis of Posted Speed Limits and Speed Limit Setting Practices in British Columbia* (the Wade-Trim report): "Crash severity increases with increasing speeds because in a collision, the amount of kinetic energy dissipated is proportional to the square of the velocity." Or, as ICBC more simply states on its website: "The faster you drive, the harder you hit."

Research conducted over the past two decades by and for US-based organizations such as the Federal Motor Carrier Safety Administration (FMCSA), the Transportation Research Board (TRB), the Federal Highway Administration (FHWA), and the National Highway Traffic Safety Administration (NHTSA) suggests increases in highway speed limits lead to increases in speed, crashes and fatalities. For example:

> "The estimated increase in Interstate fatalities found in this study, while smaller in magnitude compared to the estimated change in fatalities found in 1987 following the increase of speed limits on rural Interstates, does follow the historical pattern of increases in fatalities being associated with increases in posted speed limits." *Synthesis of Safety Research Related to Speed and Speed Management,* NHTSA, 1998.

"In general, changing speed limits on low and moderate speed roads appears to have little or no effect on speed and thus little or no effect on crashes... However, on freeways and other high-speed roads, speed limit increases generally lead to higher speeds and crashes." *The Effect of Increased Speed Limits in the Post-NMSL Era*, FWHA/NHTSA, 1998.

Increased speed = increased stopping distances

Total stopping distance is a function of perception distance, reaction distance, brake lag distance, and vehicle braking distance:

- Perception time - the time a driver spends identifying, predicting and deciding to slow down for a hazard (3/4 of a second).
- Reaction time - the time it takes for a driver to execute a decision once a danger is recognized (3/4 of a second). The distance the vehicle travels while the driver reacts is called reaction distance.
- Brake lag time - a car's brakes begin to work almost instantly when the brake pedal is depressed. This, however, is not the case with air brakes on HVCs because there is a brake lag time of approximately 4/10 of a second before the brakes begin to function after the brake pedal is applied.
- Vehicle braking distance - the distance a vehicle travels from the time a driver begins depressing the brake pedal until the vehicle comes to a stop.

The table below summarizes total stopping distances for a typical passenger vehicle and for a five-axle tractor semi-trailer operating at 38,500 kg (85,000 lb) on dry pavement with all brakes in good working order at speeds of 90 km/h and 105 km/h. The calculations are based on information and data made available by ICBC, the Utah Department of Transportation, and Transport Canada.

Stopping Distances at 90 km/h and 105 km/h – passenger vehicles vs. trucks (distances in metres)							
	Speed	Speed	Perception Distance	Reaction Distance	Brake Lag Distance (trucks only)	Vehicle Braking Distance	Total Stopping Distance
Car	90 km/h	25.0 m/s	19	19	-	50	88
Truck	90 km/h	25.0 m/s	19	19	10	59	107
Car	105 km/h	27.8 m/s	21	21	-	75	117
Truck	105 km/h	27.8 m/s	21	21	11	127	180

As shown, increasing speed from 90 to 105 km/h (a 17 per increase) leads to an increase in total stopping distance for a passenger vehicle of 29 metres (a 33 per cent increase) and for a tractor-trailer combination of 73 metres (a 68 per cent increase).

The comparison demonstrates that a relatively modest increase in speed can lead to a significant increase in stopping distance, especially for HVCs for which stopping distances are generally 20 to 40 per cent greater than passenger vehicles travelling at the same speed.

Speed during winter and other inclement weather

The top concern expressed by respondents to BCTA's survey with respect to raising highway speed limits is the impact on safety during winter and inclement weather.

Road conditions and inclement weather have a direct impact on stopping distances. Wet or icy roads have a lower coefficient of friction, thus increasing a vehicle's braking distance. ICBC estimates the stopping distance for a passenger vehicle travelling at 100 km/h increases by nearly 50 per cent when road conditions are wet or slippery.

Furthermore, during inclement weather, when visibility is reduced due to road spray and snow or rain fall, a driver's perception time increases. For example Transport Canada, in establishing sight distances to ensure adequate stopping distance for vehicles approaching rail crossings, assumes a driver perception and reaction time of 2.5 seconds during inclement weather conditions (one second longer than under normal conditions). At 90 km/h per hour, the extra second adds 25 metres to the total stopping distance (for trucks and cars).

According to ICBC's 2007 Collision Statistics, road conditions were a factor in 14 per cent of all collisions causing injury or death that year and 12 per cent of collisions involving HVCs. Weather was a factor in 8 per cent of all collisions and 6 per cent of collisions involving HVCs.

As noted in the 2003 Wade-Trim report: "Maximum speeds are set for ideal conditions. Drivers should adjust their speed for conditions less than ideal." That, however, is a recommendation rather than a rule. The fact that road and weather conditions, and "driving too fast for road conditions" are identified as factors in a number of injury and fatal collisions in BC suggests drivers are not adjusting speeds to the extent they should to lower risk during winter and inclement weather conditions. This is consistent with the findings of the FHWA report *Empirical Studies on Traffic Flow in Inclement Weather*, which concluded that, in terms of human factors and adverse weather conditions, while individual drivers do modify their behavior to some extent, the changes do not necessarily reflect the level of risk involved.

Speed Differentials

Research by Transport Canada, FMCSA, and FHWA indicates speed differentials on congested multi-lane highways and two-lane highways can compromise safety. In these circumstances, greater speed differentials between HVCs and surrounding traffic have been correlated with increased crash risk due to greater "traffic turbulence"; or in other words, interaction between cars and trucks. This is of particular concern on two-lane highways where speed differentials between cars and trucks have been shown to increase the number and rate of car-truck overtakes, and hence the possibility of unsafe overtaking manoeuvers onto the opposing traffic lane.

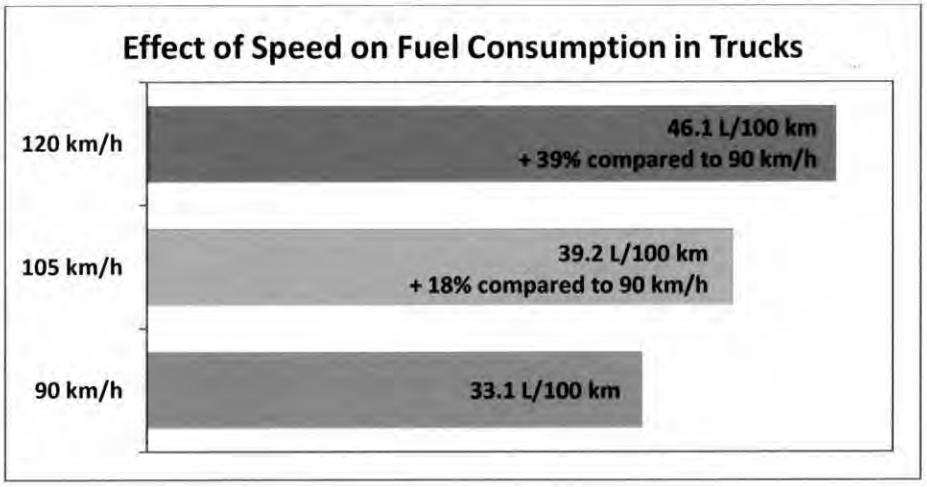
According to FHWA, speed differentials between adjoining highway sections or between speeds of vehicles in the same traffic stream (such as trucks and passenger vehicles) of 5 mph (8 km/h) pose a low risk; 5 mph (8 km/h) to 15 mph (24 km/h) pose a medium risk, and more than 15 mph (24 km/h) pose a high risk.

The potential for increased speed differentials is a serious concern for BCTA members. HVCs may be unable to travel at current posted speed limits on many segments of BC rural highways due to steep grades. In addition, company safety policies or the use of speed limiters to promote safety and fuel economy may require trucks to travel at or below posted speed limits. BCTA fears the speed differential between cars and trucks that may exist today in some areas would be exacerbated if speed limits are raised, thereby increasing the potential for conflict between trucks and cars and crash risk.

Increased speed = increased fuel consumption

Another key concern among BCTA members regarding the prospect of higher speed limits is additional fuel consumption, which is directly correlated with increased GHG emissions.

Natural Resources Canada (NRCan) estimates that a passenger vehicle travelling at 120 km/h uses about 20 percent more fuel than if it were travelling at 100 km/h. Yet, on a 25-km trip, this increase in speed (and fuel consumption) would reduce travel time by only two minutes. The impact of increased speed on fuel consumption is even more pronounced with HVCs. As described by tire manufacturer Goodyear in *Factors Affecting Truck Fuel Economy*: "As vehicle speed is increased, horsepower requirements to overcome the aerodynamic drag increase rapidly. There is also an increase in the horsepower required to overcome increasing tire rolling resistance, though this occurs at a lower rate. The sum total horsepower requirement for a tractor-trailer vehicle increases along a curve which has a continually steeper slope as speed is increased." Consistent with NRCan estimates, an HVC travelling at 75 mph (120 km/h) can consume up to 39 per cent more fuel than if it were travelling at 55 mph (~90 km/h):



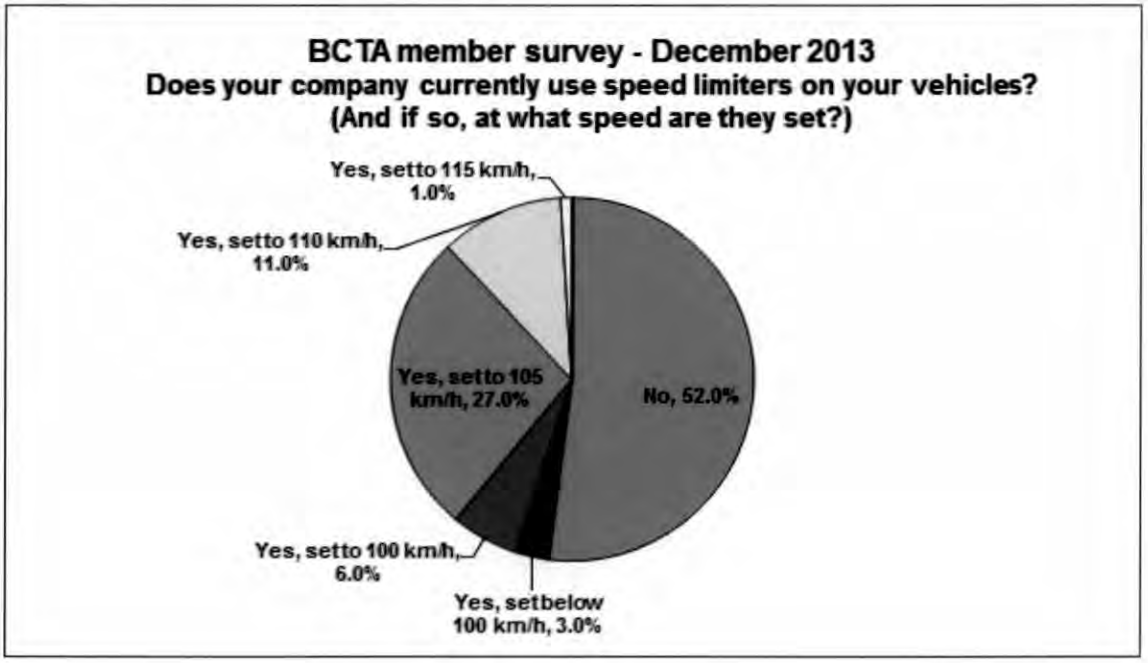
Source: Adapted from *Bridgestone Real Answers – What consumes fuel?*

In 2008 and 2009, in response to the BC Government's climate change goals and priorities, BCTA co-chaired with MOTI the *Trucking Sector Climate Action Working Group* (Working Group) which was tasked with identifying opportunities to GHG emissions from BC's trucking sector. The Working Group presented a series of recommendations including that BC consider a speed limiter mandate or other speed management policies. BCTA continues to wait for the BC government's response to many of the Working Group recommendations, including BCTA's position that speed limiters be mandated for HVCs, with the maximum speed set to 105 km/h. If posted speed limits were to be increased, this action would seem to directly contradict the provincial government's stated policy on reduction of GHG emissions, and related targets.

Company speed policies and use of speed limiters

BCTA's survey revealed that 80 per cent of respondents have a company speed policy in place. Most require that drivers abide by posted speed limits, whereas some set maximum allowable speeds slightly below posted limits. Many will dismiss drivers (or not hire them) for multiple or excessive speed infractions.

A number of BCTA members go one step further by activating speed limiters. As shown in the chart below, just under half of BCTA members surveyed activate speed limiters, with the majority of those setting the maximum to 105 km/h. This is somewhat less than in the US where the TRB estimates speed limiters are used by approximately 65 per cent of trucking fleets.



In addition to saving fuel and reducing GHGs, speed limiters improve safety as well. In March 2012, the FMCSA reported on a study which it described as "... the most comprehensive investigation that has ever been conducted on speed limiters" producing results indicating a "... profound safety benefit for trucks equipped with an active speed limiter." Similarly, a 2008 study conducted by the TRB for the FMCSA notes: "The most definitive results on the effectiveness of speed limiters comes from the United Kingdom, which showed that the crash involved rate for speed-limited heavy trucks fell 26% between 1993 (when mandated) and 2005. UK authorities noted that other contributing factors may have influenced the decline, but concluded that speed limiters at least played a significant role."

MOTI Data Collection

BCTA has confirmed with MOTI that the 2003 Wade-Trim report did not consider average and 85th percentile speeds specifically for trucks. When the consultants and the Ministry collected speed data on selected highway segments for the 2003 study, trucks were part of the "general traffic mix". In other words, truck speeds were included in the 2003 analysis, but not considered separately.

With respect to speed surveys conducted for the current *Rural Highway Safety and Speed Review*, we understand it is possible to look at passenger vehicle and truck speeds separately. BCTA recommends MOTI conduct a separate analysis to answer the following questions:

- Are average/85th percentile speeds for trucks lower than, comparable to, or greater than speeds for passenger cars?
- Are average/85th percentile speeds for trucks lower than, comparable to, or greater than posted speed limits?

A clear picture of current truck speeds relative to posted limits and passenger vehicle speeds will be beneficial in evaluating the impact of speed limit increases on such factors as speed differentials.

Other priorities for improving highway safety in BC

Whereas BCTA's member survey confirmed a lack of support for changing speed limits, it revealed strong support for additional measures aimed at improving highway safety. With respect to infrastructure measures, BCTA members identify the following as "extremely important":

- Building more pull-outs and passing lanes to allow vehicles to pass slower moving vehicles;
- Improving winter maintenance in brake checks and chain-up/chain-off areas (to allow commercial drivers to safely pull off the highway to inspect brakes or install/remove chains);
- Increasing the number and quality of rest areas for commercial vehicles.

Members also identified "Doing more to reduce wildlife collisions (e.g. more signage, fencing, wildlife over- and underpasses)" as "important" but less of a priority than the other three.

With respect to other measures aimed at improving highway safety, BCTA members rate the following as "highly or extremely important":

- Educating and encouraging drivers to "keep right except to pass";
- Educating drivers on and enforcing the use of winter tires (where required during winter months);
- Increasing education about how to drive safely on highways (i.e., at high speed and in the presence of large trucks).

Members identify the following as "important" but less of a priority than the first three:

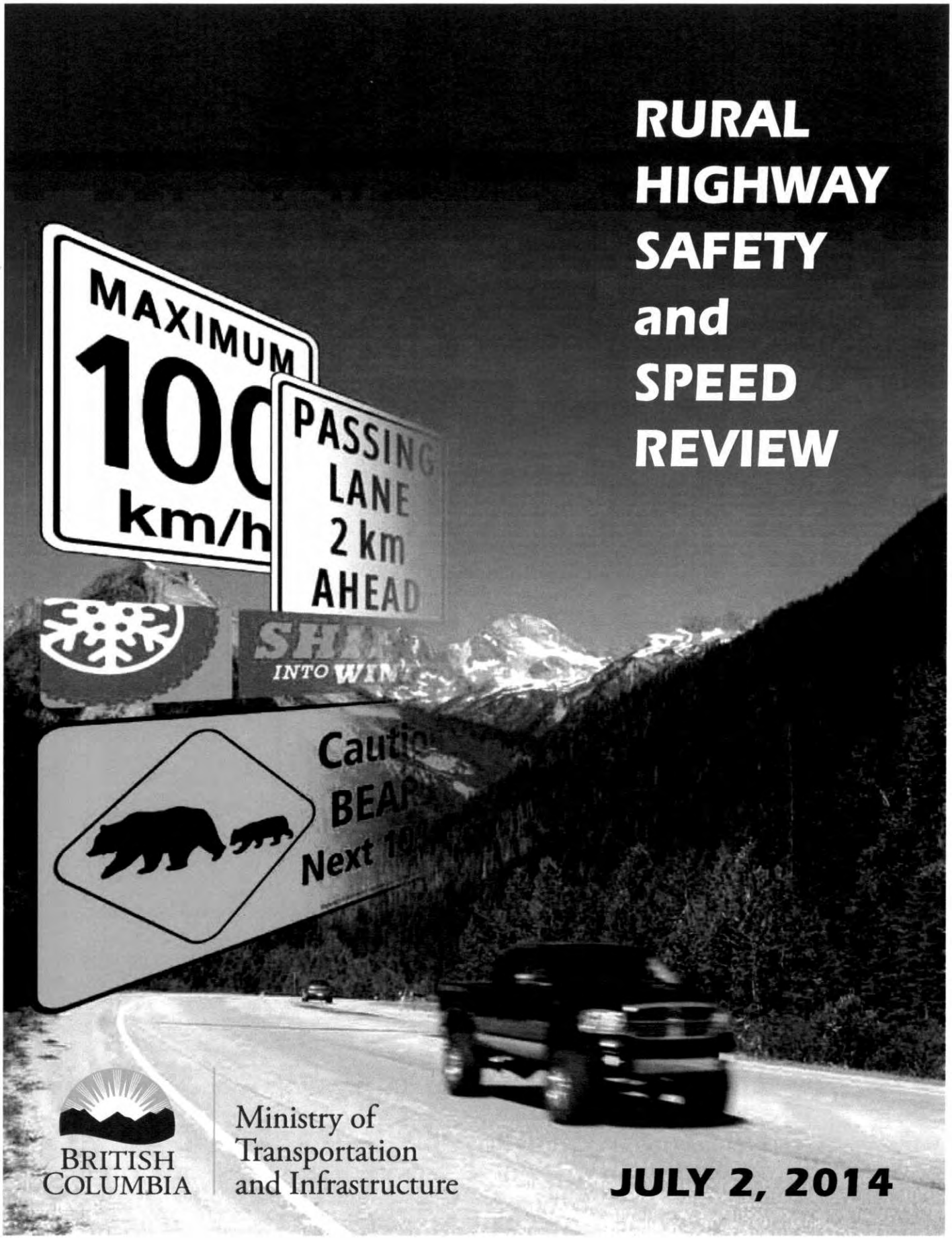
- Using electronic speed readers to warn drivers when they are exceeding the limit
- Introducing stricter distracted driving laws
- Increasing speed limit enforcement

While these recommendations stand on their own merits, it would seem imperative that these measures be considered as part of a package of reform should the provincial government choose to increase posted speed limits in any areas.

Conclusion

Changing speed limits on BC's rural highways is not a priority for BCTA. In fact, BCTA members have a number of concerns regarding the prospect of increasing highway speed limits; concerns validated by numerous international studies. On the other hand, BCTA, consistent with the priority it places on safety, strongly supports specific measures aimed at improving safety and reducing crashes on BC's highways.

BCTA acknowledges and appreciates the substantial investment made by the provincial, federal and municipal governments in improving the safety and efficiency of BC roads and highways over the past decade. We also appreciate the opportunity for BCTA to provide input into the *Rural Highway Safety and Speed Review*. As always, BCTA stands ready to consult and work with MOTI to improve the safety of BC's highways for the owners, operators and drivers of heavy commercial vehicles, and all members of the travelling public.



RURAL HIGHWAY SAFETY and SPEED REVIEW

BRITISH COLUMBIA

Ministry of Transportation and Infrastructure

JULY 2, 2014

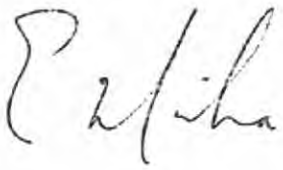
In October 2013 the Ministry of Transportation and Infrastructure initiated a broad review of safety and speed on the province's rural highways. This review included both a technical component and the collection and consideration of public input. The Ministry's Professional Engineers specializing in traffic operations and highway safety lead the technical portion of the review. The technical review consisting of four areas:

1. Rural highway speed limits
2. Slower moving vehicles
3. Winter tire requirements and use
4. Wildlife hazards

The following report summarizes the ministry's technical analysis and proposed speed limit changes, as well changes to improve safety around slow moving vehicles, clarify and modernize the requirement for winter tires and reduce crashes related to wildlife.

Dirk Nyland, P.Eng.

Chief Engineer



Ed Miska, P.Eng., PTOE

Chief Traffic, Electrical, Highway Safety and Geometric Standards Engineer

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Executive Summary

In the fall of 2013, the Ministry of Transportation and Infrastructure initiated a Rural Highway Safety and Speed Review.

The review included four key components:

1. **Speed Limits:** Reviewing rural speed limits will help ensure safety on B.C.'s highways by ensuring that speed limits are set appropriately.
2. **Winter Tires:** Winter tires have undergone significant technological advancements in recent years, and it is time to look at the winter tire definition and the regulations around their use.
3. **Slower-Moving Vehicles:** Slower-moving vehicles, such as recreational vehicles, vehicles towing others or slow vehicles in the left-hand (passing) lane, reduce the efficiency of the highway system and can cause driver frustration.
4. **Wildlife Hazards:** Wildlife on the highway can pose a serious hazard to motorists in many areas of B.C., either when drivers try to avoid animals or if they strike animals.

For each of these components, the Ministry conducted public consultation as well as a technical analysis conducted by the Ministry's engineers. Consultation occurred over 2 months through online surveys and open houses around the province. Feedback was received from over 2,300 participants.

Speed Limits

Speed limits are the maximum speed (in good conditions) that people can legally drive along a section of roadway. When conditions are less than ideal—for example in heavy rain or snow—drivers are required by law to adjust their driving, which includes reducing speed.

In general, there was public support for speed limit increases in the Southern Interior and South Coast regions. There was limited support for speed limit increases in the Northern region. There was significant support for increases on key corridors including:

Highway Segment	Public Support for Speed Limit Increase
Hwy 5: Hope to Kamloops	77%
Hwy 97C: Aspen Grove to Peachland	81%
Hwy 99: Horseshoe Bay to Whistler	83%

Along with public consultation, over 300 speed surveys were conducted on rural numbered highways across the province. The speed surveys measured free flow speeds from which 85th percentile speeds were calculated. The 85th percentile speed represents the speed at or below which 85% of vehicles travel. It is the predominant factor used in setting speed limits in North America.

When assessing speed limits, Ministry Engineers carry out an evaluation using the Institute of Transportation Engineers (ITE) document entitled *"Speed Zone Guidelines – A Proposed Recommended Practice"*. This evaluation includes an analysis of free flow travel speeds and determination of the 85th percentile speed. Other considerations in speed limit analysis include:

- safety history,
- geometric characteristics of the highway,
- consistency of speed limits along the highway, and
- land use.

The speed surveys showed a number of rural highway corridors with 85th percentile speeds in excess of the posted speed limit, and also showed that many corridors are appropriately posted with 85th percentile speeds close to the existing speed limit.

Speed survey results on key corridors:

Highway Segment	Current Speed Limit	85th Percentile Speed
Hwy 5: Hope to Kamloops	110	127
Hwy 97C: Aspen Grove to Peachland	110	126
Hwy 99: Horseshoe Bay to Squamish	80	102
Hwy 99: Squamish to Whistler	80, 90	105

Of the 9,100 km of highway reviewed, approximately 1,300 km are recommended for a speed limit increase. The majority of recommended increases are limited to an additional 10 km/h which will bring the speed limit in line with actual travel speeds. The recommended speed limits are at or below the measured 85th percentile speeds for each corridor.

Speed Limit Change	Length of Hwy	Example
80 to 90 km/h	185 km	Hwy 99, Horseshoe Bay to Squamish
80 to 100 km/h	67 km	Hwy 3, Manning Park West to Allison Pass
90 to 100 km/h	549 km	Hwy 1, Revelstoke to Golden
100 to 110 km/h	144 km	Hwy 97C, Merritt to Aspen Grove
110 to 120 km/h	392 km	Hwy 5, Hope to Kamloops Hwy 97C, Aspen Grove to Peachland

Appropriate speed limits—set close to the 85th percentile speed—increase compliance and reduce speed differentials, thus reducing conflicts between vehicles. Safety analysis showed that serious crashes are trending downward across the province. However, adverse weather conditions on corridors such as the Coquihalla are challenging for drivers.

To improve safety in adverse weather conditions, three variable speed limit systems are recommended to be piloted for the following corridors:

Highway	Segment	Segment Length
Hwy 99	Squamish Valley Rd to Function Junction in Whistler	40 km
Hwy 5	Snowshed Hill to former Toll Plaza	24 km
Hwy 1	Malakwa Perry River Bridge to Hwy 23 Junction Revelstoke	40 km

A variable speed limit system uses a variety of sensors to measure weather, pavement condition, and traffic flow. This information is then used to determine an adjusted speed limit for the conditions.

Winter Tires

Winter weather in British Columbia can vary greatly. British Columbia's mountain passes and interior regions can experience significant winter conditions that challenge both drivers and vehicles. The Ministry posts Winter Tire signs on routes requiring winter tires or chains from October 1 through to April 30. The Motor Vehicle Act currently has a broad definition of winter tires that dates back to 1979. A review of the current definition found that while both Mud and Snow (M+S) and Mountain/Snowflake rated tires are captured by the existing legislation as winter tires, the legislation does not clearly state the requirements.

Public consultation related to winter tires found that most respondents (69%) change their tires seasonally for winter driving. Of those that do change their tires, 63% use winter tires with the Mountain/Snowflake symbol and 34% use all-season tires with the mud and snow rating (M+S). A key theme from stakeholder meetings was a desire for clarification around winter tire requirements.

New Winter Tire Sign

The only jurisdictions in North America that require winter tires with the Mountain/Snowflake symbol are Quebec and Oregon. In Oregon, these tires are only required on select mountain passes when indicated by electronic signs. Safety analysis of crashes in British Columbia showed that serious winter crashes attributed to tire condition are low and have decreased 28% between 2003 and 2012. This indicates that drivers are better prepared and public education campaigns, such as the multi-agency *Shift into Winter* campaign, are having a positive effect. Further safety analysis of collisions attributed to an icy or snowy road surface indicated that the current period of October 1 to April 30 could be adjusted to October 1 through to March 31.

Winter tire related recommendations include:

1. a legislative update to the winter tire definition,
2. an update to regulations to modernize requirements for studded tires and chains,
3. new winter tire signs to clarify requirements for winter tire and chain use and the timeframe for use,
4. increase resources to promote and improve winter safety through the multi-agency *Shift into Winter* campaign.

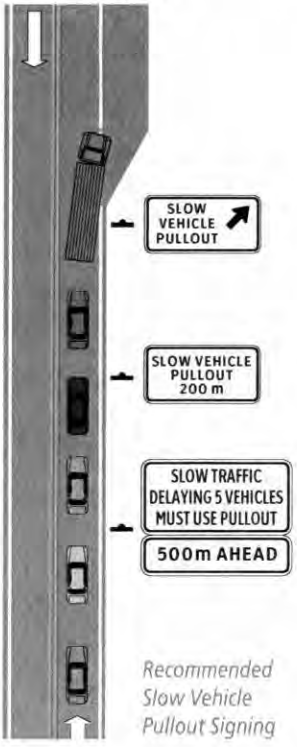
Slower Moving Vehicles

Vehicles travelling too fast, as well as vehicles travelling too slow in comparison to other traffic, can cause safety issues.

Public consultation respondents were generally divided across all regions on the degree to which slower moving vehicles were a safety concern. However, the public consultation did reveal corridor specific concerns and requests for more passing lanes, more "Keep Right Except to Pass" signs and more driver education. In particular, the Highway 4 corridor between Parksville and Tofino stood out with 70% of respondents expressing a concern with slower moving vehicles on that route.

The Ministry reviewed best practices relating to management of slower moving vehicles from other jurisdictions and developed recommendations to improve signing and pavement marking practices. Recommendations related to slower moving vehicles include:

1. improved *Keep Right* signs that emphasize that drivers need to let others pass;
2. updated passing/climbing lane pavement marking to direct drivers to the right lane (use with updated signs); and
3. pilot signs requiring *Slow Traffic Delaying 5 Vehicles Must Use Pullout* on the Highway 4, Parksville to Tofino corridor.
4. Update legislation to clarify "*Keep Right Except to Pass*" requirements.



Recommended Slow Vehicle Pullout Signing

Wildlife

Wildlife on rural highways in B.C. represents a serious potential hazard to drivers. The Ministry of Transportation and Infrastructure receives reports of approximately 5,500 wildlife collisions each year. Large animals such as bear, deer, elk and moose pose the greatest danger due to their size.

B.C. has numerous mitigation measures in place to reduce wildlife-vehicle collisions. These include exclusion systems (fencing, over and under passes, ungulate guards, etc.), roadside mowing and clearing and advisory signage.

Public consultation regarding wildlife safety indicated that participants rarely found wildlife to be a concern in the South Coast or Southern Interior, but were more likely to see a concern in the North, Central (Cariboo) and West Kootenay and Rocky Mountain areas.

Ministry wildlife collision information shows that deer, elk and moose are the animals hit most often on B.C. highways. Areas with the highest density of wildlife collisions:

Deer	Elk	Moose
Hwy 3: Fort Steel to Elko	Hwy 3: Fort Steel to Elko	Hwy 97: Dawson Creek to Fort St. John
Hwy 97: Williams Lake to Quesnel	Hwy 93: Wasa to Radium Hwy 3: Yahk to Cranbrook	Hwy 97: Prince George to Parsnip River
Hwy 97: 100 Mile House to Williams Lake	Hwy 3: Elko to Alberta Border	Hwy 97: Chetwynd to Dawson Creek

Wildlife exclusion systems, such as those found on Highway 5 (Coquihalla), Highway 97C (Okanagan Connector) and part of Highway 19 north of Parksville, are very effective at reducing wildlife collisions. However, these systems are very expensive and are most effective on limited access freeway type highways. Wildlife detection systems are experimental, but show promise. These systems detect animals near the highway and then advise drivers using activated warning signs.

To reduce wildlife crashes on B.C. highways, the following recommendations were made:

1. Implement new gateway signs for longer highway segments where there is an increased risk of encountering large wildlife.
2. Implement LED wildlife signs in specific high wildlife crash locations and flash the LEDs based on seasonal information.
3. Pilot two wildlife detection systems for Highway 3 between Fort Steele and the Alberta border.
4. Increase the use of DriveBC and changeable message signs for real-time wildlife advisory messages.

Introduction

In the fall of 2013, the Ministry of Transportation and Infrastructure (MoTI) initiated a Rural Highway Safety and Speed Review. The overarching purpose of this review is highway safety and ensuring that speed limits on rural highways are set appropriately.

The Ministry of Transportation and Infrastructure's last broad formal speed review was completed in 2003. The 2003 report identified areas where speed limits could be raised, along with some areas where speed limits should be lowered. Since 2003, the Ministry has used the principles outlined in that report to adjust speed limits around the province, including some increases on major highways, such as Highway 1. The current review builds on the work done during the 2003 review.

Since 2003, $14 billion has been invested in upgrades to most of the major highway corridors in B.C., including Highway 1, Highway 97 along the Cariboo Connector, and through the Okanagan Corridor Valley.

The following are just some of the completed safety improvements:

- 180 kilometres of new four- and six-lane sections,
- 30 new passing lanes,
- 14 new interchanges,
- 16 pullouts for slower-moving vehicles, and
- over 6,500 kilometres of rumble strips

During this period of substantial highway investment there have also been improvements in other areas of highway safety, for example:

- driver licensing/training/education,
- vehicle technology,
- enforcement of high risk activities,
  - distracted driving,
  - impaired driving,
  - aggressive driving.

In consideration of these significant changes, it was decided to review aspects of safety along longer stretches of provincial rural highways between communities in the following areas:

- **Speed Limits:** Reviewing speed limits will help ensure that everyone travelling B.C.'s highways can do so as safely and efficiently as possible.
- **Winter Tires:** Winter tires have undergone significant technological advancements in recent years, and it is time to look at the winter tire definition and the regulations around their use.
- **Slower-Moving Vehicles:** Slower-moving vehicles, such as recreational vehicles, vehicles towing others or slow vehicles in the left-hand (passing) lane, reduce the efficiency of the highway system and can cause driver frustration.
- **Wildlife Hazards:** Wildlife on the highway can pose a serious hazard to motorists in many areas of B.C., either when drivers try to avoid animals or if they strike animals.

For each of these components, the Ministry conducted public consultation to gather feedback and ideas from across the province as well as a technical analysis conducted by the Ministry's engineers.

Speed Limits on Rural Highways

Background

Speed limits are the maximum speed at which vehicles may lawfully travel along a stretch of road. They are set to promote safety and provide a balance between safety and mobility. Speed limits are set for ideal conditions—good visibility, good weather, bare and dry pavement, and an alert driver. When conditions are less than ideal, for example rain or snow, drivers are required by law to adjust their driving to the conditions, which includes reducing their travel speed.

Each driver chooses a speed with which they feel safe driving. Speed choice is based on a variety of factors:

- highway characteristics (alignment,curves, grades, width, number of intersections, etc);
- weather and environment (e.g. raining and dark vs. dry and sunny);
- traffic (volume of vehicles, level of congestion, urban vs. rural);
- vehicle characteristics (age, condition, performance);
- purpose of travel (commuting on familiar roads, vacationing, working).

Because drivers choose different speeds, a range of operating speeds results. Where drivers are unsure of an appropriate speed, large speed variations or "speed differentials" can develop. This in turn results in less consistent traffic flow, increased driver uncertainty and/or frustration and increased crash risk.

Speed limits should be set so that they include the behaviour of the majority of drivers and provide an appropriate maximum speed. The normally careful and competent actions of reasonable drivers should be considered legal. This means that travelling at the speed limit should feel that it is truly a maximum or it's not an effective limit. Setting appropriate speed limits increases speed limit compliance and reduces speed differential, resulting in reduced crash risk.

A common misconception with changes to speed limits is that if the speed limit is increased, speeds will increase as well. However, findings from past changes within B.C. as well as other jurisdictions have found that speed increases are minimal, but instead what happens is that the speed differential are reduced (i.e. there is less range in the speeds chosen by drivers). In 1996 and 1997, the Province undertook a review of provincial highway speed limits and made a number of changes. Before and after comparisons of speeds on the corridors that were changed showed that speeds increased by approximately ¼ of the change in speed limit. In other words, if the speed limit was increased from 90 km/h to 100 km/h, the increase in driver speeds would be about 2–3 km/h.

It is good practice to periodically review speed limits. Over time, changes to vehicle technology, improvements to the highway, or development can result in speed limits that are out of step with driver behaviour. The focus of this speed limit review is to examine the appropriateness of speed limits on sections of rural highway between communities. Existing reduced speed zones in cities, towns and villages are not included in this review.

Public Consultation

Public input was a key component of the Rural Highway Safety and Speed Review. Input received from public consultation along with information gained through technical analysis of highway speeds was used to recommend changes to existing speed limits. Throughout December 2013 and January 2014, open houses were held in communities throughout British Columbia to ask the public about speed limits on rural corridors. A Twitter Town Hall was held to further discussion and online feedback was sought through a website dedicated to the review.

Public input was sought on 54 corridors representing approximately 9,100 km of rural highway throughout the province. The public consultation report can be found at: Rural Highway Safety and Speed Review Consultation and Engagement Summary Report, March 2014.

Public consultation showed general support for speed limit increases on a number of highways in the South Coast and Southern Interior. Feedback received for the Northern region showed a more divided opinion on speed limits.

Table 1 – Public Consultation Results for Key Corridors in South Coast and Southern Interior

Highway Segment	Support for Increased Speed Limit
Hwy 1: Abbotsford to Hope	86%
Hwy 1: Revelstoke to Golden	61%
Hwy 3: Hope to Princeton	68%
Hwy 5: Hope to Kamloops	77%
Hwy 19: Parksville to Campbell River	57%
Hwy 97C: Peachland to Merritt	81%
Hwy 99: Horseshoe Bay to Squamish	83%

Existing Condition

Current Speed Limits in B.C.

Speed limits on provincial highways are set by the Minister of Transportation and Infrastructure through authority granted by the Motor Vehicle Act. The Motor Vehicle Act does not establish minimum or maximum speed limits other than default 50 km/h urban and 80 km/h rural statutory limits that apply when speed signs are not posted.

In rural areas, speed limits on numbered highways are typically set at either 80 km/h, 90 km/h or 100 km/h; with 100 km/h being the predominant rural speed limit. In British Columbia, the current maximum speed limit is 110 km/h. The 110 km/h speed limit is posted on the Coquihalla (Hwy 5), Okanagan Connector (Hwy 97C) and Island Highway (Hwy 19), which are rural divided freeways.

Maximum Speed Limits in Other Jurisdictions

When considering maximum speed limits, attention is often drawn to both Europe and the USA.

The practice of posting speeds higher than 110 km/h takes place in many European countries and the USA. Speed limits on rural freeways in Europe range from 90 km/h in Norway to the unrestricted speeds of parts of the German Autobahn (although an advisory speed of 130 km/h is posted). Notably, 120 km/h to 130 km/h are the most common maximum posted speeds.

Table 2 – Examples of Maximum Freeway Speed Limits in Europe

100 km/h	110 km/h	120 km/h	130 km/h	140 km/h
Norway	United Kingdom	Belgium	Austria	Poland
	Russia	Finland	France	
		Spain	Germany (advisory)	
		Switzerland	Italy	
		Sweden	Denmark	
			Netherlands	

Speed limits on rural freeways in the United States range from 90 km/h to 130 km/h with the majority of states having an upper limit of 110 to 120 km/h. After the American Federal Government lifted the mandatory 55 mph (90 km/h) legislation in November 1995 on all federal interstates, many western states posted freeways in rural areas at 75 mph (120 km/h). The nearby coastal states of Washington, Oregon and California all have maximum posted speed limits of about 110 km/h whereas states such as Idaho, Montana, and Colorado have maximum posted speed limits of 120 km/h.

Table 3 – Examples of Maximum Freeway Speed Limits in the United States

90 – 100 km/h	110 km/h	120 km/h	130 km/h	Over 130 km/h
Alaska	California	Colorado	Utah	Texas (138 km/h)
Delaware	Florida	Idaho		
Hawaii	Michigan	Montana		
	Oregon	Nevada		
	Vermont	North Dakota		
	Washington	Wyoming		

Maximum posted speed limits in Canadian provinces range from 90 km/h to 110 km/h.

Table 4 – Maximum Canadian Speed Limits

90 km/h	100 km/h	110 km/h
Prince Edward Island	Newfoundland	Nova Scotia
	Quebec	New Brunswick
	Ontario	Manitoba
		Saskatchewan
		Alberta
		British Columbia

Speed Analysis

Throughout the fall of 2013, over 300 speed surveys were conducted on rural numbered highways across the province. In addition to conducting speed surveys, historic speed data from permanent traffic count stations throughout the province was also reviewed to determine speed trends over time.

The speed surveys measured free flow speeds on rural numbered routes. From the speed survey results 85th percentile speeds were calculated. The 85th percentile speed represents the speed at or below which 85% of vehicles travel. It is the predominant factor used in setting speed limits in North America.

Because each driver chooses their own travel speed, no single number can represent all the speeds seen at a location. However, free flow speeds have been found to be normally distributed (i.e. a bell curve) which allows for relatively straightforward statistical analysis. Figure 1 shows a summary of the information collected from a single speed survey on Highway 97C, Westbound. The steepest part of the curve, between the 15th percentile and 85th percentile speeds represents the majority of drivers. The lower the speed differential, the steeper the line is as there is less difference between the 15th and 85th percentile speeds.

Most cumulative distribution curves "break" at approximately 15 percent and 85 percent of the total number of observations. Consequently, drivers in the lower 15 percent are considered to be driving unreasonably slow and those above the 85th percentile are considered to be driving unreasonably fast. Because of the curve's steep slope between the 15th and 85th percentiles, posting a lower speed limit, not close to the 85th percentile, would put a large percentage of safe drivers in violation of the law.

How Speed Limits are Set

In setting speed limits, Ministry engineers carry out an evaluation using the Institute of Transportation Engineers (ITE) document, entitled *"Speed Zone Guidelines – A Proposed Recommended Practice"*.

This evaluation recommends that speed limits be set on the basis of an engineering study that includes an analysis of the speed distribution of free flowing vehicles to determine 85th percentile speed.

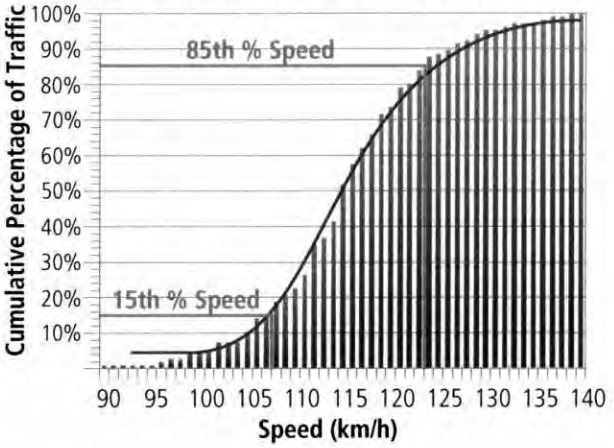
Other considerations in speed limit analysis include:

- safety history,
- geometry characteristics of the highway,
- consistency of speed limits, and
- land use.

By applying these speed limit setting guidelines, the Ministry will:

- provide consistent speed limits that reflect the 85th percentile speed,
- reduce speed differentials by having more drivers travel within the same speed range,
- aid enforcement by establishing the legal maximum speed limit.

Cumulative Speed Distribution for Highway 97C Westbound (Brake Check 18 km East of Loon Lake)



Westbound	
Total Vehicles	106
Minimum Speed	90
Maximum Speed	139
Differential	17
Average Speed	116
15th Percentile	107
85th Percentile	124

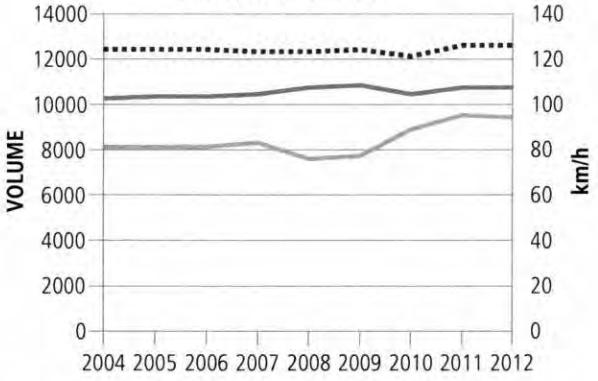
Figure 1 – Example of speed distribution from Hwy 97C Survey

Past Experience with Speed and Speed Limit Changes in B.C.

The Ministry monitors traffic volume and speeds over time at several traffic count stations throughout the province. The traffic count stations count each vehicle that passes over sensors embedded in the pavement surface. At many count stations two sets of sensors are placed in the roadway which allows vehicle speeds to be calculated.

The data from these stations provides a picture of how actual travel speeds and volumes are changing. Figures 2 and 3 illustrate two examples of annual summaries of information from traffic count stations.

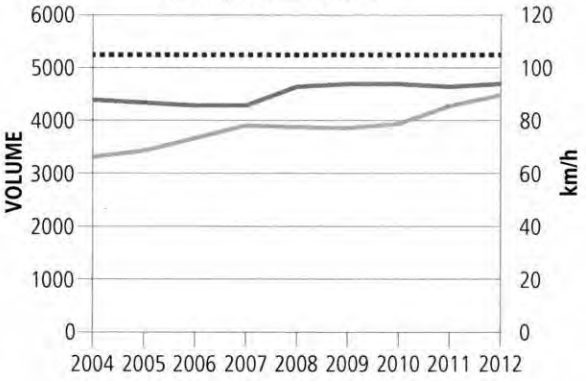
Annual Speed Highway 19
South Coast Region – Vancouver Island
0.5 km South of Buckley Bay Main Rd, Buckley Bay P-14-5NS
Posted Speed Limit 110 km/h



	2004	2005	2006	2007	2008	2009	2010	2011	2012
— AADT	8131	8118	8154	8313	7602	7735	8913	9542	9445
% Trucks	5	5	5	5	6	5	7	7	7
- - - 85 Percentile	124	124	124	123	123	124	121	126	126
— Avg Speed	103	104	104	105	108	109	105	108	108

Figure 2 – Annual Speed and Volume Information from Count Station on Highway 19

Annual Speed Highway 3
Southern Interior District – Rocky Mountain
2 km West of Alberta border, Crownest Pass P-36-1EW
Posted Speed Limit 100 km/h



	2004	2005	2006	2007	2008	2009	2010	2011	2012
— AADT	3317	3426	3672	3911	3884	3861	3937	4277	4488
% Trucks	16	16	17	17	16	16	16	16	16
- - - 85 Percentile	105	105	105	105	105	105	105	105	105
— Avg Speed	88	87	86	86	93	94	94	93	94

Figure 3 – Annual Speed and Volume Information from Count Station on Highway 3

In the graphs, the 85th percentile speed, average speed and volume (represented by Annual Average Daily Traffic, AADT) are shown over a period of 9 years. As both the Highway 19 and Highway 3 examples illustrate, vehicle speeds have remained relatively consistent over the years despite changes in the number of vehicles travelling the highway.

Although broad, province-wide speed limit reviews are infrequent; individual highway corridor reviews are common. Before and after speed survey information from corridors where the speed limit has been changed, show that operating speeds generally do not change significantly. If a change in driver speeds is observed, it is typically an increase less than 3 km/h.

One example of the kind of smaller speed limit changes the Ministry makes more regularly, occurred in 2006 on a section of Highway 1 west of Tappen.

Figure 4 – Highway 1, Balmoral Rd to Ford Rd: Extent of 2006 Speed Limit Increase

Following completion of a 4 laning project, Ministry engineers reviewed the speeds and determined that the speed limit should be increased from 90 km/h to 100 km/h. A speed survey taken in 2005 when the speed limit was 90 km/h showed an 85th percentile speed of 114 km/h. Another survey taken in 2008, after the speed limit increase to 100 km/h, showed an 85th percentile speed of 114 km/h.

Speed Surveys

Over 300 speed surveys were conducted on rural highways across the province as part of this review. The main purpose of the speed surveys was to determine the 85th percentile speed of free flowing traffic on each highway segment. The table below summarizes the 85th percentile results of speed surveys on key corridors.

Table 5 – Summary of Speed Survey Results on Key Corridors

Hwy Segment	Current Speed Limit	85th Percentile Speed from Speed Surveys
Hwy 1: Abbotsford to Hope	100	116
Hwy 1: Revelstoke to Golden	90	103
Hwy 3: Sunshine Valley to Manning Park	80,90	103
Hwy 5: Hope to Kamloops	110	127
Hwy 19: Parksville to Campbell River	110	121
Hwy 97C: Aspen Grove to Peachland	110	126
Hwy 99: Horseshoe Bay to Squamish	80	102
Hwy 99: Squamish to Whistler	80, 90	105

Highway segments through communities where there are features such as increased development, driveway access, losely spaced signals, larger numbers of pedestrians and cyclists—were not included in the review and will not be affected.

Safety Analysis

Vehicle collision data provides a picture of how safely people are driving on different highways.

As stated earlier in the speed section, the 85th percentile speed indicates the results of a drivers' speed choice based on their understanding of safe speed.

The relationship between speed and safety is complex. Research indicates that it is difficult to separate the effects of speed from other characteristics, individually and in combination, in the driving environment.

Relationship Between Speed and Safety

Speed plays an important role in road safety and the objective of establishing an appropriate speed limit is to enhance traffic safety. An appropriate speed limit increases compliance and reduces speed differentials thus reducing conflicts between vehicles.

Studies have observed that the majority of drivers choose speeds they perceive as acceptably safe and do not adhere to speed limits that appear unreasonable. Speed choice is affected by many factors such as vehicle characteristics, road environment, etc. Notably, vehicle technology and safety features have advanced considerably over the past decade. The characteristics of the modern vehicle fleet (for example, vehicle stability control and anti-lock braking) affect speed choice. As well, drivers tend to drive at higher speeds as road geometric characteristics improve which is evident in many of the newer and improved highway facilities in the province.

When there is a disparity between the posted speed limit and the speed drivers choose larger speed differentials are likely.

Where there is large speed differential, drivers are less predictable, resulting in more encounters and conflicts, more overtaking manoeuvres and more driver frustration. These changes in driver behaviour and action increase collision risk.

Research has shown that driving faster than the surrounding traffic increases the crash risk, particularly when driving faster than the average speed. In addition, roads with a higher speed differential displayed a higher crash rate compared to roads with a smaller speed differential.

Many studies have clearly documented that as travel speed increases, the risk of being in a collision and the severity of that collision also increases.

There is a perception that raising the speed limit will automatically increase travel speeds by the same amount; however this has been studied and found not to be the case.

A U.S. Federal Highway Administration (FHWA) publication, Effects of Raising and Lowering Speed Limits on Selected Roadway Sections, January 1997, analyzed speed and collision data in 22 US States at 100 sites before and after speed limits were changed. The sites included 63 rural sites, 22 small urban sites, and 15 urban sites. The study found that neither raising nor lowering the speed limit had much effect on vehicle operating speeds. "The mean speeds and the 85th percentile speeds did not change more than 1 or 2 m/h (1.6 or 3.2 km/h)". It was observed that driver compliance improved with increased speed limit. Also, there was no significant difference in crash experience when the posted speeds were altered. *"This nationwide study confirms the results of numerous other observational studies which found that the majority of motorists do not alter their speed to conform to speed limits they perceive as unreasonable for prevailing conditions".*

Washington State Department of Transportation information states that *"people don't automatically drive faster when the speed limit is raised. These are common misconceptions, along with the mistaken belief that speed limit signs will decrease the accident rate and increase safety, and highways with posted speed limits are safer than unposted highways".*

Review of the Results of BC's 1996 Speed Limit Review

Speed limits on rural provincial highways were previously reviewed in 1996. After the review, changes were implemented in 1997 and speed limits were raised on approximately 2,300 km of rural highway. Posted speed limits were increased from 90 km/h to 100 km/h on approximately 1,870 km of highway, while nearly 460 km were changed from 80 km/h to 90 km/h.

Safety analysis showed that serious collisions decreased on those highways by 18% when 5 years before and after implementation were compared. The decrease in collisions occurred during the same time traffic volumes increased by 31% in the areas studied.

Divided Highway Summer Serious Crash (Fatal & Injury) Trend

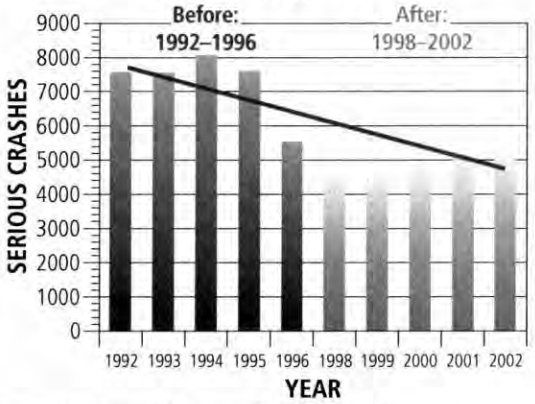


Figure 5 – Provincial Serious Collision Trend

The speed limit changes from the 1996 review do not appear to have had an adverse effect on safety.

BC Rural Highway Safety Trends

In order to gain an understanding of how safely drivers travel through B.C., data from police reported serious crashes (fatal + injury crashes) on rural highways was analyzed over a ten year period to determine safety trends by highway type.

Posted speed limits are the maximum legal driving speed for ideal road conditions. Summer best represents ideal conditions therefore the summer collision history was reviewed. For purposes of the review the summer period was defined as May through to and including September.

Divided Highways

The highest posted speeds in BC are on freeways that have at least 4 lanes with controlled access points that are limited in number, and where opposing lanes of traffic are separated by a median. These divided highways currently have a maximum posted speed limit of 110 km/h, and include the following corridors:

- **Highway 5 Coquihalla:** Hope – Kamloops
- **Highway 97C Okanagan Connector:** Merritt – Peachland
- **Highway 1 Trans-Canada:** Abbotsford – Hope
- **Highway 19 Island Highway:** Parksville – Campbell River

The summer serious collision trend from 2003–2012 for all the above corridors, is decreasing, as shown in Figure 6.

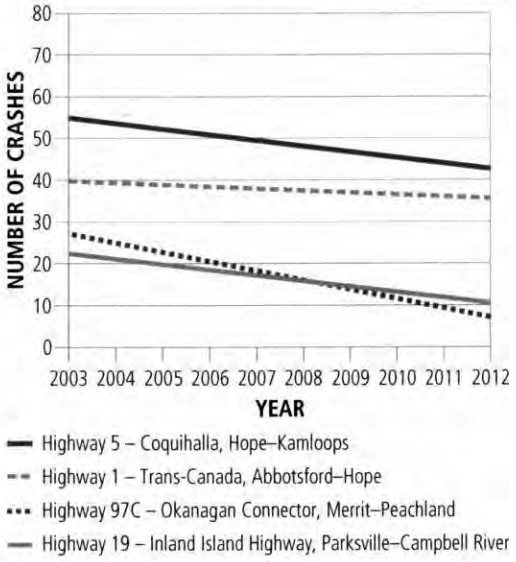


Figure 6 – Divided Highway Summer Serious Crash Trend

Serious summer collisions on the provincial numbered highway system decreased by 27% from 2003–2012. All of the divided highway corridors exceeded the provincial safety performance, except for Highway 1 Trans-Canada: Abbotsford – Hope, where the safety performance improved but to a lesser degree.

Undivided Highways

The majority of the provincial numbered highway system consists of rural undivided 2 lane highways. Undivided highways are currently posted at a maximum speed limit of 100 km/h.

Major undivided corridors are:

- Highway 1 Trans-Canada: Kamloops – Alberta Border
- Highway 97 Cariboo Connector: Cache Creek – Prince George
- Highway 16 Yellow Head: Prince Rupert – Prince George
- Highway 16 Yellow Head: Prince George – Alberta Border
- Highway 37 Stewart Cassiar: Kitimat to Alaska Border
- Highway 3 Crowsnest: Princeton to Alberta Border

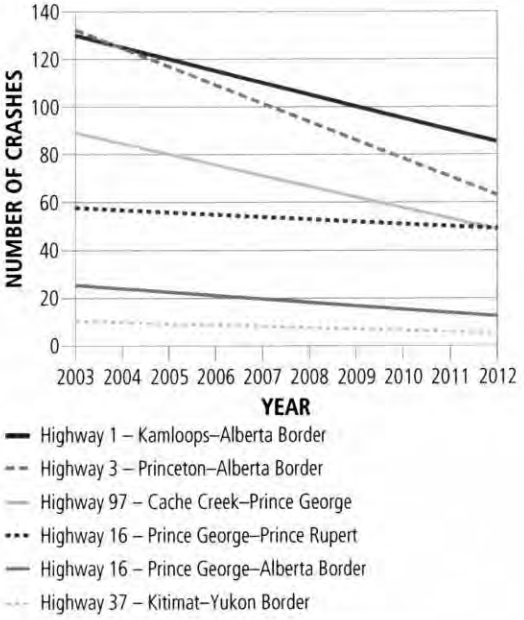


Figure 7 – Undivided Highway Summer Serious Crash Trend

Serious summer collisions on the provincial numbered highway system decreased by 27% from 2003–2012. Undivided highways in the northern region of the province showed safety performance improvements but to a lesser degree than in the south.

Highway 3 Crowsnest, Princeton to Alberta Border and Highway 97 Cariboo Connector, Cache Creek – Prince George exceeded the provincial safety performance

Highway 1 Trans-Canada, Kamloops – Alberta Border performed similarly to the provincial numbered highway system, and had a 23% decrease in summer serious collisions from 2003–2012.

The summer safety trends clearly show that safety performance has been steadily improving on rural highway corridors.

The key drivers for this safety improvement are a combination of:

- driver licensing/training/education;
- vehicle technology;
- enforcement of high risk activities:
  - distracted driving,
  - impaired driving,
  - aggressive driving.
- highway improvements

Highway Design and Vehicle Technology

Most BC highways are designed based on geometric guidelines developed between 30 and 70 years ago. Highways are designed in a conservative manner to facilitate the safe movement of vehicles assuming less than ideal conditions (smooth tires, wet pavement).

Prior to beginning a highway design, a design speed is selected and is used as guidance to determine minimum values for highway elements, such as horizontal curve radius and sight distance, during the design process. Along a corridor the majority of the highway exceeds these minimum values although through mountainous terrain there may be some highway features, such as curves, that are closer to those threshold values. In this case, the appropriate yellow warning signs would be used. Hence, the design speed does not represent the maximum safe speed of the highway. Since highway designs contain many conservative elements, vehicle operating speeds typically exceed the design speed. A posted speed limit set near the 85th percentile speed represents the maximum legal limit under ideal conditions (bare and dry pavement) and is a better indicator of a maximum safe speed than design speed.

In 2011, the American Association of State Highway and Transportation Officials (AASHTO) released an updated Design Guide revised to include design criteria based on the performance of the modern day vehicle fleet. For similar design elements, the new guidelines would generally allow for 10 km/h above the existing design speed used in BC.

Advances in vehicle technology have made modern day vehicles safer than their predecessors, made driving safer, and contributed to a downward trend in collisions. The latest research published by the National Highway Traffic Safety Administration (NHTSA) estimates that 200,000 collisions were prevented and 600 lives were saved in the United States by improvements made to the 2008 model year fleet vs. the 2000 model year fleet. Anti-lock braking and electronic stability control are just two examples of advances in vehicle safety technology that have made modern day vehicles safer. Emerging technologies such as forward collision warning/avoidance systems, lane departure warnings, automated braking, adaptive headlights, blind spot detection, and intelligent transportation systems are rapidly making vehicles and roads even safer.

Seasonal Crashes

Winter driving can be challenging in British Columbia. Mountainous terrain and large changes in elevation along a route can result in road and weather conditions that vary greatly. On high mountain routes such as the Coquihalla highway, the Snowshed Hill portion stands out for its extremely heavy, and sometimes unexpected, snowfall.

Figure 8 illustrates the impact that severe winter weather can have on safety. Although drivers are expected to adjust their speed to conditions, it can be difficult for drivers to judge what an appropriate speed is. Despite lower traffic volumes during winter, severe winter conditions contribute to increased crashes on the Snowshed Hill portion of Highway 5.

Hwy 5, Snowshed Hill
Seasonal Serious Collision Breakdown

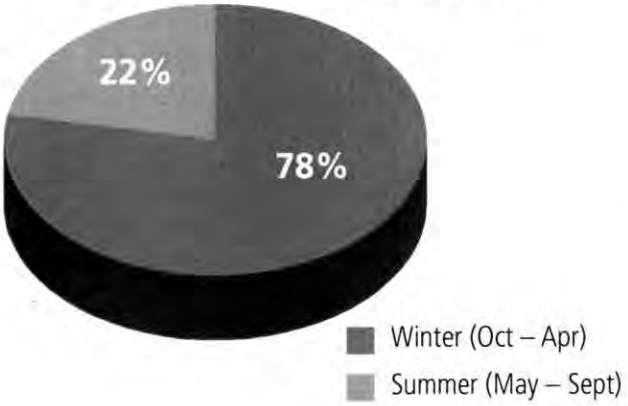


Figure 8 – Ten Years (2004–2013) of Seasonal Collision Data for Snowshed Hill on Highway 5

Variable Speed Limits

The purpose of speed limits is to inform drivers of the maximum acceptable speed under ideal road and weather conditions. However, if roadway conditions are less than ideal, such as during heavy rain, snow or black ice, regular speed limit signs may not display an appropriate speed limit for those conditions. Drivers are expected to adjust their speed to the conditions. However, even when adverse weather conditions are recognized by drivers, they may not know how much to reduce their speed.

A variable speed limit (VSL) system uses a variety of sensors that measure weather, pavement condition and traffic flow. The data from these sensors is analyzed and transmitted to a control centre where a decision is made whether the speed limit needs to be adjusted. That adjusted speed limit is then displayed on changeable LED speed limit signs. This process is repeated as conditions change so that drivers always know the appropriate speed limit. Additional variable message signs can also be used to provide alerts or information to drivers about road conditions to support and explain why they are seeing reduced speed limits on the LED speed limit signs.

The advantages of a variable speed limit system are not limited to adjusting the speed limit due to weather conditions, it can also be used to adjust speeds:

- for wildlife on the roadway,
- due to congested conditions,
- to slow traffic approaching a crash scene,
- for speed management in work zones

Several U.S. States have installed various types of VSL systems to respond to adverse weather conditions:

- **Washington State:** through Snoqualmie Pass, I-90
  - Semi-automated system based on feedback from weather stations, snow plow operators and State Patrol. Computer recommends a speed which is then checked by an operator.
- **Colorado:** several VSL systems on I-70
  - Speed limits are manually reduced from 65 mph to 55 mph when chain laws are in effect.
- **Wyoming:** along I-80 between Laramie and Rawlins (Elk Mountain corridor)
  - Manually adjust speeds based on feedback from police or maintenance personnel and measurements of vehicle speeds (average speed plus 5 mph).
- **Oregon:** currently in the process of implementing several VSL systems to manage speeds in response to congestion, adverse weather conditions, or both.
  - Systems will be fully automated using traffic and weather sensors to calculate the speed limit (can be overridden by an operator if necessary).
- **Utah:** through Parleys Canyon on I-80
  - System is semi-automated (operators are given suggested speed limit from automatic system, but make final decision) based primarily on real-time 85th percentile speeds and chain-up requirements/ advisories.

Variable speed limit systems are a relatively new technology and few systems are more than 2–3 years old. However, initial results from jurisdictions with variable speed limit systems show positive safety results.

Many highways in British Columbia pass through more than one climatic zone and/or experience significant changes in elevation that can result in vast differences in weather along the corridor. Maximum speed limits are applicable under idea road and weather conditions, hence drivers are expected to adjust their driving when conditions are less than ideal. However, an appropriate adjusted speed is not necessarily apparent. Variable speed limit systems will improve safety in adverse weather conditions.

Speed Recommendations

A technical team undertook an assessment of each corridor to evaluate engineering criteria including free flow travel speeds and the 85th percentile speed, as well as safety experience, geometric charcteristics, and land use. This was combined with the public consultation results to identify the sections that are recommended for increase.

Prevailing travel speeds were measured and it was found that the 85th percentile speed on these highways is upwards of 10 km/h above the speed limit. There is a close correlation between the 85th percentile speeds and public support for speed limit increases.

Serious crashes are also trending down significantly on provincial highways—26% decrease since 2003. This is attributed to:

- vehicle technology and safety features;
- targeted and strategic enforcement;
- increased penalties and driver education; and
- $14B investment in highway upgrades since 2003.

Public Consultation showed there was strong support to increase speed limits on a number of highways in the South Coast and Southern Interior. There was less support for speed limit increases in the North.

Recommendation 1:

Increase speed limits where supported by the 85th percentile speed and public consultation.

Approximately 9,100 km of rural highway were reviewed, of which about 1,300 km are recommended for increase.

- Rural divided freeways will have a maximum posted speed limit up to 120 km/h.
- Rural undivided highways will have their speed limits normalized for corridor consistency up to 100 km/h, with some sustained 4-lane sections up to 110 km/h.

The table on the following page provides a summary of speed limit changes. For full details on each highway segment, refer to Appendix A.

Speed Limit Change	Length of Highway	Example
from 80 to 90 km/h	185 km	Hwy 99 – Horseshoe Bay to Squamish
from 80 to 100 km/h	67 km	Hwy 3 – Manning Park West Gate to Allison Pass
from 90 to 100 km/h	549 km	Hwy 1 – Revelstoke to Golden
from 100 to 110 km/h	144 km	Hwy 97C – Merritt to Aspen Grove
from 110 to 120 km/h	392 km	Hwy 5 – Hope to Kamloops Hwy 19 – Parksville to Campbell River

Existing reduced speed limits in cities, towns and villages will not be changed.

Recommendation 2:

Implement 3 Variable Speed Limit Systems.

Variable speed limits are an emerging safety technology using changeable LED signs where speed limits are adjusted, based on road conditions.

Highway	Segment	Length	Cost
Hwy 99	Squamish Valley Rd to Function Junction	40 km	$3.0M
Hwy 5	Snowshed Hill to old Toll Plaza	24 km	$4.0M
Hwy 1	Malakwa Perry River Bridge to Hwy 23 Junction Revelstoke	40 km	$4.0M

Recommendation 3:

Consult on an additional 550 km of secondary highway identified through the technical review as potential candidates for change. Additional highways, for further assessment, are summarized in Appendix B.

Highway Description	Length of Change (km)	Speed Limit	
		Existing	New
Hwy 1, Victoria to Nanaimo Three sections between Bench Road and Nanaimo River Bridge	9	80, 90	90
Hwy 1, Abbotsford to Hope Whatcom Rd (Exit 95) to Junction with Highway 3 (Exit 170)	74	100	110
Hwy 1, Hope to Cache Creek 1 km east of the Lake of the Woods Rest Area to 1.2 km west of the Highway Maintenance Yard in Boston Bar	55	80, 90	100
420 m east of Northbend Ferry road to 820 m east of Falls Creek	24	90	100
Hwy 1, Cache Creek to Kamloops Six Mile Rest Area to Savona Station Rd	12	90	100
Hwy 1, Kamloops to Salmon Arm Willow Rd (5 km East) to Hilltop Rd (Excluding 60 km/h through Sorrento)	25	90	100
Hwy 1, Salmon Arm to Golden Canoe (70th St NE) to Revelstoke (Highway 23S) (Excluding existing 60 km/h through Sicamous)	58	90, 100	100
Revelstoke (Highway 23N) to Golden (Anderson Rd) Excluding Parks Canada Section	101	90	100
Hwy 3, Hope to Princeton Start of Highway 3 (Exit 170) to Junction with Highway 5 Coquihalla (Exit 177)	7	100	110
End of 4 Lane (1.2 km West of Manning Park West Gate) to 500 m East of Allison Pass Highway Maintenance Yard	33	80, 90	100
Sunday Summit to Whipsaw Creek	22	80	90
Hwy 5, Hope to Kamloops Junction with Highway 3 Coquihalla (Exit 177) to 500 m south of the Variable Message Sign	4	100	110
Othello Rd to Junction Hwy 1	200	110	120
Hwy 5, Kamloops to Tête Jaune Cache Tod Mountain Rd to Junction Hwy 24 (Excluding 60 km/h through Barriere)	67	90	100
Hwy 5A, Princeton to Merritt Old Hedley Rd to Hwy 97C Junction (excluding existing 70 km/h through Aspen Grove)	36	80	90
Hwy 6, Nelson to Nakusp Golf Course Rd (North of New Denver) to Purdy Rd (North of Hills) (Excluding 70 km/h through Hills)	15	80	90
Purdy Rd (North of Hills) to Upper Brouse Rd (Nakusp)	22	90	100
Hwy 7, Mission to Hope Pullout West of Haigh Scale to Junction with Hwy 1	5	90, 100	100
Hwy 19, Nanaimo to Campbell River 1 km north of Parksville Exit/Weigh Scale to 300 m south of Willis Road	114	110	120

Highway Description	Length of Change (km)	Speed Limit	
		Existing	New
Hwy 19, Campbell River to Port Hardy			
200 m north of Duncan Bay Road to 500 m north of Mohun Creek Bridge	10	80	90
500 m north of Mohun Creek Bridge to Gentry Road	44	90	100
Cluxewe Bridge to Douglas Street	25	80, 90	100
Hwy 33, Rock Creek to Kelowna			
South of Gallagher Rd to McCulloch Rd	32	90	100
1 km North of Junction with Hwy 3 to 1km south of Christian Valley Rd	12	90	100
Hwy 97, Cache Creek to Williams Lake			
1 km North of Willow Drive (70 Mile House) to BCR Overpass (100 Mile House)	37	100	110
Hwy 97, Kelowna to Vernon *pending median barrier assessment			
Gatzke Rd (North of Oyama) to College Way (South of Vernon)	16	90	100
Hwy 97, Vernon to Kamloops			
Junction Hwy 97A (Swan Lake) to Westside Rd	6	80	90
Hwy 97A, Vernon to Sicamous			
North of Smith Drive to Hwy 97B Junction (Excluding 50 km/h through Enderby)	18	90	100
Junction with Hwy 97B to Sicamous Creek Bridge (Excluding 50 km/h through Grindrod)	33	80	90
Hwy 97C, Merritt to Peachland			
Junction with Hwy 5 Coquihalla (Coldwater Interchange) to Junction with Hwy 5A (Aspen Grove)	22	100	110
Junction with Hwy 5A (Aspen Grove) to Junction with Hwy 97 (Drought Hill Interchange)	78	110	120
Hwy 99, North Vancouver to Whistler			
Eagle Ridge Interchange to 150 m South of the Stawamus River Bridge	35	80	90
400 m North of Depot Rd to Alta Lake Rd	45	80, 90	100
Hwy 99, Whistler to Cache Creek			
400 m South of Whistler Heliport Rd to Pemberton Boundary	21	80	90
1.4 km North of Lime Plant to Hwy 97 Junction	22	90	100

From/To: **Squamish Valley Rd to Function Junction**

System Length: ..... **40 km**

Elevation Range: ..... **145 m to 600 m**

Corridor Characteristics: **2 lane undivided highway with passing lanes**

Existing Speed Limit ..... **.80 and 90 km/h**

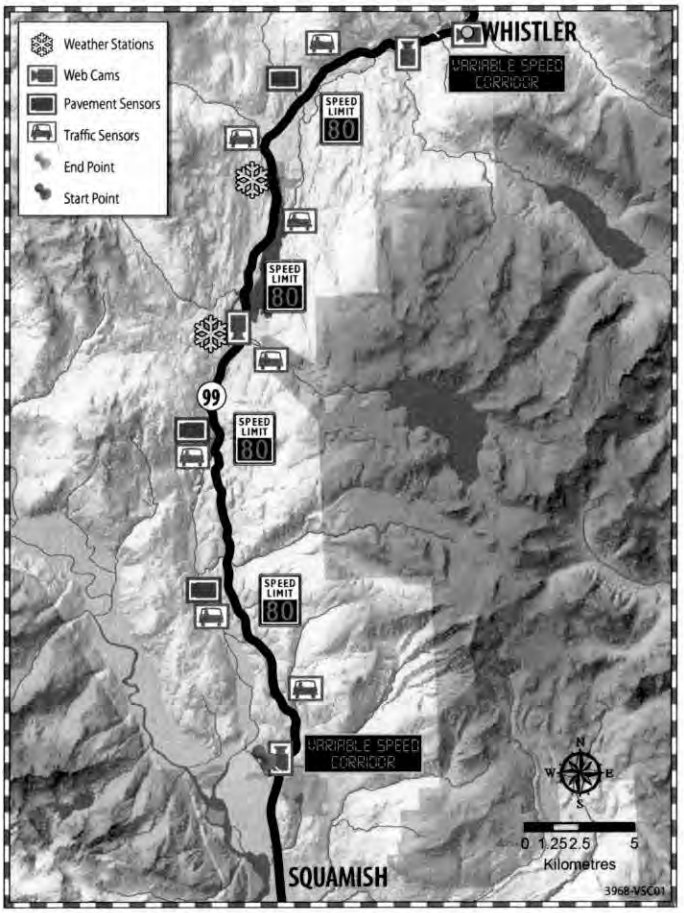
Existing Infrastructure:

- 2 road weather stations (Brandywine and Tantalus)
- 2 web cameras (Alice Lake and Garibaldi)
- 2 overhead variable message signs (one Northbound leaving Squamish and one Southbound leaving Whistler)

Infrastructure Needed:

- 8 pavement condition sensor stations
- 18 traffic sensor stations
- 18 variable speed signs

Anticipated Cost (planning level estimate): **$3 M**



Description

The Sea to Sky corridor is a 100 km long winding route between the mountains and ocean connecting Vancouver to Whistler. From near sea level in Squamish to an elevation of 675 m in Whistler, the highway climbs upward and winter weather can set in, surprising travellers who began their journey in good conditions. Conditions between Squamish and Whistler can vary greatly as the highway climbs upward and away from the moderating influence of the ocean.

The section of highway between Squamish and Whistler currently has two road weather stations, two web cams and two variable message signs.

A variable speed limit system between Squamish and Whistler will improve safety and mobility throughout the corridor and maintain smooth flow during unfavourable weather conditions by notifying drivers of adverse weather and road conditions. Even when adverse weather conditions are detected by drivers, knowing a safe operating speed for conditions is not always apparent. Besides weather conditions, the variable speed limit system can be used to adjust speeds for wildlife on the roadway, special events, to slow traffic approaching a crash scene, or for congestion.

Traffic and pavement sensors between Squamish and Whistler will monitor real-time traffic speeds and road conditions to provide information back to operatons staff. This information will then be used to proactively update electronic speed limit signs located along the corridor. A senior district official would have final decision making ability in modifying speed limits, but will be advised in that decision by the information provided by the road weather information stations (air temperature, wind speed and direction, and precipitation information), traffic sensors (vehicle speed information), and pavement sensors (roadway friction, visibility, and condition of the road surface).

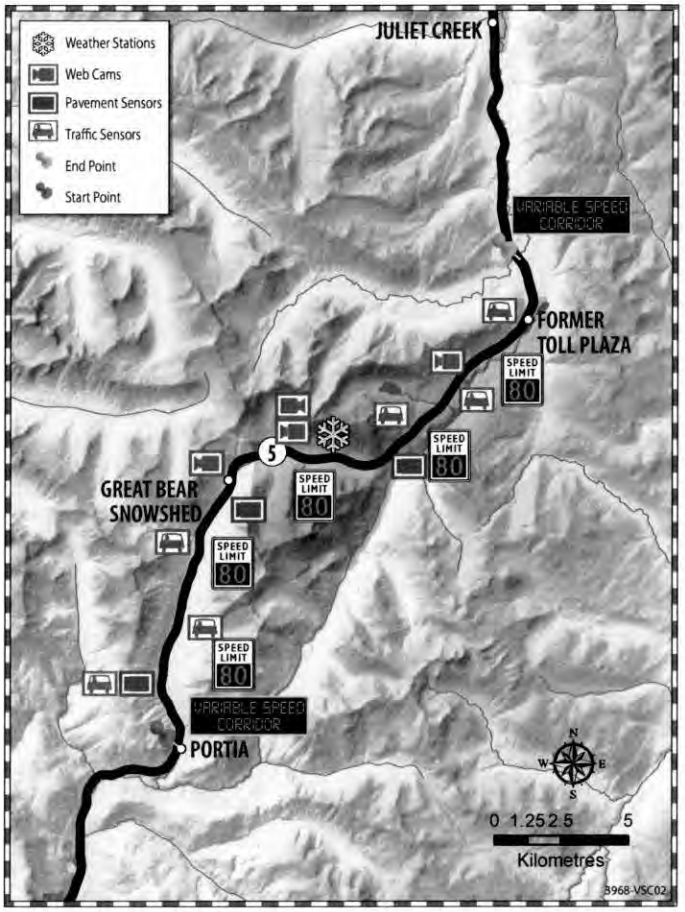
From-To: **Portia Interchange to former Toll Plaza**
System Length: . . . . . **24 km**
Elevation Range: . . . . . **590 m to 1230 m**
Corridor Characteristics: **4 divided lane freeway**
Existing Speed Limit: . . . . . **110 km/h**
Existing Infrastructure:

- 1 weather station at Coquihalla Summit (limited instrumentation)
- 4 web cameras (Great Bear Snowshed, 2 cams at Zopkios, Coquihalla Lakes)
- 1 Southbound variable message sign just north of former toll plaza location

Infrastructure Needed:

- 8 pavement condition sensor stations
- 12 traffic sensor stations
- 24 variable speed signs
- 1 variable message sign
- Upgrades to the existing Coquihalla Summit weather station

Anticipated Cost (planning level estimate): **$4 M**



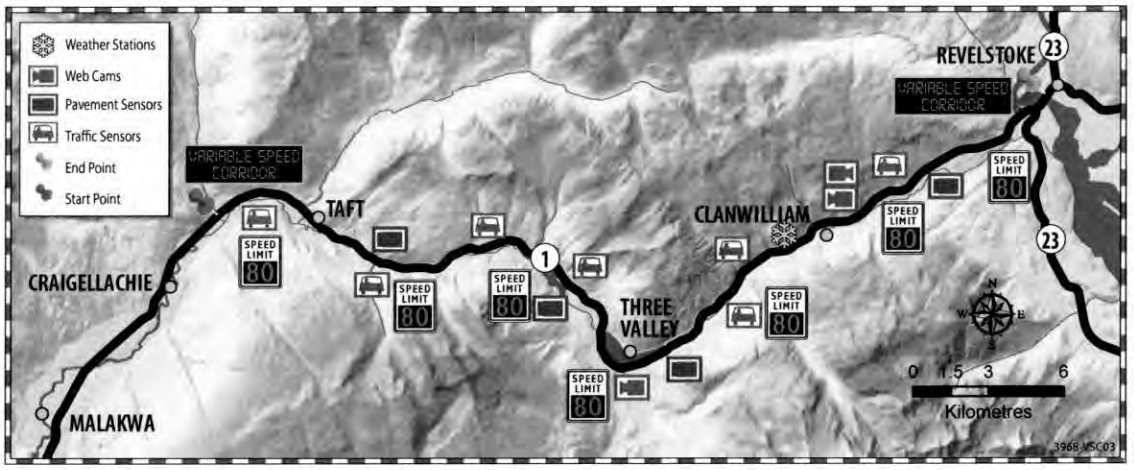
Description

The Coquihalla corridor is a 185 km long mountain highway connecting the south coast to the interior of British Columbia. The Coquihalla rises from an elevation of 250 m at the Nicolum interchange (outside Hope) to a peak of 1230 m at the Coquihalla Summit before descending to 750 m at the Highway 1 junction west of Kamloops. Due to the large elevation changes along the corridor, weather conditions can vary greatly. Along this route, the summit section from the Portia Interchange, through the Great Bear snowshed and up to the former Toll Plaza location presents the most challenging road conditions with heavy snowfall, blowing snow, and fog.

The section of highway between the Portia interchange and former Toll Plaza currently has one weather station at highway elevation, four web cams and one variable message sign.

A variable speed limit system for the Coquihalla will improve safety and mobility throughout the corridor and maintain smooth flow during unfavourable weather conditions by notifying drivers of adverse weather and road conditions. Even when adverse weather conditions are detected by drivers, knowing a safe operating speed for conditions is not always apparent.

Traffic and pavement sensors will monitor real-time traffic speeds and road conditions to provide information back to operations staff. This information will then be used to proactively update electronic speed limit signs located along the corridor. A senior district official would have final decision making ability in modifying speed limits, but will be advised in that decision by the information provided by the road weather information stations (air temperature and precipitation information), traffic sensors (vehicle speed information), and pavement sensors (roadway friction, visibility, and condition of the road surface).



From-To: **Perry Creek Bridge to Highway 23 junction**
System Length: ..... **40 km**
Elevation Range: ..... **385 m to 570 m**
Corridor Characteristics: **2 lane undivided highway with passing sections**
Existing Speed Limit: ..... **90 and 100 km/h**
Existing Infrastructure:

- 1 road weather station (Clanwilliam)
- 3 web cameras (3 Valley Gap, 2 web cams at Clanwilliam Railway Overpass)
- 1 Westbound variable message sign at Highway 23 junction

Infrastructure Needed:

- 8 pavement condition sensor stations
- 18 traffic sensor stations
- 18 variable speed signs
- 1 variable message sign

Anticipated Cost (planning level estimate): **$4 M**

Description

The Highway 1 corridor between Sicamous and Revelstoke is a 70 km long highway connecting the coast and interior of British Columbia to the rest of Canada. This corridor is a key component of the British Columbia economy as the major east-west connector for goods movement. This portion of highway includes challenging terrain subject to heavy snowfall and natural hazards including slope stability issues and snow avalanches. The Three Valley Gap area, located approximately 20 km west of Revelstoke, is one of the most challenging avalanche areas in the province and consists of eight avalanche paths within a 1 km section of highway.

The section of highway between the Perry Creek Bridge and Highway 23 junction currently has one road weather station, three web cams and one variable message sign in place.

A variable speed limit system for the Highway 1 corridor between Sicamous and Revelstoke will improve safety and mobility throughout the corridor and maintain smooth flow during unfavorable weather conditions by notifying drivers of adverse weather and road conditions. Even when adverse weather conditions are detected by drivers, knowing a safe operating speed for conditions is not always apparent. Besides weather conditions, the variable speed limit system could also be used to adjust speeds for wildlife on the roadway, special events, to slow traffic approaching a crash scene or for congestion.

Traffic and pavement sensors will monitor real-time traffic speeds and road conditions to provide information back to operations staff. This information will then be used to proactively update electronic speed limit signs located along the corridor. A senior district official would have final decision making ability in modifying speed limits, but will be advised in that decision by the information provided by the road weather information stations (air temperature and precipitation information), traffic sensors (vehicle speed information), and pavement sensors (roadway friction, visibility, and condition of the road surface).

Winter Tires

Background

British Columbia's mountain passes and interior regions can experience significant winter conditions that challenge both drivers and vehicles. The Ministry posts Winter Tire signs on routes requiring winter tires or chains during the time period October 1 through to 30 April. Vehicles not equipped with winter tires or carrying chains are prohibited from travelling past the signs.

Winter tires are not mandatory province-wide in B.C., and as more than 60% of the population lives in areas where snow conditions are not common, province-wide mandatory winter tires are not being recommended.

The Motor Vehicle Act (Section 208) currently has a broad definition of a winter tire dating back to 1979. Currently, a winter tire is defined as a tire that is represented by its manufacturer or tire retailer as a tire intended principally for winter use and that provides adequate traction in snow or mud. The Act also recognizes that winter tires must be in good condition, with a minimum tread depth of 3.5 millimetres.

Advances in tire technology have resulted in various tires having the characteristics to meet the winter tire definition. The variety of tire types has raised questions from the public as to what is considered a winter tire.

A review of the current definition found that both Mud and Snow (M+S) and Mountain/Snowflake rated tires are captured by the existing legislation, but not explicitly stated.

Differences between M+S tires and Mountain/Snowflake Rated Tires

M+S The Mud and Snow (M+S) designation was developed by the American Rubber Manufacturers Association to differentiate the geometry of tread patterns on tires. The M+S designation represents a tread pattern whose grooves were carried from the centre of the tire to "daylight" at the edge of the tire and where 25% of the tire tread contact surface is open. That tread pattern improves traction in both rain and snow in comparison to tires with a longitudinal tread pattern as found on a summer tire. Most All Season tires carry the M+S designation.

In the 1990s, Mountain/ Snowflake rated tires were developed for improved performance in winter conditions. In order for a tire to earn a Mountain/Snowflake designation it must have the following characteristics:

- Provide traction at least 10% greater than the standard reference tire (M+S tire).
- Softer and pliable in lower temperatures (less than 7°C) as well as improving traction on ice

Because the winter mountain/snowflake tire test is a cumulative score in varied snow surface conditions (Soft Pack Snow, Medium Pack Snow, Medium Hard Pack Snow, Hard Pack Snow, and Ice) the 10% improvement may not indicate a superior winter tire for all winter surface conditions. With only a 10% improvement required, a tested tire might excel on one surface type but show no difference than an M+S rated tire for another surface but will still achieve the 10% improvement overall. That being said there are mountain/ snowflake tires which exceed the standard by substantially more than 10%.

Best Practices Review for Winter Tires

A review of other jurisdictions, both in North America and Europe, where winter driving is common, found that winter tire/chain regulations vary widely and no consistent theme emerged. Of all jurisdictions surveyed, only Quebec and Oregon require Mountain/Snowflake rated tires with Oregon only requiring them when indicated by a dynamic sign on specific mountain passes. Oregon's approach requires significant police participation during storm events.

The review also found that other jurisdictions allow for more types of studded tires, tire chains, as well as other types of traction devices as alternatives to chains.

Safety Analysis

Winter crashes attributed to tire condition were reviewed for the time period 2003-2012. The results show that serious winter crashes attributed to tire condition have decreased 28%.

This decrease in tire condition related crashes indicates that drivers who do venture onto highways with winter conditions are better prepared and/or those who are not well prepared are choosing not to travel when conditions are poor. Public education campaigns focused on the need for vehicle and driver preparedness, such as the multi-agency "Shift Into Winter," along with highway condition messaging through DriveBC are having a positive safety effect.

Further safety analysis was conducted as to the appropriateness of the start and end dates for winter tire usage. Collisions which the police attributed to ice, slush, or snow on the road surface were tabulated per month over the 10 year period 2003-2012. The data indicated which months experienced substantial change in serious collisions. This analysis indicates that the current winter tire time period of October 1 through to 30 April could be adjusted to October 1 through to 31 March.

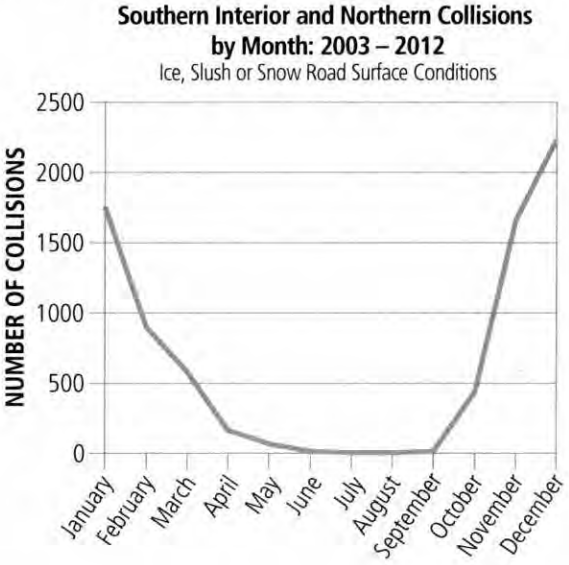


Figure 9: Ice, Slush or Snow Road Surface Condition Crashes

Public Consultation

The public consultation occurring through the winter of 2013/14, found that most respondents:

- Agree with the current October 1 to April 30 winter tire time period (68%)
- Change their tires seasonally for winter driving (69%)
- Use tires with the mountain snowflake symbol (63%)

A key theme from stakeholder meetings and a topic that arises in frequent questions from the public each fall is a desire for clarification of the winter tire definition and winter tire and chain requirements indicated on the signs.

Signs

The existing winter tire sign was found to be unclear as to requirements by vehicle type. To address these concerns and provide a clearer message a new winter tire sign was developed.

Existing Sign

New sign

Figure 10: Current vs. Recommended Winter Tire Signage

Winter Tire Recommendations

1. Update Legislative definition of winter tires:
   - Move from legislation to regulation to allow minister to set requirements as technology changes;
   - Current winter tire definition ***"advertised or represented by its manufacturer or a person in the business of selling tires to be a tire intended principally for winter use, and that provides, or is designed to provide, adequate traction in snow or mud"***;
   - Proposed winter tire definition *"a winter tire must be permanently labeled with the words "**mud and snow**" or any contraction using the letters "**M**" and "**S**"; or the **mountain/snowflake** symbol".*
2. Update Regulations to modernize requirements for studded tires and chains to reflect new technology:
   - Revise number and type of studs per tire;
   - Include new types of chains in the definition.
3. Install new winter tire signs to clarify the requirements for winter tires and chains; and the timeframe for use.
   - Safety statistics show that April has very low number of winter condition related accidents.
4. Increase available resources to promote and improve winter safety through the multi-agency Shift into Winter campaign.

Slower Moving Vehicles

Background

Just as vehicles travelling too fast can cause safety issues on highways, so too can vehicles travelling too slow in comparison to other traffic. Slower-moving vehicles, such as recreational vehicles, vehicles towing others, or slow vehicles in the left-hand lane, reduce efficiency of a highway and increase driver frustration, which can result in erratic, unsafe passing behaviour.

There are various ways of ensuring the safety of all road users around slower vehicles while improving the efficiency of the highway. These measures include: signage directing slower vehicles to keep right on highways with two or more lanes, passing lanes at certain points on two-lane highways (and signs in advance of passing lanes) and pullouts where feasible.

Public Consultation

Throughout the fall and winter of 2013/14, public input was sought on 54 corridors representing approximately 9,100 km of rural highway throughout the province. For each corridor, the public was asked to indicate the degree to which they thought slower moving vehicles were a safety concern.

Public consultation found that people were generally divided across all regions on the degree that slower moving vehicles were a safety concern. The exception was the Highway 4, Parksville to Tofino corridor for which 70% of respondents expressed a slower moving vehicle concern.

Overall, there were requests for:

- more passing lanes,
- more "Keep Right Except to Pass" signs, and
- more driver education.

Slower Moving Vehicle Analysis

The B.C. Motor Vehicle Act (Sections 145 and 150) contains information about both slow driving and driving in the right hand lane. Legislation currently requires that "a person must not drive a motor vehicle at so slow a speed as to impede or block the normal and reasonable movement of traffic" and that "the driver of a vehicle proceeding at less than normal speed of traffic at the time and place and under the conditions then existing must drive the vehicle in the right hand lane". However many drivers do not consider themselves to be slow moving so long as they are travelling at or near the speed limit. Where speed limits are lower than the normal travel speed (i.e. less than the 85th percentile speed), this creates conflict and frustration among the reasonable majority of drivers and those who strictly obey the posted speed limit.

Best Practices Other Jurisdictions

Analysis of legislation from other jurisdictions (all Canadian provinces, 11 US states, United Kingdom, New Zealand and Australia), shows that B.C. laws are largely consistent with other jurisdictions on use of the right lane and slower vehicles. While some jurisdictions such as Ontario, Alberta, Washington, Australia, and New Zealand have more detailed laws on lane use when using a multi-lane roadway, their essence is the same.

A number of other jurisdictions restrict trucks from the left/passing lane. BC also currently has the capability to restrict the type of vehicle that is allowed in a lane however the use of these restrictions has been limited to areas where there have been clearly identified operational needs.

Signs

Currently, the Ministry uses a variety of signs to tell drivers to leave the left lane free for those who are travelling faster and wish to pass. However, "left lane campers" (drivers who travel continuously in the left lane despite travelling a relatively slow speed compared to others around them), are a commonly reported source of frustration. These drivers often do not recognize that they are an impediment or that they are contributing to an increased crash risk for themselves and those around them.

Another phenomena that has been observed are drivers that choose a very slow speed through winding sections of the highway and then speed up when the highway straightens out and passing is allowed. This behaviour limits other drivers' opportunities to pass, and increases those drivers' frustration.

Updating "Keep Right" signs that emphasize that drivers should keep right to let others pass may assist in improving driver behaviour.

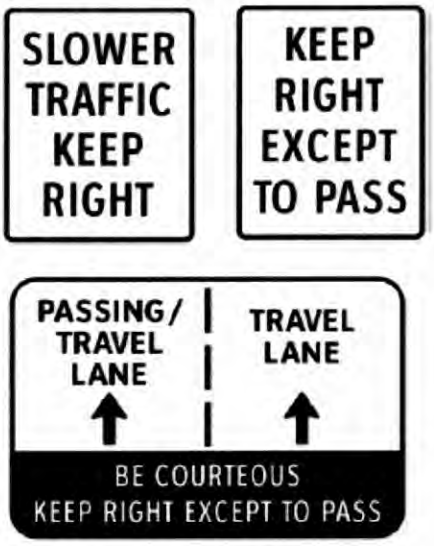


Figure 11 – Existing B.C. Signs for slower vehicles

Updated signs would be applied at the beginning of passing/ climbing lanes or where a multi-lane highway develops. The existing "Keep Right Except to Pass" signs would remain as a reminder to keep right, while other less direct signage such as "Slower Traffic Keep Right" would be discontinued over time as signs wear out.

Figure 12 – Updated Keep Right Sign

Pavement Marking

Passing opportunities are often limited due to the province's mountainous terrain. As part of recent highway upgrades, there have been 30 new passing lanes built, allowing drivers to safely pass slower moving vehicles. Construction of passing and climbing lanes is a costly but effective way to improve rural highway safety and mobility, and more passing lanes are planned for construction.

Currently, when a climbing or passing lane starts, there are no pavement markings used in B.C. to specifically direct drivers into the right hand lane. Other jurisdictions, including national pavement marking guidance from the Transportation Association of Canada, include a dashed continuity line at the beginning of passing lane to direct drivers into the right hand lane. When used with complimentary signs, such as the updated signage shown in Figure 12, these pavement markings will help enforce the "Keep Right Except to Pass" message.

Slower Traffic Using Pullouts

Due to BC's geography there are numerous two lane highways with limited passing opportunities. It is not uncommon for vehicles to form platoons behind slower moving vehicles. Current legislation states that *"A person must not drive a motor vehicle at so slow a speed as to impede or block the normal and reasonable movement of traffic"* (MVA, Sec 145 (1)). However, it does explicitly define how many vehicles need to be in the queue before the slow moving vehicle driver takes action.

Legislation is currently enacted in other West Coast jurisdictions such as Washington, Oregon and California defining when a slower moving vehicle needs to pull over. Legislation in Washington State requires that:
"On a two lane highway where passing is unsafe... a slow-moving vehicle, behind which five or more vehicles are formed in a line, shall turn off the roadway wherever sufficient area for a safe turn-out exists, in order to permit the vehicles following to proceed".

Figure 13 – Example Sign for Slow Vehicle Pullouts (Alaska)

The benefits of this type of requirement are:

- decreased delay and travel time;
- improved safety, as drivers are not tempted to pass when not safe;
- reduced driver frustration;
- drivers provided with clear indication of when they are considered to be impeding traffic; and
- increased awareness of the need to be courteous and allow vehicles to pass

Requiring slower moving vehicles to pull over and allow following vehicles to pass would be particularly beneficial in locations where there is a diverse mix of traffic and travel purposes.

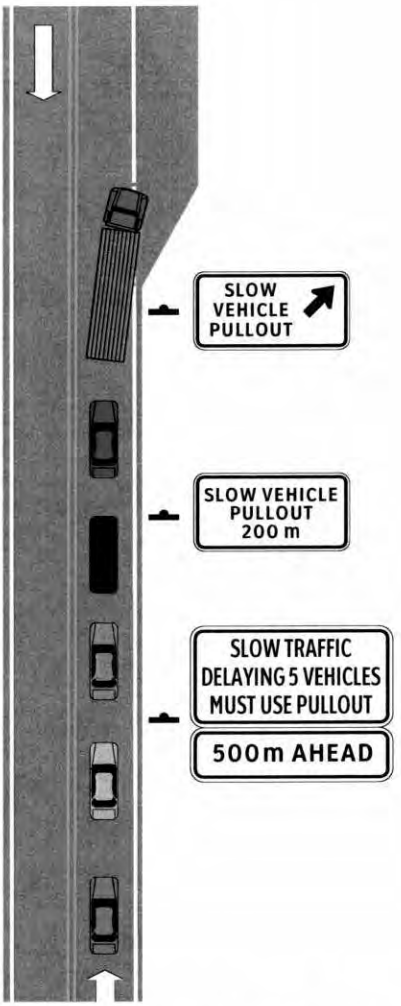


Figure 14 – Recommended Slow Vehicle Pullout Signing

Slower-Moving Vehicles Recommendations

The Public Consultation found that people were generally divided across all regions on the degree that slower-moving vehicles were a safety concern.

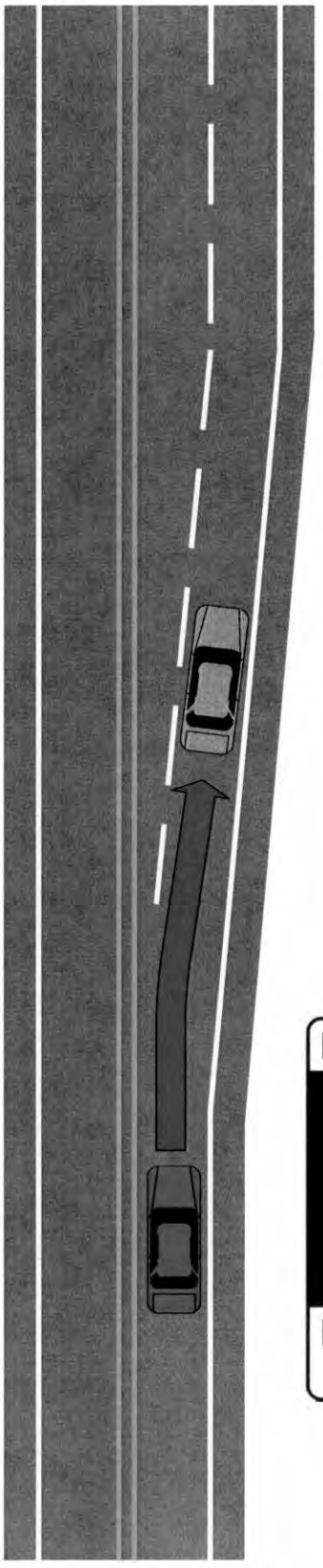
The exception was Hwy 4 Parksville to Tofino for which 70% of respondents expressed a slower-moving vehicle concern.

Overall there were requests for:

- more passing lanes,
- more "Keep Right Except to Pass" signs,
- more driver education.

Recommendations

1. Better **Keep Right** signs that emphasizes that drivers should keep right to let others pass.
2. Update passing/climbing lane marking to direct drivers to the right lane, and use updated signs.
3. Pilot **Slow Traffic Delaying 5 Vehicles Must Use Pullout** on Hwy 4 Parksville to Tofino.
4. Update Motor Vehicle Act to clarify **"Keep Right Except to Pass"** requirements.



Wildlife

Background

Wildlife on rural highways in B.C. represents a serious potential hazard to drivers.

The Ministry of Transportation and Infrastructure receives reports of approximately 5,500 wildlife collisions each year. Large animals, such as bear, deer, elk and moose, pose the greatest danger, due to their size. Each year throughout the province, there are on average, five fatalities and over 400 people are injured in wildlife-related motor vehicle collisions. Of these, three fatalities and approximately 300 injuries per year occur on rural highways. As wildlife collisions are reduced, not only are travellers saved, but so is B.C.'s wildlife.

There are various ways to reduce collisions between vehicles and wildlife, and there are a number of these mitigation measures in place on B.C. highways, including exclusion systems (fencing, over and under passes, gates, ungulate guards, etc.), roadside mowing and clearing, and advisory signage.

Public Consultation

Many participants indicated rarely or never finding wildlife as a concern in the:

- Lower Mainland,
- Okanagan,
- Trans-Canada/Coquihalla, and
- Vancouver Island.

Participants that felt somewhat more likely to find wildlife to be a safety concern in the:

- North,
- Central (Cariboo), and
- West Kootenay and Rocky Mountain areas.

Wildlife Collision Analysis

To identify and monitor areas where wildlife crashes occur, the Ministry has been operating a Wildlife Accident Reporting System (WARS) since the late 1970's. Species and location information is collected on "roadkilled" wildlife found along numbered provincial highways. Since regular vehicle collision reporting relies on police reports, and police do not always attend wildlife crashes, the WARS database provides a more complete picture of wildlife safety on B.C. highways.

Collision information shows that deer, elk and moose are the animals hit most often on B.C. highways. The areas in the province with the highest deer, elk and moose collision density are listed in Table 6:

Deer	Elk	Moose
Hwy 3: Fort Steele to Elko	Hwy 3: Fort Steele to Elko	Hwy 97: Dawson Creek to Fort St. John
Hwy 97: Williams Lake to Quesnel	Hwy 93: Wasa to Radium Hwy 3: Yahk to Cranbrook	Hwy 16: Prince George to Parsnip River
Hwy 97: 100 Mile House to Williams Lake	Hwy 3: Elko to Alberta Border	Hwy 97: Chetwynd to Dawson Creek

Table 6 - Highways with highest wildlife collisions

Wildlife Crashes by Highway Corridor, 2004 to 2013 – Major Species

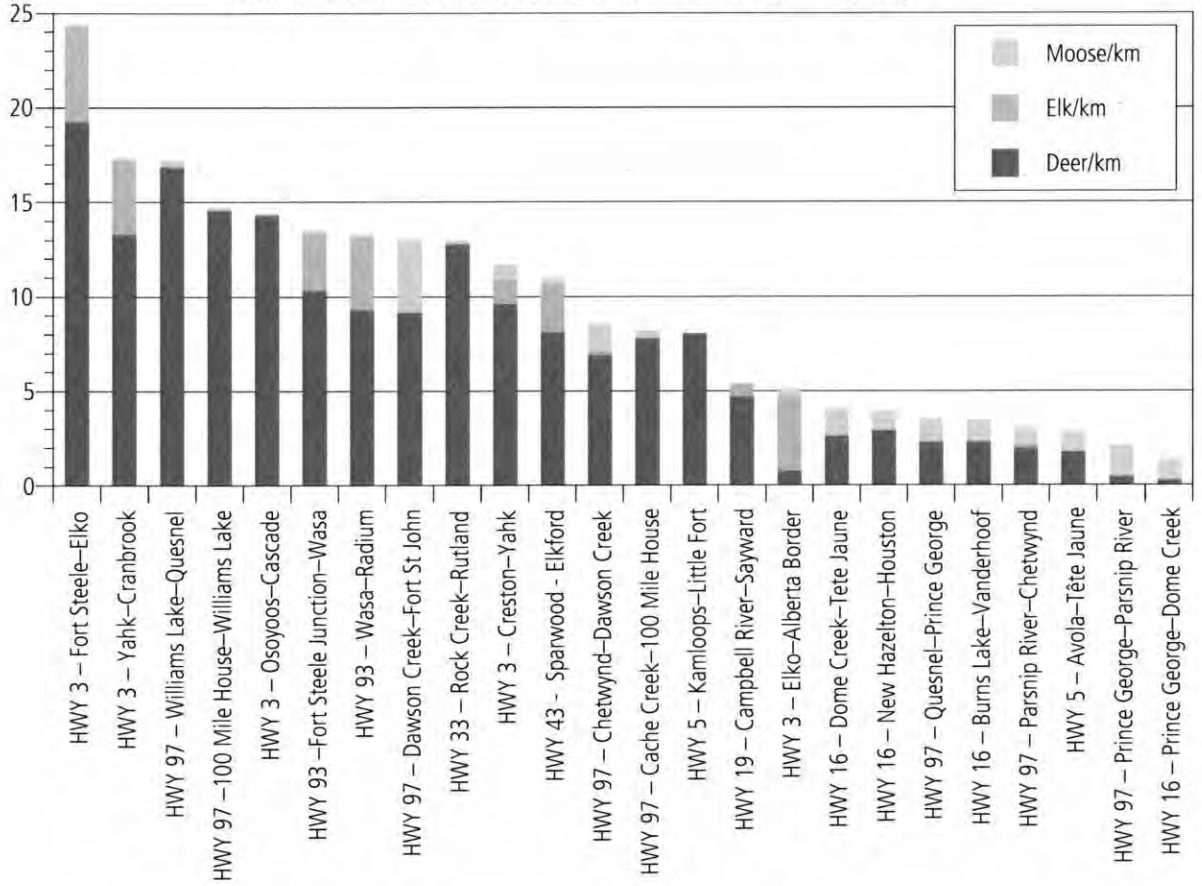


Figure 15 – Shows wildlife collisions by corridor

Deer are found throughout the province and can be found on any highway. Elk and Moose have more limited ranges with Elk more commonly found in the West Kootenay and Rocky Mountain districts, and Moose more commonly found in the North.

Wildlife exclusion systems, such as those found on Highway 5 (Coquihalla), Highway 97C (Okanagan Connector) and part of Highway 19 north of Parksville, are very effective at reducing wildlife collisions. However, these systems are very expensive and are most effective on limited access freeway type highways. Fencing is just one component of wildlife exclusion systems. Animal overpasses and underpasses are required in order to allow animal movement across the highway, one way gates and jump-outs are needed as an escape in case an animal does get on to the roadway, and gates or ungulate guards are needed where there are breaks in the fence due to side road or driveway accesses.

Wildlife detection systems are experimental, but show promise. These systems are designed to detect animals near highways and then advise drivers using activated warning signs.

Wildlife warning signs serve as a reminder to drivers to stay alert and watch for wildlife in areas where there are known to be specific species. Other jurisdictions have also successfully installed wildlife detection systems.

Ontario has two systems installed. Ministry of Transportation Ontario notes that for their Highway 17 site, north of Sault Ste. Marie no wildlife/vehicles collisions have been reported since the system was installed November 2013.

Results from an installation in Minnesota on Highway 23, 12 miles south of Marshall show a 57% reduction in Deer Vehicle Collisions in 2007 and 33% reduction in 2008.

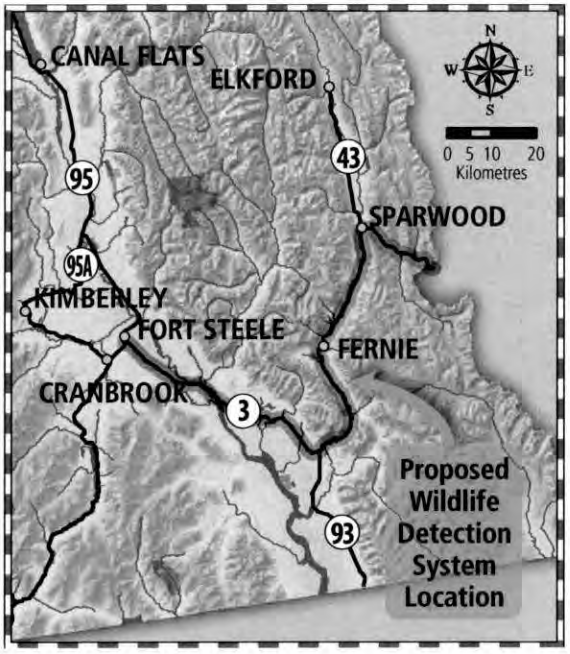
Wildlife Recommendations

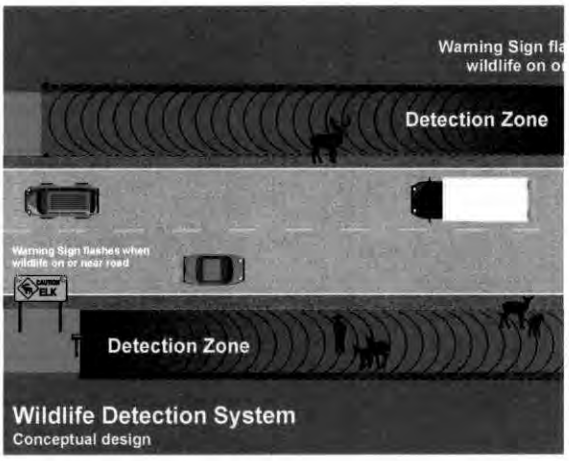
The public consultation indicated that participants did not often find wildlife as a significant concern in the South Coast and Southern Interior. Participants in the Central and Northern parts of the province felt somewhat more likely to find wildlife to be a safety concern.

The Wildlife Accident Reporting data indicates that wildlife accidents are prevalent and identifies a number of higher risk areas. This indicates that public education and warning of wildlife hazards needs to be improved.

Recommendations

1. Implement new gateway signs for longer highway segments to advise of the risk that large wildlife may be encountered.
2. Implement LED wildlife signs at specific locations in high wildlife accident areas to heighten awareness, and flash the LED's based on seasonal information.
3. Pilot two wildlife detection systems in corridors known as high wildlife accident areas:
   - Hwy 3 Fort Steele to Alberta border.
4. Increase the use of the DriveBC and the Changeable Message Sign system for real-time wildlife advisory messages.





Description

Highway 3 is the major route across southern British Columbia. In the southeast corner of the province the highway passes through the Elk Valley in the heart of the Canadian Rockies. The Elk Valley is characterized by a rich abundance of wildlife, including deer, elk, moose, bears and mountain sheep. The valley forms an important north-south corridor for wildlife between the northwestern corner of the United States and the Canadian Rockies in eastern British Columbia. The Elk Valley is also the largest producing coal field in the province. Thousands of workers commute on Highway 3 between the communities in the valley and the coal field daily. During the winter, thousands of skiers from B.C. and Alberta drive into the area.

On Highway 3, between Fort Steele and the Alberta Border, large wildlife represent a hazard to drivers. Over the period 2003 to 2012, on this 136 km section of Highway 3, 603 elk were reported killed. Large numbers of elk congregate in the area from late fall to early spring. Approximately 70% of elk were killed between October and March, a period when driving conditions are most severe. Approximately 60% of deer were killed between April and September, a period when many tourists travel through the area. While conventional wildlife warning signs are used to advise drivers of potential elk hazards, this section of Highway 3 has the highest rate of elk killed per km of any B.C. highway.

Conclusion

Given the high number of wildlife-vehicle accidents in the East Kootenay area, it is recommended a wildlife detection system be installed on Highway 3. The system will use sensors to identify when large wildlife approach the shoulder of the highway. When the detection system determines a large animal is present, the system will trigger flashing lights on a warning sign to alert drivers of the potential hazard ahead. Drivers can lower their speed and reduce their potential conflict with wildlife.

Estimated system cost: $1.5M

APPENDIX A: SPEED LIMIT CHANGES BY HIGHWAY

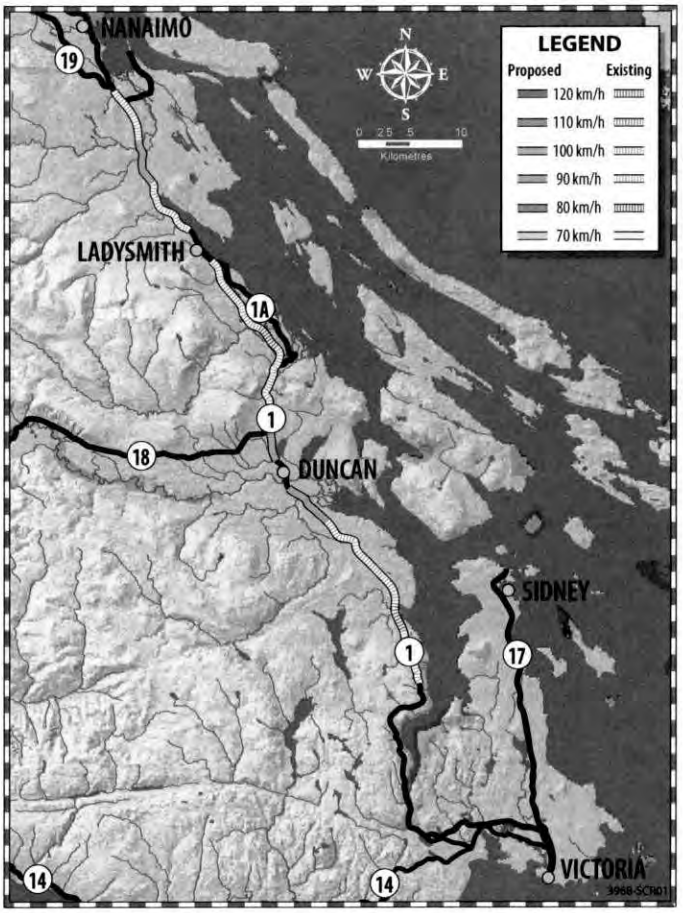
Cowichan Bay to Nanaimo

Physical Characteristics

Start Point 1: Bench Road
End Point 1: Allenby Rd
Length ..... 2.7 km
Start Point 2: North of Sherman Rd
End Point 2: Sprott Rd
Length ..... 3.6 km
Start Point 3: Timberlands Rd
End Point 3: Nanaimo River Bridge
Length ..... 3.1 km
Total length ..... 9.4 km
Number of Lanes 4
Divided ..... Yes

Operational Characteristics

Average Daily Traffic 22,000
% Trucks 4%
Safety: Serious summer crashes trending down by 15%
Current Speed Limit ..... 80/90 km/h
85th Percentile Speed ..... 100 km/h
Public Consultation Support 66%
Recommendation: Recommended increase (80 sections to 90)



Description

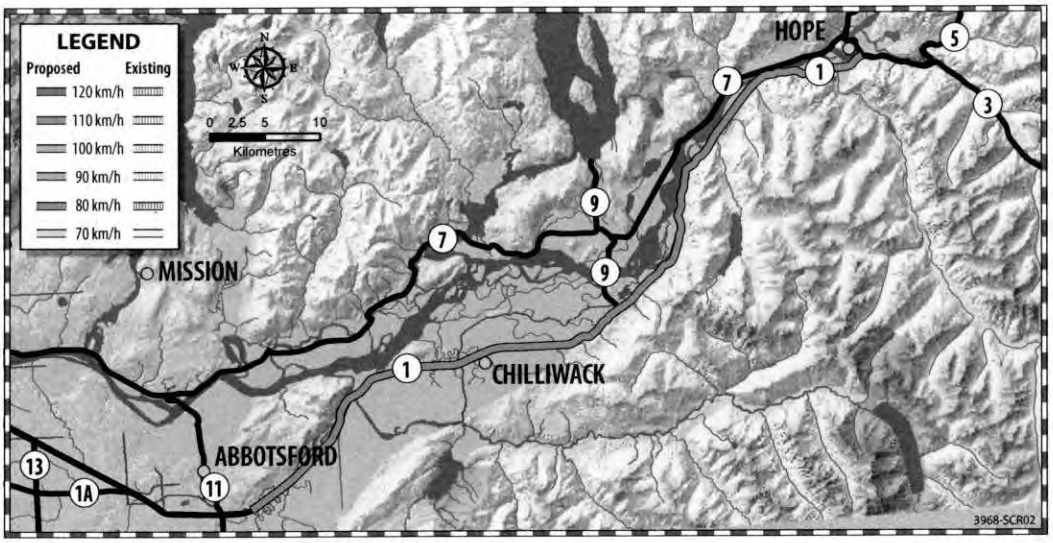
On Vancouver Island, Highway 1 is the major highway connecting Victoria to Nanaimo.

Between Cowichan Bay and Nanaimo, it is a four (4) lane, divided highway over gently rolling terrain. Major access points are controlled by intersections with traffic signals and advance warning flashers. As the corridor has been upgraded over time the speed limits have incrementally been changed resulting in numerous changes in speed limits. Within this 43 km segment there are a number of different 80 and 90 km/h speed limits. The travel speeds are relatively consistent over the corridor.

Conclusion

It is recommended that three short highway segments currently posted at 80 km/h be increased to 90 km/h for these factors:

- the 90 km/h speed limit will improve the speed limit consistency with adjoining segments,
- measured 85th percentile speed is 20 km/h above the posted speed of 80 km/h,
- summer serious crashes have been trending downwards with a 15% reduction since 2003.



Whatcom Rd to Hope

Physical Characteristics

Start Point: Whatcom Rd (Exit 95)

End Point: Highway 3 Junction (Exit 170)

Length . . . . . 74 km

Number of Lanes. 4

Divided . . . . . Yes

Operational Characteristics

Average Daily Traffic 17,000

% Trucks. 18%

Safety: Serious summer crashes trending down by 10%

Current Speed Limit . . . . . 100 km/h

85th Percentile Speed . . . . . 116 km/h

Public Consultation Support 86%

Recommendation: 110 km/h

Description

Highway 1 (Abbotsford to Hope) is the major travel gateway for commuters, goods movement and visitors making their way between the south coast and the interior of the province

The highway terrain is generally level. It is a controlled access highway that is predominantly two lanes in each direction separated by a median. Drivers can only enter and exit at the interchanges. Each interchange has acceleration and deceleration lanes to accommodate speed changes for traffic.

Conclusion

It is recommended that the posted speed limit be increased to 110 km/h for these factors:

- measured 85th percentile speed is 16 km/h above the posted speed of 100 km/h,
- the highway is a controlled-access, multi-lane, divided facility, and
- summer serious crashes have been trending downwards with a 10% reduction since 2003.

Hope to Boston Bar

Physical Characteristics

Start Point: 1 km east of Lake of the Woods Rest Area

End Point: 1.2 km west of Maintenance Yard in Boston Bar

Length . . . . . .55 km
Number of Lanes. 3
Divided . . . . . No

Operational Characteristics

Average Daily Traffic 3,000
% Trucks. 30%
Safety: Too few serious summer crashes to determine a trend
Current Speed Limit . . . . . 80/90 km/h
85th Percentile Speed . . . . . 107 km/h
Public Consultation Support 65%

Recommendation: 100 km/h

Boston Bar to Jackass Mountain

Physical Characteristics

Start Point: 420 m east of Northbend Ferry Rd

End Point: 820 m east of Falls Creek

Length . . . . . .24 km
Number of Lanes. 2/4
Divided . . . . . No

Operational Characteristics

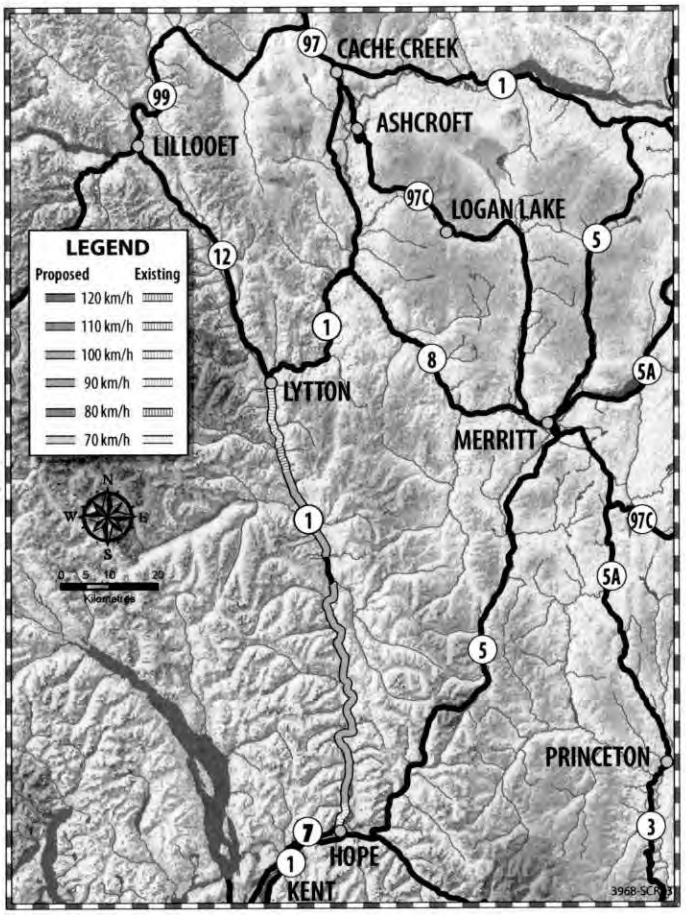
Average Daily Traffic 3,000
% Trucks. 30%
Safety: Too few serious summer crashes to determine a trend
Current Speed Limit . . . . . 90 km/h
85th Percentile Speed . . . . . 116 km/h
Public Consultation Support 65%

Recommendation: 100 km/h

Description

Highway 1 (Hope to Jackass Mountain) is an undivided highway that connects Fraser Valley communities to the Interior and the North.

The majority of the highway is one lane in each direction with passing and climbing lanes. This is a controlled access highway without interchanges, but with at grade intersections and accesses. The terrain is mountainous.



The average daily traffic volume is approximately 2,700 vehicles per day with about 30% being truck traffic.

The existing speed limit on Highway 1, between Hope and Jackass Mountain Summit, ranges from 80 km/h to 90 km/h over 86 km.

Conclusion

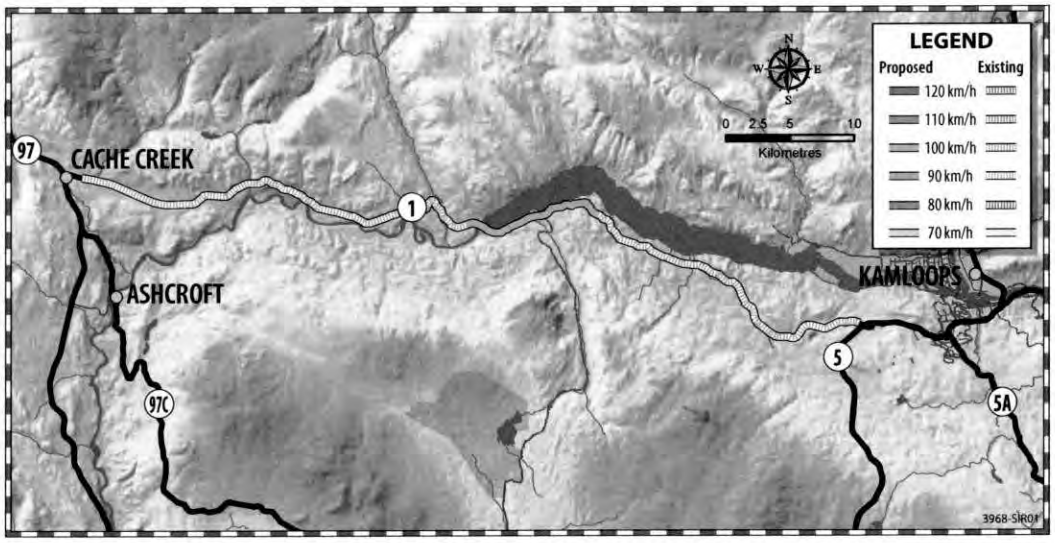
Speed limit changes are recommended:

- Lake of the Woods to Boston Bar from 80 km/h and 90 km/h to 100 km/h; and
- Boston Bar to Jackass Mountain from 90 km/h to 100 km/h.

The 85th percentile speeds are approximately 15 km/h over the posted speed limit.

There are very few access points along the highway.

Speed limits will not change within the communities of Yale and Boston Bar.



Tobiano to Savona

Physical Characteristics

Start Point: Savona Station Rd

End Point: Six Mile Rest Area

Length . . . . . 12 km

Number of Lanes. 2

Divided . . . . . No

Operational Characteristics

Average Daily Traffic 3,500

% Trucks. 17%

Safety: Too few serious summer crashes to determine a trend

Current Speed Limit . . . . . 90 km/h

85th Percentile Speed . . . . . 104 km/h

Public Consultation Support 60%

Recommendation: 100k/m

Description

Highway 1 from Cache Creek to Kamloops is a major highway connection from the Cariboo and South Coast to the Interior.

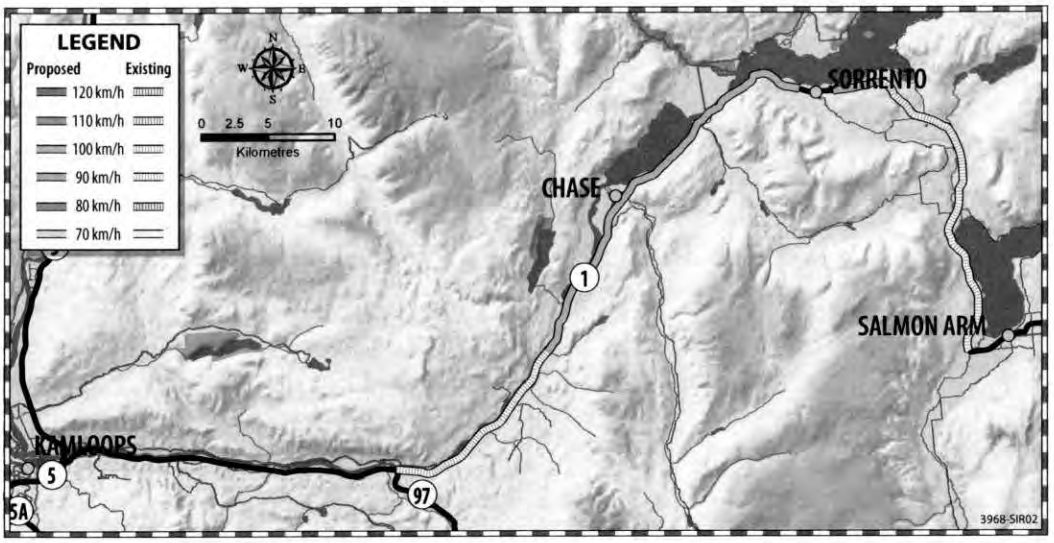
This segment of the TCH carries, on average, 3,500 vehicles every day with 17% being heavy truck volumes. The overall length of the segment is about 80 km with ~68 km being posted at 100 km/h and ~12 km segment is posted at 90 km/h between Tobiano and Savona. The majority of the segment is a two-lane undivided highway with few passing lanes as well as passing opportunities. The yellow centerline has rumble strips while 6 Mile Hill was upgraded with roadside delineators through regional safety program and warning signs between Deadman Creek and Kamloops were upgraded in 2012.

The number of accesses and intersection are consistent throughout this segment between the 100 km/h and 90 km/h zones. The intersections with relatively higher traffic volumes have auxiliary turn lanes on this segment.

Conclusion

It is recommended that the posted speed limit over the 12 km segment between Tobiano and Savona be increased to 100 km/h for these factors:

- measured 85th percentile speed within the 90 km/h zone is 16 km/h above the posted, and
- this increase will result in consistent speed limits between Cache Creek and Kamloops at a length of ~80 km.



Chase to Sorrento (Hilltop)

Physical Characteristics

Start Point: Willow Rd

End Point: Hilltop Rd

Length ..... 25 km

Number of Lanes 2

Divided ..... No

Operational Characteristics

Average Daily Traffic 9,000

% Trucks 18%

Safety: Serious summer crashes trending down by 52%

Current Speed Limit ..... 90 km/h

85th Percentile Speed ..... 105 km/h

Public Consultation Support 71%

Recommendation: 100 km/h

Description

Highway 1 (TCH) from Kamloops to Salmon Arm is a major highway connection between two major population centres. The TCH also provides primary connection between Alberta and the lower mainland through the interior

This segment of the TCH carries, on average, 9000 vehicles every day with 18% being heavy trucks. The segment between Chase and Hilltop Road is currently posted at 90 km/h. There is an existing 11 km segment posted at 100 km/h east of Hilltop Road while west of Chase there are various 4-laning capital expansion projects underway.

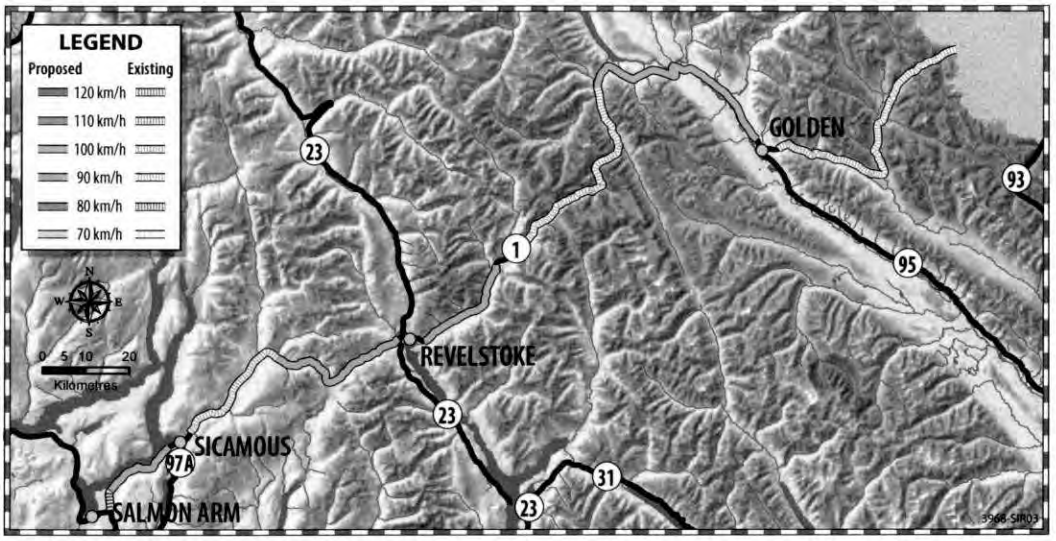
The majority of the segment between Chase and Hilltop Road is a two-lane undivided highway with few passing lanes as well as passing opportunities. The yellow centre-line has rumble strips where double solid yellow lines exist.

The access and intersection frequency is dispersed and consistent with other highway systems in the interior where 90-100 Km/h speed is posted.

Conclusion

It is recommended that the posted speed limit over 25 km segment between Chase and Hilltop Road be increased to 100 km/h for these factors:

- measured 85th percentile speed within the 90 km/h zone is 15 km/h above the posted,
- this increase will result in consistent speed limits between Chase and Tappen at a length of 43 km. The 60 km/h through Sorrento will remain unchanged.



Salmon Arm to Revelstoke

Physical Characteristics

Start Point: Canoe (70th St. NE)

End Point: Hwy 23S

Length ..... 58 km

Number of Lanes 2/4

Divided ..... No

Operational Characteristics

Average Daily Traffic 6,000

% Trucks 24%

Safety: Overall corridor serious summer crashes trending down by 4%

Current Speed Limit ..... 90/100 km/h

85th Percentile Speed ..... 106 km/h

Public Consultation Support 54%

Recommendation: Increase (90 sections to 100)

Description
Salmon Arm to Revelstoke

Highway 1 (TCH) from Salmon Arm to Revelstoke is a major highway connection between two major population centers. The TCH also provides primary connection between Alberta and the Lower Lainland through the Interior. This segment of the TCH carries, on average, 6000 vehicles every day with 24% being heavy trucks.

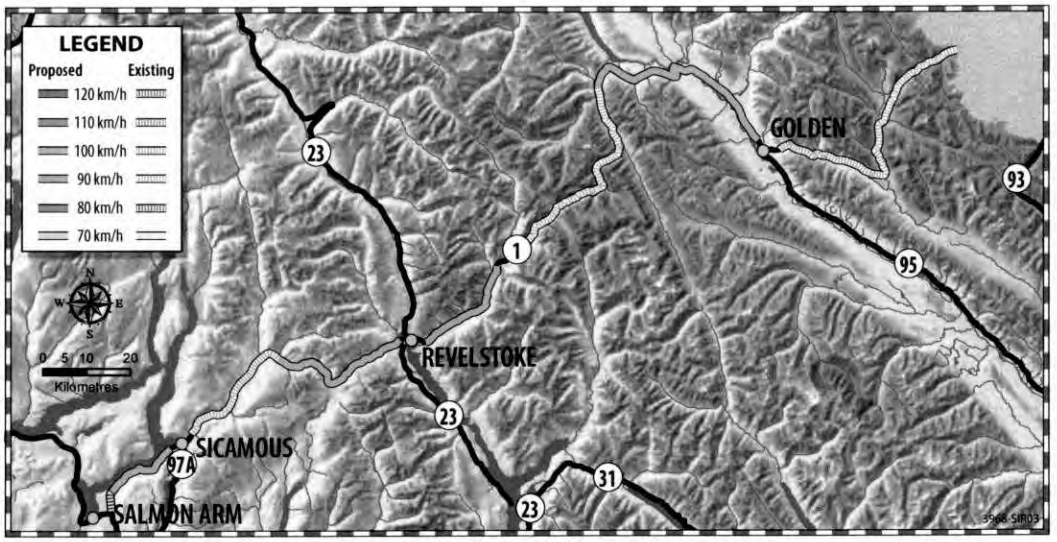
The segment between Canoe and Sicamous is currently posted at 90 km/h. There is an existing 29 km long segment posted at 100 km/h east of Sicamous to Malakwa while east of Malakwa is a 90 km/h zone up to Revelstoke.

The majority of the segment between Canoe and Sicamous and east of Malakwa is a two-lane undivided highway with few passing lanes as well as passing opportunities. The access and intersection frequency is dispersed and consistent with other highway systems in the interior where 90–100 km/h speed is posted.

Conclusion

It is recommended that the posted speed limit over 58 km segment be increased to 100 km/h for these factors:

- measured 85th percentile speed within the 90 km/h zone is 16 km/h above the posted,
- this increase will result in consistent speed limits between Canoe and Revelstoke at a length of 87 km. The 60 km/h through Sicamous will remain unchanged.



Revelstoke to Golden

Physical Characteristics

Start Point: Hwy 23N

End Point: Golden (Anderson Rd)

Length ..... 101 km

Number of Lanes..... 2

Divided ..... No

Operational Characteristics

Average Daily Traffic 5,400

% Trucks.....26%

Safety: Overall corridor serious summer crashes trending down by 4%

Current Speed Limit ..... 90 km/h

85th Percentile Speed..... 103 km/h

Public Consultation Support 61%

Recommendation: 100 km/h

Description Revelstoke to Golden

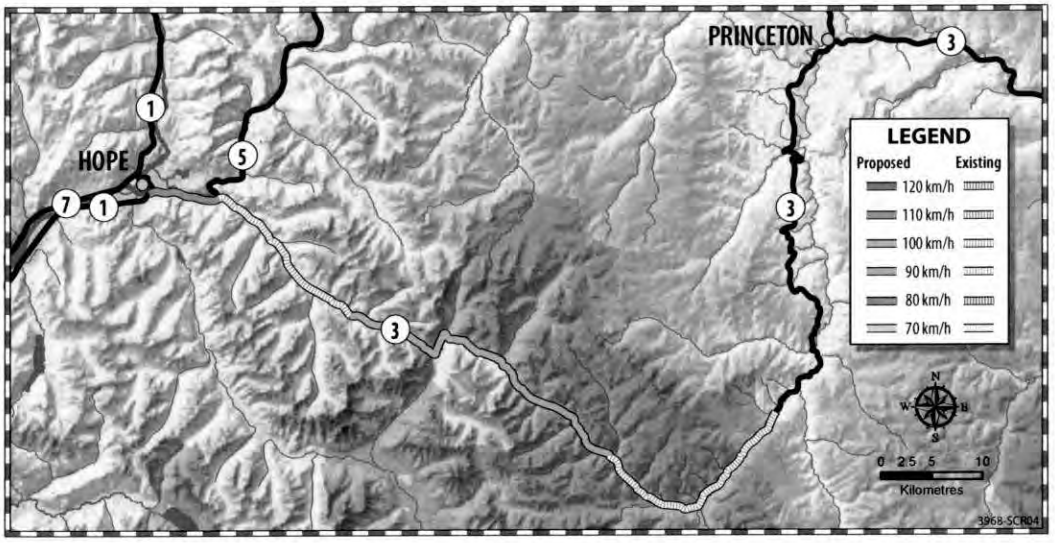
Highway 1 from Revelstoke to Golden is a major highway connection between major population centers as it traverses through Rogers Pass of National Glacier Park in Columbia-Shuswap. This segment also provides primary connection between Alberta and the Lower Mainland through the Interior. This segment of the TCH carries, on average, 5,400 vehicles every day with 26% being heavy trucks.

The segment between Revelstoke and Golden is currently posted at 90 km/h. The majority of the segment is a two-lane undivided highway with few passing lanes as well as passing opportunities. The access and intersection frequency is dispersed and consistent with other highway systems in the interior where 90-100 km/h speed is posted.

Conclusion

It is recommended that the posted speed limit over 101 km segment be increased to 100 km/h for these factors:

- measured 85th percentile speed within the 90 km/h zone is 13 km/h above the posted,
- this increase will result in consistent speed limits at a length of ~190 km between Canoe and Golden. The speed limits through communities like Sicamous, Revelstoke and Golden will remain unchanged.



Hope to Coquihalla

Physical Characteristics

Start Point: Start of Hwy 3 (Exit 170)

End Point: Hwy 5 Junction (Exit 177)

Length . . . . . .7 km

Number of Lanes. 6

Divided . . . . . Yes

Operational Characteristics

Average Daily Traffic 13,700

% Trucks. 20%

Safety: Overall Hope to Princeton corridor serious summer crashes trending down by 68%

Current Speed Limit . . . . . 100 km/h

85th Percentile Speed . . . . . 114 km/h

Public Consultation Support 68%

Recommendation: 110 km/h

Description

Highway 3 is an un-divided highway that connects the south coast and Alberta. The majority of the highway is one lane in each direction with passing and climbing lanes.

Highway 3 is a controlled access highway without interchanges but with at grade intersections and accesses.

The terrain is mountainous.

The existing speed limit on Highway 3, between Hope and Manning Park, ranges from 80 km/h to 100 km/h over 134 km.

Sunshine Valley to Manning Park East Boundary

Physical Characteristics

Start Point: End of 4 Lane (1.2 km west of Manning Park West Gate)

End Point: 500 m East of Allison Pass Maintenance Yard

Length . . . . . .33 km

Number of Lanes. 2

Divided . . . . . No

Operational Characteristics

Average Daily Traffic 2,300

% Trucks. 13%

Safety: Serious summer crashes trending down by 68%

Current Speed Limit . . . . . 80/90 km/h

85th Percentile Speed . . . . . 103 km/h

Public Consultation Support 68%

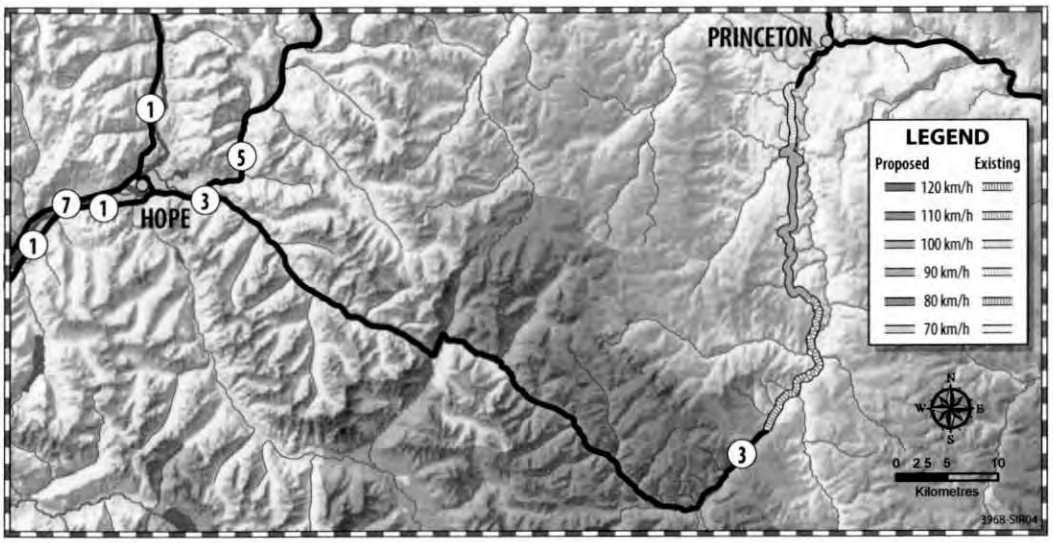
Recommendation: 100 km/h

Conclusion

Speed limit changes are recommended from Hope to the Coquihalla from 100 km/h to 110 km/h, over the length of 7 km; and Sunshine Valley to Manning Park East Boundary from 80 km/h and 90 km/h to 100 km/h.

The 85th percentile speeds are approximately 15 km/h over the posted speed limit. Summer serious crashes have been trending down significantly.

The section of Highway 3 between Hope and the Coquihalla is a controlled access, multi-lane divided facility.



Sunday Summit to Princeton

Physical Characteristics

Start Point: Sunday Summit

End Point: Whipsaw Creek

Length ..... 22 km

Number of Lanes 2

Divided ..... No

Operational Characteristics

Average Daily Traffic 2,300

% Trucks 13%

Safety: Serious summer crashes trending down by 59%

Current Speed Limit ..... 80 km/h

85th Percentile Speed ..... 103 km/h

Public Consultation Support 68%

Recommendation: 90 km/h

Description

Highway 3 Hope to Princeton is the major highway connection from the South Coast to the Interior. The highway generally follows the Similkameen River as it traverses the Cascade Mountains. Highway 3 is a two lane undivided highway with passing lanes. The yellow centre-line has rumble strips.

West of Princeton there is a 22 km section from Sunday Summit to Whipsaw Creek. East of Whipsaw Creek the speed limit is 100 km/h while west of Sunday Summit the speed limit is 80 km/h, as it is a more curvilinear (winding) section of highway.

There are very few accesses or intersections along this segment. The highway carries, on average, 2,300 vehicles every day with 13% being heavy truck traffic.

Conclusion

It is recommended that the posted speed limit be increased to 90 km/h for these factors:

- measured 85th percentile speed is 23 km/h above the current speed,
- summer serious crashes have been trending downwards with a 59% reduction since 2003.

Hope to Kamloops

Physical Characteristics

Start Point: Othello Interchange

End Point: Hwy 1 junction

Length ..... 180 km

Number of Lanes 4

Divided ..... No

Operational Characteristics

Average Daily Traffic–Hope to Merritt 10,600

% Trucks 22%

Average Daily Traffic–Merritt to Kamloops 7,800

% Trucks 22%

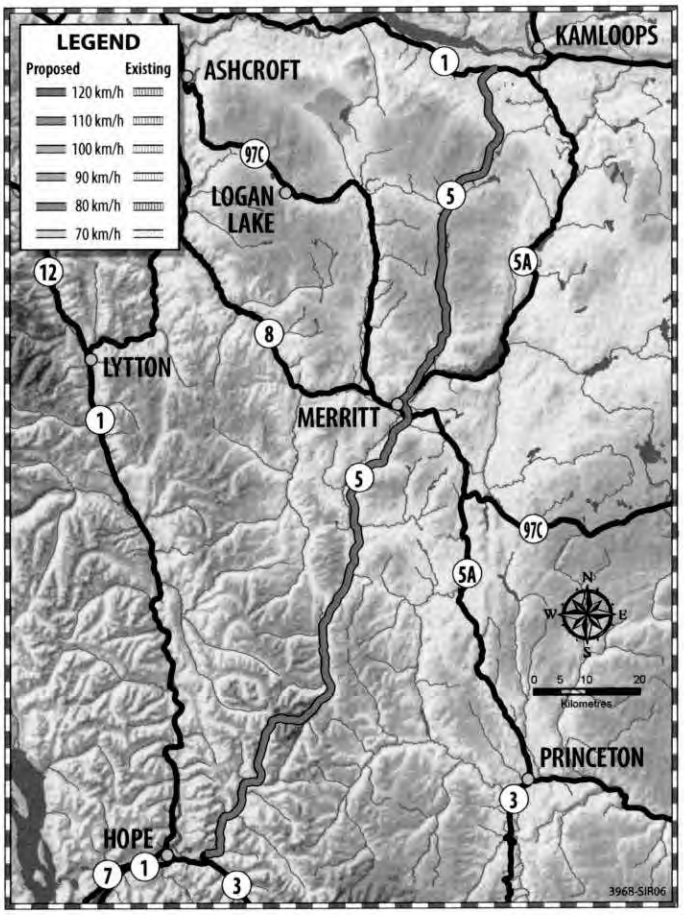
Safety: Serious summer crashes trending down by 22%

Current Speed Limit ..... 110 km/h

85th Percentile Speed ..... 127 km/h

Public Consultation Support 77%

Recommendation: 120 km/h



Description

Hwy 5, the Coquihalla is a high speed divided highway that connects the South Coast to the Interior. The Coquihalla Highway was built in three phases. Phase I, from Hope to Merritt, was completed in 1986. This involved some 137 kilometres of heavy construction through a mountain pass and hill country. Phase II, from Merritt to Kamloops, opened in 1987. The third phase, the Okanagan Connector, running from Merritt to Peachland was completed in 1990.

The majority of the highway is 2 lanes in each direction with additional truck lanes on the longer uphill and downhill grades. The current posted speed limit is 110 km/h.

The Coquihalla is a controlled access highway where drivers can only get on and off at interchanges. Each interchange has acceleration and deceleration lanes to accommodate higher speed limits. The over-all highway design standard used for the Coquihalla was examined and found capable of accommodating an increase in speed limit of 10 km/h.

The Coquihalla has wildlife exclusions systems to prevent animals from venturing onto the highway but also allows animals to cross from one side to another using wildlife overpasses and underpasses.

Relative to all the freeway and expressway systems in the province the Coquihalla is the highest level of freeway facility in the province of British Columbia.

Conclusion

It is recommended that the posted speed limit between Othello Interchange and Kamloops be increased to 120 km/h for these factors:

- measured 85th percentile speed is 17 km/h above the posted speed of 110 km/h,
- summer serious crashes have been trending downwards with a 22% reduction since 2003,
- the highway is a controlled-access, multi-lane, divided facility.

Heffley to Little Fort

Physical Characteristics

Start Point: Tod Mountain Rd

End Point: Hwy 24 junction

Length ..... 67 km

Number of Lanes 2

Divided ..... No

Operational Characteristics

Average Daily Traffic 5,000

% Trucks 15%

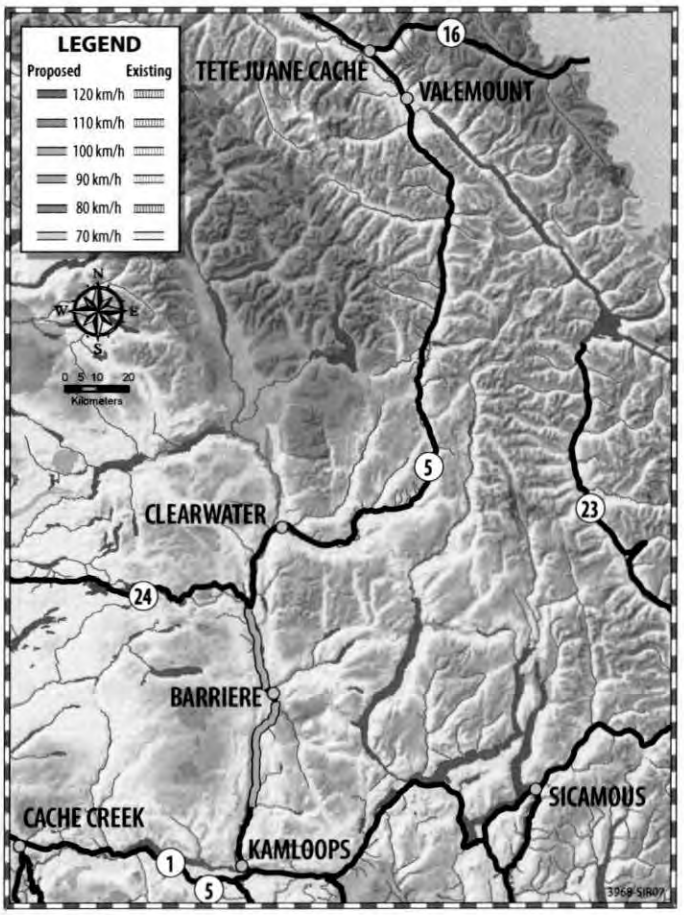
Safety: Serious summer crashes trending down by 38%

Current Speed Limit ..... 90 km/h

85th Percentile Speed ..... 102 km/h

Public Consultation Support ..... N/A

Recommendation: 100 km/h



Description

Highway 5 from Kamloops to Tête Jaune Cache is a major highway connection between the Interior and Northern region. The highway also provides primary connection between Northern Alberta and the Lower Mainland through the Interior. This segment of the highway carries, on average, 5000 vehicles every day with 15% being heavy trucks.

The segment between Sun Peaks and Little Fort is currently posted at 90 km/h. There is an existing 243 km long segment posted at 100 km/h north of Little Fort to Tete Jaune Cache, and a 19 km long segment of 100 km/h south of Sun Peaks to Kamloops.

The majority of the corridor is a two-lane undivided highway with few passing lanes as well as passing opportunities, while yellow center-line has rumble strips where double solid yellow lines exist. The access and intersection frequency is dispersed and consistent with other highway systems in the interior, where 100 km/h speed is posted.

Conclusion

It is recommended that the posted speed limit over a 67 km long segment between Sun Peaks and Little Fort be increased to 100 km/h for these factors:

- measured 85th percentile speed within the 90 km/h zone is 12 km/h above the posted,
- this increase will result in consistent speed limits at a length of 330 km between Kamloops and Tête Jaune Cache. The 60 km/h through Barriere, Little Fort and Clearwater will remain unchanged.

Princeton to TN Boundary (south of Aspen Grove)

Physical Characteristics

Start Point: Old Hedley Rd

End Point: Hwy 97C junction

Length ..... 36 km

Number of Lanes 2

Divided ..... No

Operational Characteristics

Average Daily Traffic 1,200

% Trucks ..... n/a

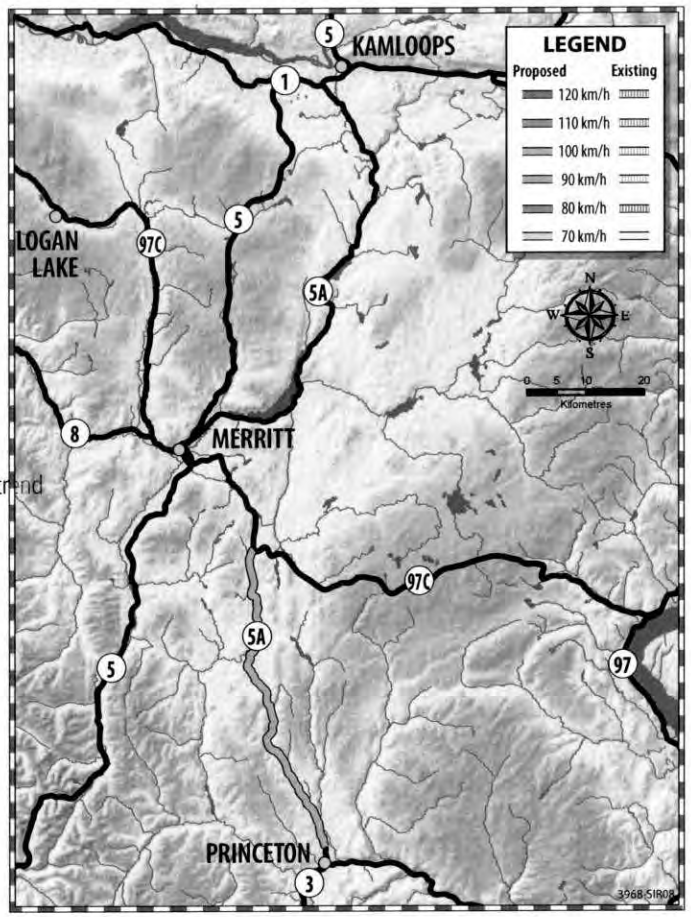
Safety: Too few serious summer crashes to determine a trend

Current Speed Limit ..... 80 km/h

85th Percentile Speed ..... 99 km/h

Public Consultation Support 72%

Recommendation: 90 km/h



Description

Highway 5A from Princeton to Merritt is a numbered route with relatively low traffic volumes, as it runs parallel to other major provincial highway networks such as Coquihalla and Hwy 97 through Okanagan.

The highway carries, on average, 1200 vehicles every day. The overall length of the segment between Princeton and Aspen Grove is 60 km. The speed limit over an 18 km segment is 90 km/h while the remaining segment is posted at 80 km/h.

The majority of the segment is a two-lane undivided highway with passing opportunities. The access and intersection frequency as well as road characters between the 80 km/h and 90 km/h zones are consistent.

Conclusion

It is recommended that the posted speed limit over 36 km segment be increased from 80 km/h to 90 km/h for these factors:

- measured 85th percentile speed within the 80 km/h zone is 19 km/h above the posted,
- this increase will result in consistent speed limits at a length of 60 km between Princeton and Aspen Grove.

New Denver to Hills

Physical Characteristics

Start Point: Golf Course Rd

End Point: Purdy Rd (Excluding 70 km/h through Hills)

Length . . . . . .15 km

Number of Lanes. 2

Divided . . . . . No

Operational Characteristics

Average Daily Traffic 1,500

% Trucks. 9%

Safety: Too few serious summer crashes to determine a trend

Current Speed Limit . . . . . 80 km/h

85th Percentile Speed . . . . . 99 km/h

Public Consultation Support 61%

Recommendation: 90 km/h

Summit Lake to Nakusp

Physical Characteristics

Start Point: Purdy Rd

End Point: Upper Brouse Rd

Length . . . . . .22 km

Number of Lanes. 2

Divided . . . . . No

Operational Characteristics

Average Daily Traffic 1,500

% Trucks. 9%

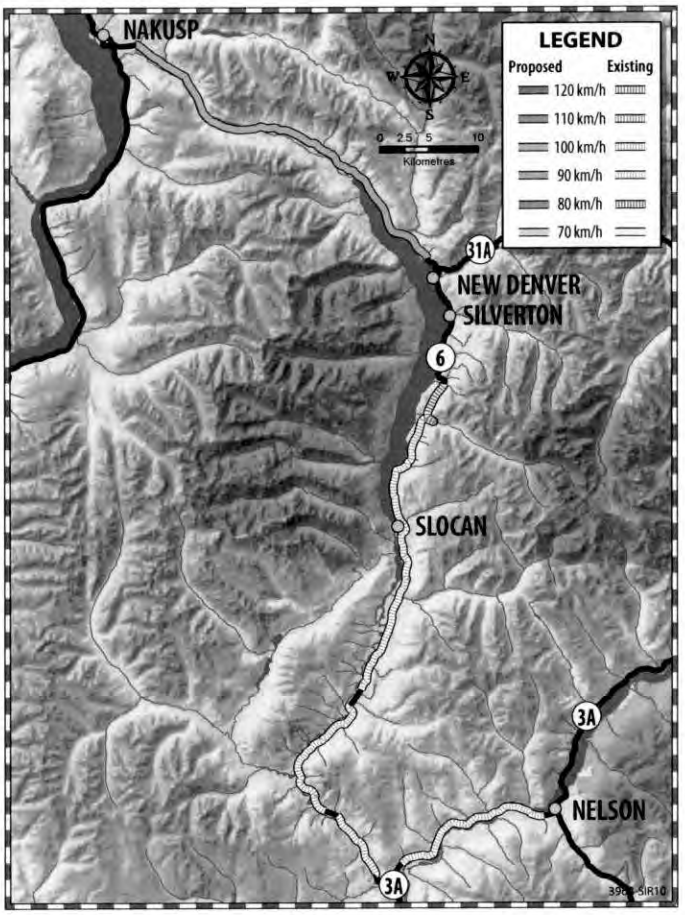
Safety: Too few serious summer crashes to determine a trend

Current Speed Limit . . . . . 90 km/h

85th Percentile Speed . . . . . 110 km/h

Public Consultation Support 61%

Recommendation: 100 km/h



Description

Highway 6 from Nelson to Nakusp begins at the Junction with Highway 3A in Playmour and travels north up the Slocan Valley to Nakusp. It is a two-lane undivided highway with passing opportunities. There are multiple communities along Highway 6 which would not be affected by the speed limit change.

Recent resurfacing projects have strived to achieve reasonable shoulder widths through some of the more difficult geometry. These efforts have provided a more consistent cross section along the highway.

There is a marked change in geometry near Hills as Highway 6 leaves the Arrow Lake Reservoir and climbs towards Summit Lake. This geometry includes longer tangents and more gentle horizontal curves.

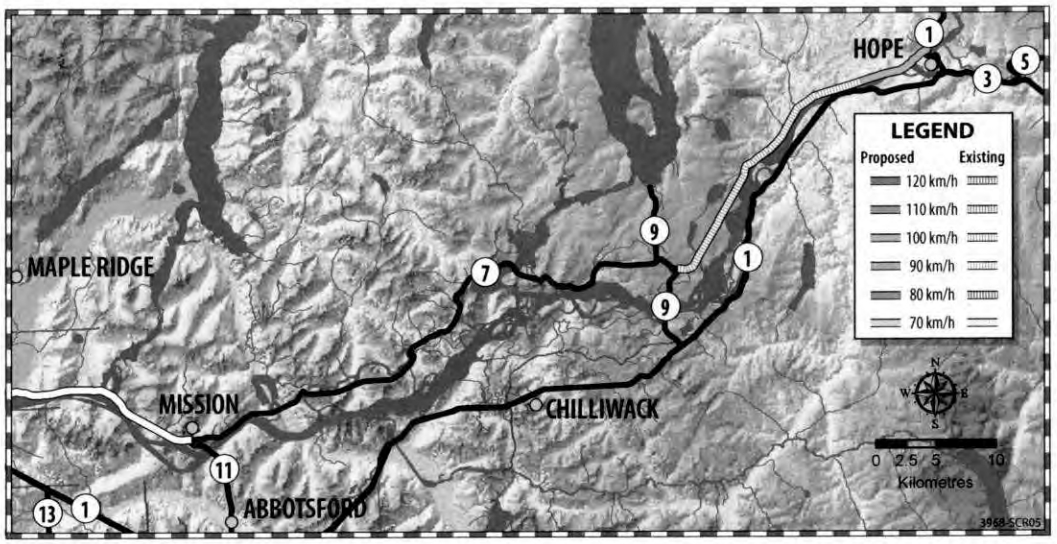
Conclusion

It is recommended that the posted speed limit over the 15km segment between New Denver and Hills be increased from 80km/h to 90km/h for these factors:

- measured 85th percentile speed is 19 km/h above the posted,
- this would provide a consistent speed limit of 90km/h from Nelson to Hills, at a length of 95km. Note that this would exclude intervening speed zones through communities.

It is recommended that the posted speed limit over 22km segment between Hills and Nakusp be increased from 90 km/h to 100 km/h for these factors:

- Measured 85th percentile speed is 20 km/h above the posted
- This would provide a consistent speed limit of 100 km/h from Hills to Revelstoke at a length of 134 km.



Agassiz to Hope

Physical Characteristics

Start Point: Pull Out west of Haigh Scale

End Point: Junction with Hwy 1

Length ..... .5 km

Number of Lanes..... 2

Divided ..... No

Operational Characteristics

Average Daily Traffic 4,900

% Trucks..... .9%

Safety: Too few summer crashes to determine a trend

Current Speed Limit ..... 90/100 km/h

85th Percentile Speed ..... 107 km/h

Public Consultation Support ..... .71%

Recommendation: Increase (90 km/h sections to 100 km/h)

Description

Highway 7 is an un-divided highway that connects North Fraser River communities and parallels Highway 1, the Trans-Canada Highway.

The majority of the highway is one lane in each direction with passing and climbing lanes.

Access onto Highway 7 occurs via at grade intersections and private accesses.

The existing speed limit on Highway 7, between Agassiz and Hope, ranges from 90 km/h to 100 km/h over 27 km stretch. Observed 85th percentile speeds over this highway are about 107 km/h.

Conclusion

It is recommended that the posted speed limit be increased to 100 km/h for these factors:

- measured 85th percentile speed is 17 km/h above the posted speed of 90 km/h,
- improve speed limit consistency.

Parksville to Campbell River

Physical Characteristics

Start Point: 1 km north of exit to Parksville/Weigh Scale

End Point: South of Willis Rd

Length ..... 114 km

Number of Lanes 4

Divided ..... Yes

Operational Characteristics

Average Daily Traffic 9,400

% Trucks 8%

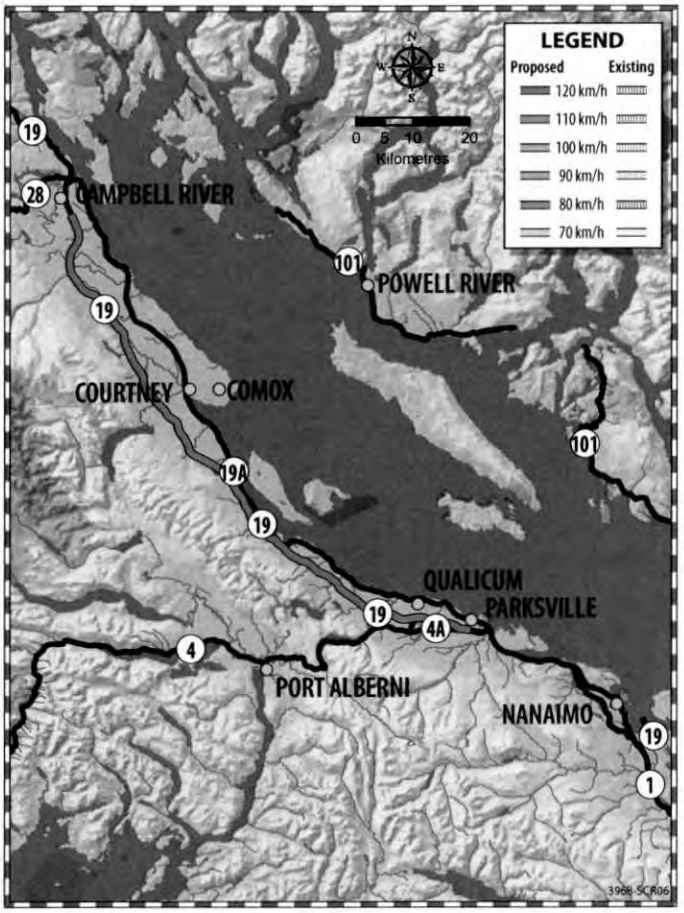
Safety: Serious summer crashes trending down by 34%

Current Speed Limit ..... 90/110 km/h

85th Percentile Speed ..... 121 km/h

Public Consultation Support 57%

Recommendation: Increase 110 km/h to 120 km/h



Description

Highway 19 (Nanaimo to Campbell River) is a divided highway that connects rural communities from Nanaimo to Campbell River.

The majority of the highway is two lanes in each direction.

Highway 19 is a controlled access highway with interchanges but also with at grade signalized intersections. Each interchange has acceleration and deceleration lanes to accommodate high speed.

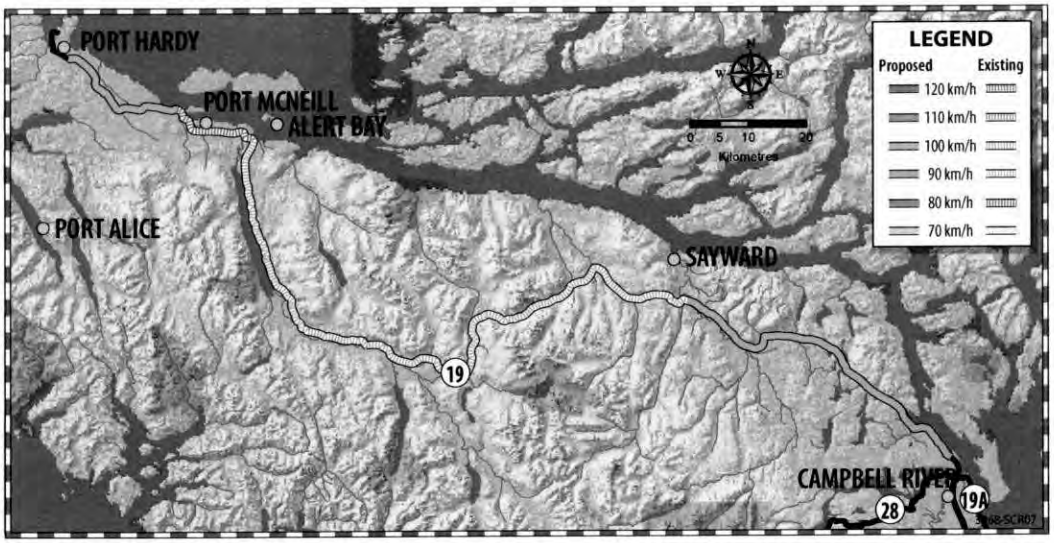
The terrain is rolling. The average daily traffic volume is approximately 9,400 vehicles per day with about 8% being truck traffic. Much of the corridor has wildlife exclusion fencing.

Conclusion

It is recommended that the posted speed limit be increased to 120 km/h for these factors:

- measured 85th percentile speed is 11 km/h above the posted speed of 110 km/h,
- summer serious crashes have been trending downwards with a 34 % reduction since 2003.

Speed limits will not change within the reduced 90 km/h zones through signalized intersections.



Shared Physical Characteristics

Number of Lanes 2 Divided No

Shared Operational Characteristics

Average Daily Traffic 1,200

% Trucks 7%

Safety: Too few serious summer crashes to determine a trend

Campbell River to Bloedel

Physical Characteristics

Start Point: North of Duncan Bay Rd

End Point: North of Mohun Creek Bridge

Length . . . . . 10 km

Operational Characteristics

Current Speed Limit . . . . . 80 km/h

85th Percentile Speed . . . . . 95 km/h

Public Consultation Support 56%

Recommendation: 90 km/h

Bloedel to Sayward

Physical Characteristics

Start Point: North of Mohun Creek Bridge

End Point: Gentry Rd

Length . . . . . 44 km

Operational Characteristics

Current Speed Limit . . . . . 90 km/h

85th Percentile Speed . . . . . 106 km/h

Public Consultation Support 56%

Recommendation: 100 km/h

Port McNeill to Port Hardy

Physical Characteristics

Start Point: Cluxewe Bridge

End Point: Douglas St

Length . . . . . 25 km

Operational Characteristics

Current Speed Limit . . . . . 80/90 km/h

85th Percentile Speed . . . . . 96 km/h

Public Consultation Support 56%

Recommendation: 100 km/h

Description

Highway 19 (Campbell River to Port Hardy) is an undivided highway that connects rural communities north from Nanaimo to Port Hardy. The majority of the highway is one lane in each direction, and has infrequent at grade intersections and accesses. The terrain is rolling.

Conclusion

Speed limit increases are recommended:

- Campbell River to Bloedel 80 km/h to 90 km/h,
- Bloedel to Sayward 90 km/h to 100 km/h,
- Port McNeill to Port Hardy 80 km/h and 90 km/h to 100 km/h.

85th percentile speed are generally 15 km/h above the posted speed limit.

The existing 100 km/h zone between Sayward and Port McNeill will remain unchanged.

Speed limits will not change within communities.

Black Mountain to McCulloch Rd (District Boundary)

Physical Characteristics

Start Point: South of Gallagher Rd

End Point: South of Big White

Length . . . . . .32 km

Number of Lanes. 2

Divided . . . . . No

Operational Characteristics

Average Daily Traffic 2,000

% Trucks. . . . . n/a

Safety: Overall Rock Creek to Kelowna corridor serious summer crashes trending down by 57%

Current Speed Limit . . . . . 90 km/h

85th Percentile Speed . . . . . 101 km/h

Public Consultation Support 65%

Recommendation: 100 km/h

Rock Creek to Westbridge

Physical Characteristics

Start Point: 1 km North of Junction with Hwy 3

End Point: 1 km south of Christian Valley Rd

Length . . . . . .12 km

Number of Lanes. 2

Divided . . . . . No

Operational Characteristics

Average Daily Traffic 2,000

% Trucks. . . . . n/a

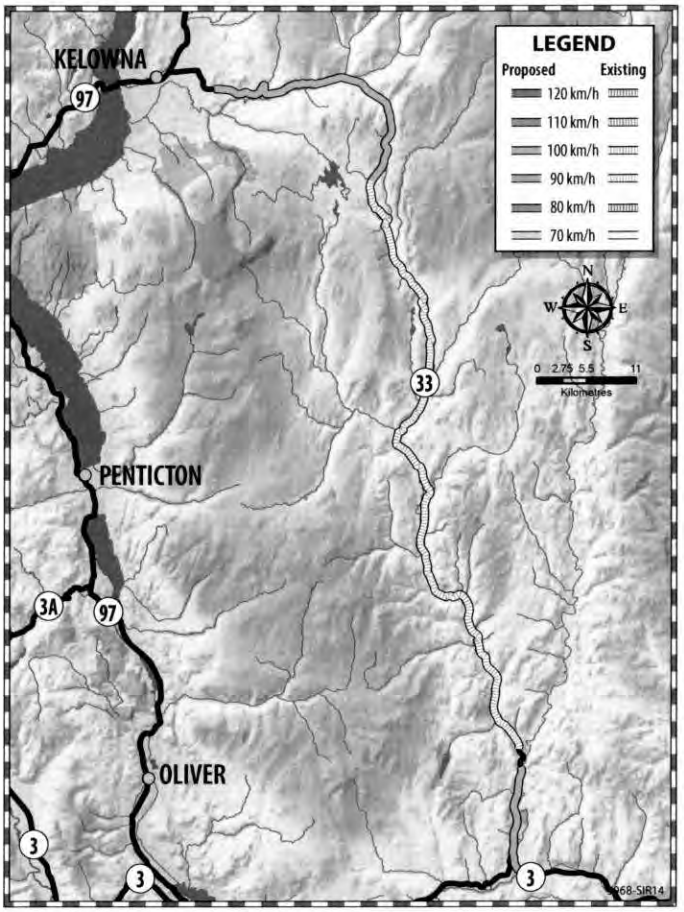
Safety: Overall Rock Creek to Kelowna corridor serious summer crashes trending down by 57%

Current Speed Limit . . . . . 90 km/h

85th Percentile Speed . . . . . 110 km/h

Public Consultation Support 65%

Recommendation: 100 km/h



Description

Highway 33 from Kelowna to Rock Creek is a 123 km segment which travels north/south, terminating in at the junction of Highway 97 in Kelowna and Highway 3 in Rock Creek. Highway 33 is used as the primary route to Big White Ski Resort, approximately 30 km south of Kelowna. It travels through the Kettle Valley which is the historic railway route established in the early 20th Century.

The highway carries on average, 2000 vehicles every day. The majority of the segment is a two-lane undivided highway with few passing lanes as well as passing opportunities. The center line has rumble strips where double solid yellow lines exist.

Conclusion

It is recommended that the posted speed limit over 44 km of the 123 km segment between Kelowna and Rock Creek be increased to 100km/h for these factors:

- measured 85th percentile speed between Black Mountain and Big White is 11 km/h above the posted,
- measured 85th percentile speed between Westbridge and Rock Creek is 20 km/h above the posted.
  A 79 km segment between Big White and Westbridge remains unchanged at 90 km/h due to the frequency of horizontal curves along this section.

Cache Creek to 100 Mile House

Physical Characteristics

Start Point: 1 km north of Willow Dr (70 Mile)

End Point: BCR Overpass (100 Mile)

Length ..... 37 km

Number of Lanes 4

Divided ..... No

Operational Characteristics

Average Daily Traffic 4,000

% Trucks 20%

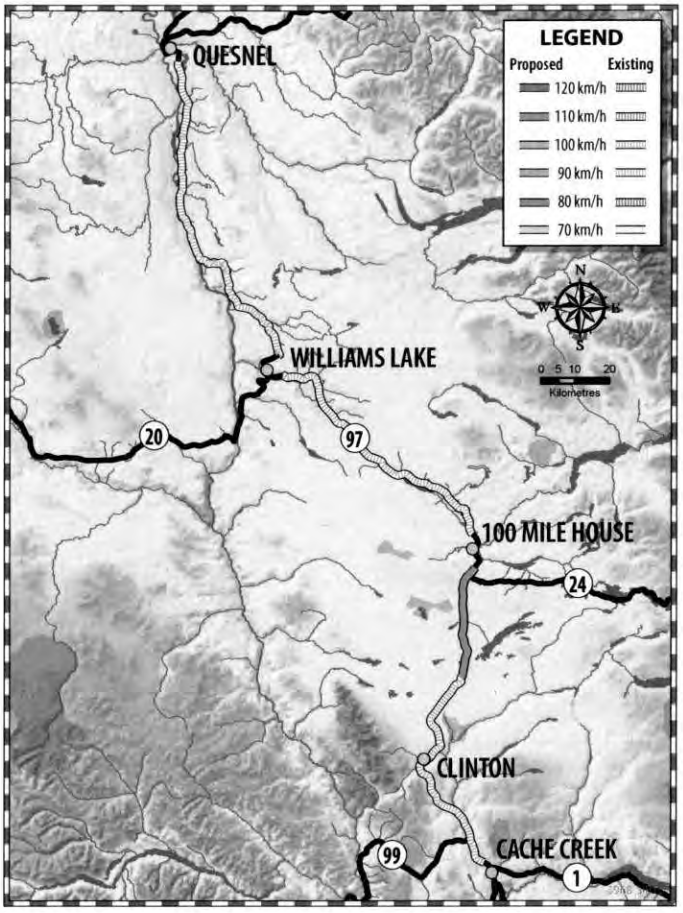
Safety: Serious summer crashes trending down by 53%

Current Speed Limit ..... 100 km/h

85th Percentile Speed ..... 114 km/h

Public Consultation Support 63%

Recommendation: 110 km/h



Description

Highway 97 also known as Cariboo Connector is a major highway connection from South Coast and Interior to Cariboo. It provides primary connection from Alaska and Northern Territories to the rest of the province. The segment between Cache Creek and Quesnel carries, on average, 4000 vehicles every day with 20% being heavy trucks. The majority of the highway between Cache Creek and Quesnel is posted at 100 km/h.

The province is 4-laning the Cariboo Connector between Cache Creek and Prince George in that there is a ~37 km long segment between 70 Mile and 100 Mile where the highway has been 4-laned with 2.6 m wide painted median, 2.5 m wide paved shoulders, 4:1 traversable slope with 8.0 m minimum clear zone. The painted median has rumble strips. There are very limited accesses and intersections along this section. All intersection points have provisions for future left turn lanes with up to 4.0 m wide widening within the painted median.

The over-all highway design standard used for the Cariboo Connector is capable of accommodating an increase in speed limit of 10 km/h.

Conclusion

It is recommended that the posted speed limit over 37 km between 70 Mile and 100 Mile be increased to 110 km/h for these factors:

- measured 85th percentile speed within the newly 4-laned section is 14 km/h above the posted,
- this increase will meet drivers' expectations because of improved road geometrics along the new 4-lane section relative to the existing 2-lane undivided segments posted at 100 km/h.
- serious summer crashes are trending downward by 53%.

Gatzke to College Way

Physical Characteristics

Start Point: Gatzke Rd (North of Oyama)

End Point: College Way

Length ..... 16 km

Number of Lanes 4

Divided ..... No

Operational Characteristics

Average Daily Traffic 20,000

% Trucks 12%

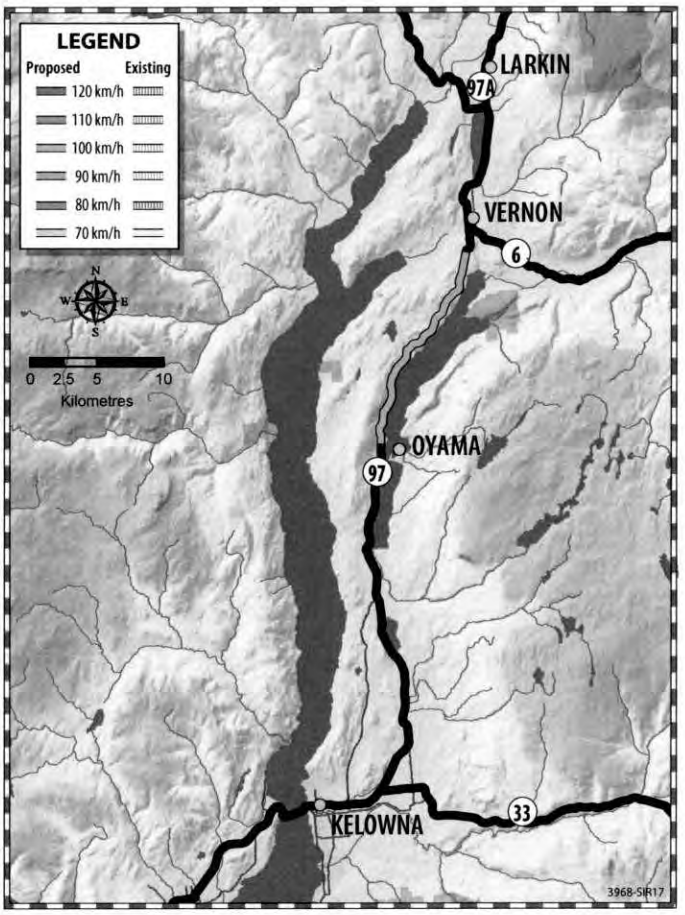
Safety: Serious summer crashes trending down by 45%

Current Speed Limit ..... 90 km/h

85th Percentile Speed ..... 109 km/h

Public Consultation Support 84%

Recommendation: 100 km/h



Description

Highway 97 from Kelowna to Vernon provides a primary connection between two major population centres. The highway also provides a connection between US and rest of the province through Okanagan.

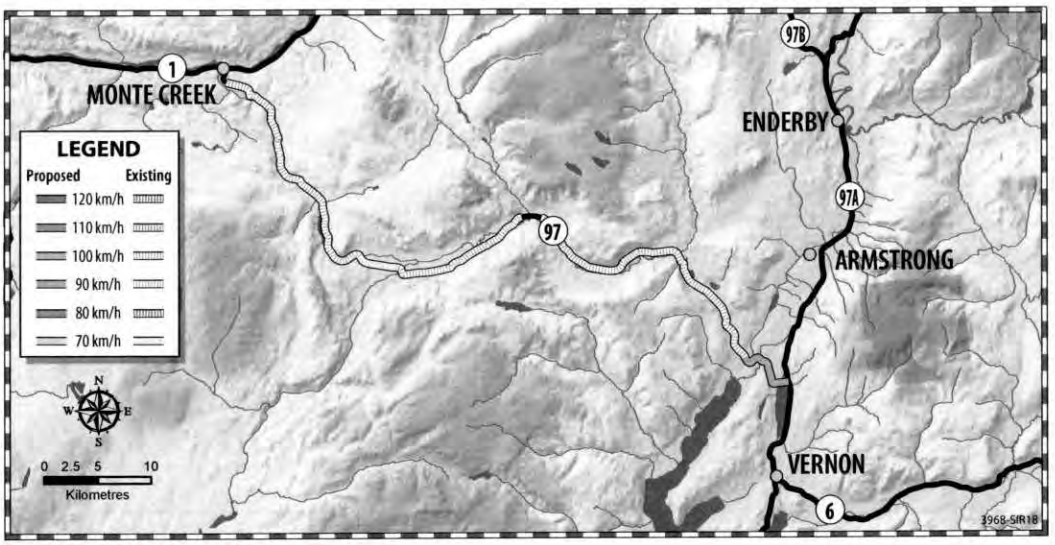
This segment carries, on average, 20,000 vehicles every day with 12% being heavy trucks. There is an existing 9 km segment recently constructed as a by-pass through Lake Country which is posted at 100 km/h. North of the new 4-lane section there is a 16 km segment also 4-laned in late 80's, with painted median and rumble strips and posted at 90 km/h.

There are very limited accesses on this segment and public road intersections have auxiliary right/left turn lanes throughout.

Conclusion

It is recommended that the posted speed limit over 16 km segment between Gatzke Road interchange and College Way intersection be increased to 100 km/h for these factors:

- measured 85th percentile speed within the 90 km/h zone is 19 km/h above the posted,
- this increase will result in consistent speed limits at a length of 25 km between Lake Country and Vernon.



Swan Lake to Monte Creek

Physical Characteristics

Start Point: Hwy 97A junction (Swan Lake)

End Point: Westside Rd

Length ..... 6 km

Number of Lanes 2

Divided ..... No

Operational Characteristics

Average Daily Traffic 4,000

% Trucks 15%

Safety: Too few serious summer crashes to determine a trend

Current Speed Limit ..... 80 km/h

85th Percentile Speed ..... 91 km/h

Public Consultation Support 66%

Recommendation: 90 km/h
(Swan Lake to Westside Rd)

Description

Highway 97 from Vernon to Monte Creek provides a primary connection between south Okanagan and the Interior. This segment carries, on average, 4,000 vehicles every day with 15% being heavy truck volumes. The overall segment length between Swan Lake and Monte Creek junctions is 80 km in that majority of the corridor is posted at 90 km/h.

The majority of the segment is a two-lane undivided highway with few passing lanes as well as passing opportunities. The yellow center-line has rumble strips where double solid lines exist.

The segment proposed for speed increase is generally flat while overall corridor has moderate curvilinear alignment. The access and intersection frequency is dispersed and consistent between the 90 km/h and 80 km/h zones.

Conclusion

It is recommended that the posted speed limit over 6 km segment between Swan Lake junction and Westside Road intersection be increased to 90 km/h for these factors:

- measured 85th percentile speed within the 80 km/h zone is 11 km/h above the posted,
- this increase will result in consistent speed limits at a length of 80 km between Swan Lake and Monte Creek junctions.

Armstrong to Enderby

Physical Characteristics

Start Point: North of Smith Dr

End Point: Hwy 97B junction
(excluding 50 km/h in Enderby)

Length ..... 18 km

Number of Lanes 2

Divided ..... No

Operational Characteristics

Average Daily Traffic 11,000

% Trucks 5%

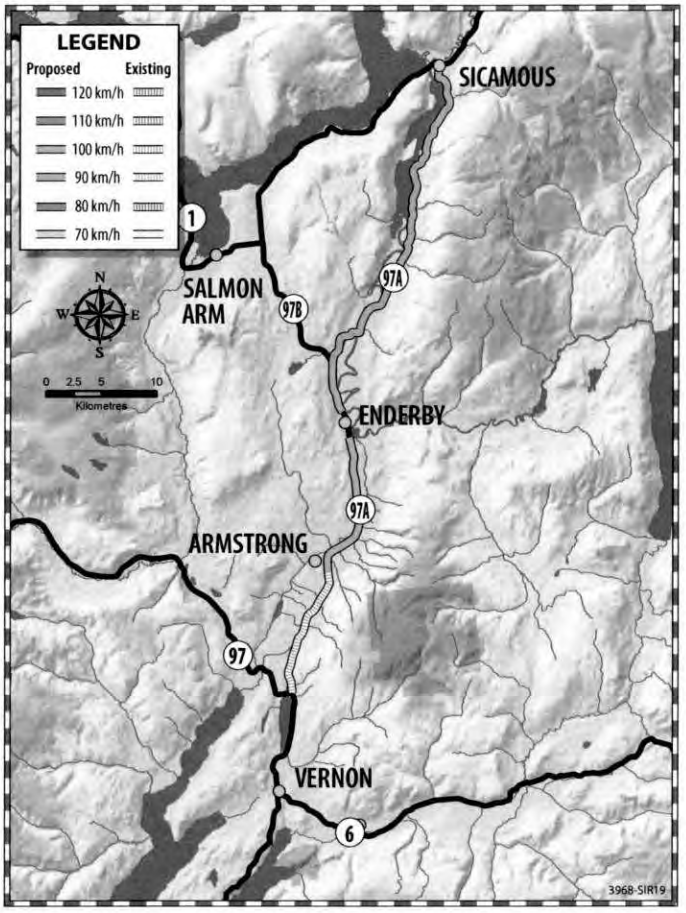
Safety: Too few serious summer crashes to determine a trend

Current Speed Limit ..... 90 km/h

85th Percentile Speed ..... 101 km/h

Public Consultation Support 56%

Recommendation: 100 km/h



Description

Highway 97A from Vernon to Sicamous provides a primary connection between North Okanagan and rest of the Interior. This segment carries, on average, 11000 vehicles every day with 5% being heavy trucks.

The segment between Swan Lake and Armstrong is 4-lane undivided with painted median and posted at 100 km/h. The corridor north of Armstrong is a 2-lane undivided highway with relatively flat terrain with few passing lanes as well as passing opportunities.

The access and intersection frequency is dispersed and consistent with other highway systems in the interior where 100 km/h speed is posted.

Conclusion

It is recommended that the posted speed limit over 18 km segment between Armstrong and Hwy 97B junction be increased to 100 km/h for these factors:

- measured 85th percentile speed within the 90 km/h zone is 11 km/h above the posted,
- this increase will result in consistent speed limits at a length of 30 km between Swan Lake and Hwy 97B junction.

Grindrod to Sicamous

Physical Characteristics

Start Point: Hwy 97B junction

End Point: Sicamous Creek Bridge (excluding 50 km/h in Grindrod)

Length . . . . . .33 km

Number of Lanes. 2

Divided . . . . . No

Operational Characteristics

Average Daily Traffic 4,000

% Trucks. . . . . n/a

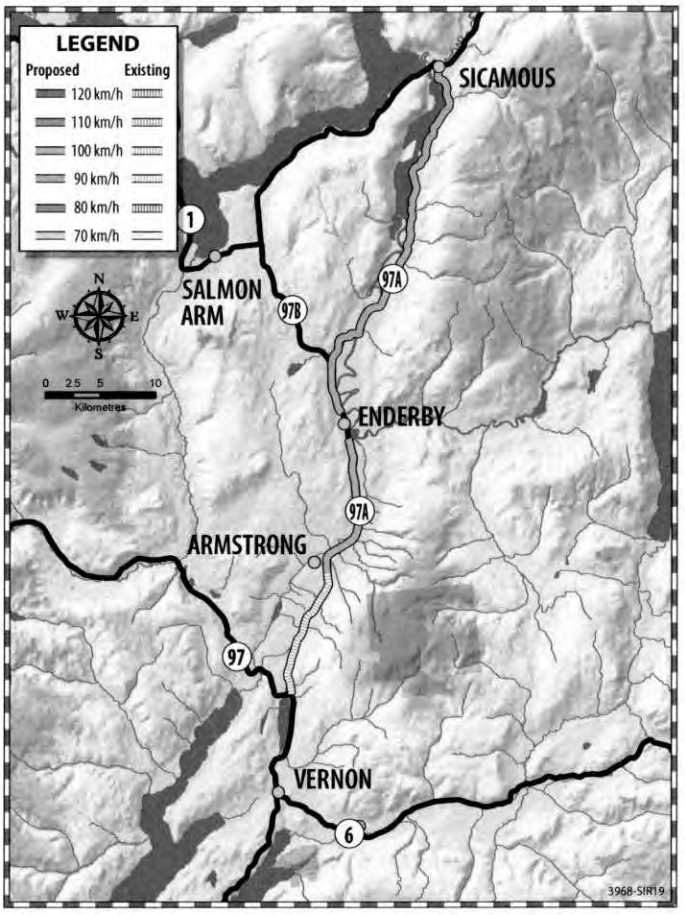
Safety: Too few serious summer crashes to determine a trend

Current Speed Limit . . . . . 80 km/h

85th Percentile Speed . . . . . 95 km/h

Public Consultation Support 56%

Recommendation: 90 km/h



Description Grindrod to Sicamous

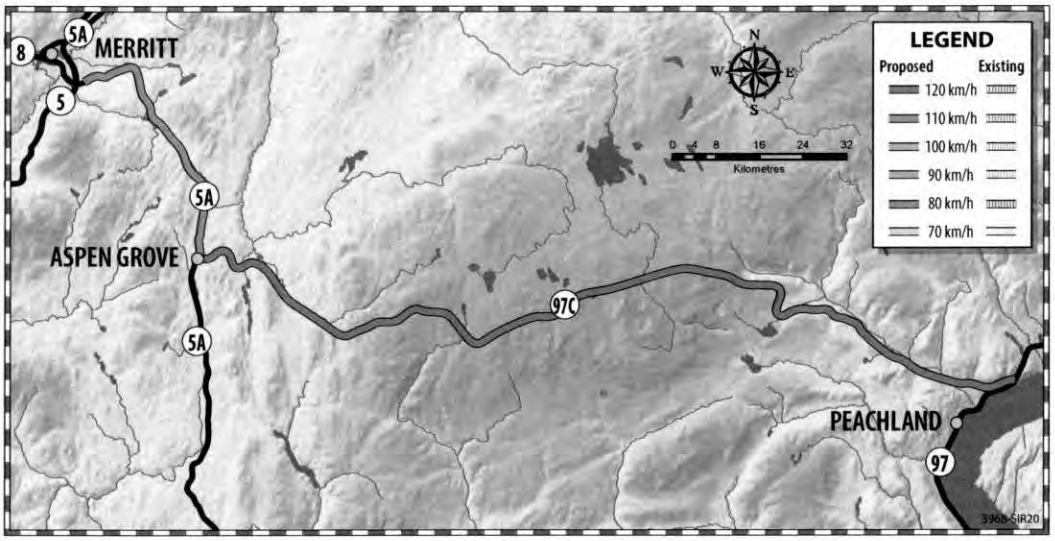
Hwy 97A between Grindrod and Sicamous provide a parallel road connection between north Okanagan and rest of the interior. The segment carries, on average, 4,000 vehicles every day.

The segment is mostly two-lane undivided with moderate curvilinear alignment and currently posted at 80 km/h. The access and intersection frequency is dispersed and consistent with other highway systems in the interior where 90 km/h speed is posted

Conclusion

It is recommended that the posted speed limit between Grindrod and Sicamous be increased to 90 km/h for these factors:

- measured 85th percentile speed within the 80 km/h zone is 15 km/h above the posted.



Merritt to Aspen Grove

Physical Characteristics

Start Point: Junction with Hwy 5 Coquihalla (Coldwater Interchange)

End Point: Junction with Hwy 5A (Aspen Grove Interchange)

Length .....22 km

Number of Lanes 4 Divided No

Operational Characteristics

Average Daily Traffic 5,500

% Trucks.....15%

Safety: Overall Okanagan Corridor serious summer crashes trending down by 71%

Current Speed Limit ..... 100 km/h

85th Percentile Speed..... 123 km/h

Public Consultation Support 81%

Recommendation: 110 km/h

Aspen Grove to Peachland

Physical Characteristics

Start Point: Junction with Hwy 5A (Aspen Grove)

End Point: Junction with Hwy 97 (Drought Hill Interchange)

Length .....78 km

Number of Lanes 4 Divided Yes

Operational Characteristics

Average Daily Traffic 6,000

% Trucks.....15%

Current Speed Limit ..... 110 km/h

85th Percentile Speed..... 126 km/h

Recommendation: 120 km/h

Description

The third phase of the Coquihalla , the Okanagan Connector, running from Merritt to Peachland, was completed in 1990.

The Merritt to Aspen Grove segment has current posted speed is 100 km/h. The highway is two lanes in each direction divided by a wide asphalt median with rumble trips. The highway has few accesses. The nature of the highway changes at Aspen Grove. From Aspen Grove through to Peachland, the highway is posted at 110 km/h and is divided by either concrete barrier or a depressed median. It is a controlled access highway with interchanges. Each interchange has acceleration and deceleration lanes to accommodate higher speed limits; there are additional truck climbing on the longer grades.

The Aspen Grove to Peachland segment has wildlife exclusions systems to prevent animals from venturing onto the highway.

Conclusion

It is recommended that the posted speed limit be increased to 110 km/h from Merritt to Aspen Grove and 120 km/h from Aspen Grove to Peachland for these factors:

- measured 85th percentile speed is 13-16 km/h above the posted speed,
- summer serious crashes have been trending downwards with a 71% reduction since 2003.

Horseshoe Bay to Squamish

Physical Characteristics

First Start Point: Eagle Ridge Interchange

End Point: South of Stawamus River Bridge

Length ..... 35 km

Number of Lanes 4

Divided ..... Yes

Operational Characteristics

Average Daily Traffic 10,800

% Trucks 2%

Safety: Serious summer crashes trending down by 39%

Current Speed Limit ..... 80 km/h

85th Percentile Speed ..... 102 km/h

Public Consultation Support 83%

Recommendation: 90 km/h

Squamish to Whistler

Physical Characteristics

Start Point: North of Depot Rd

End Point: Alpha Lake Rd (Function Junction)

Length ..... 45 km

Number of Lanes 3/4

Divided ..... No

Operational Characteristics

Average Daily Traffic 9,200

% Trucks 2%

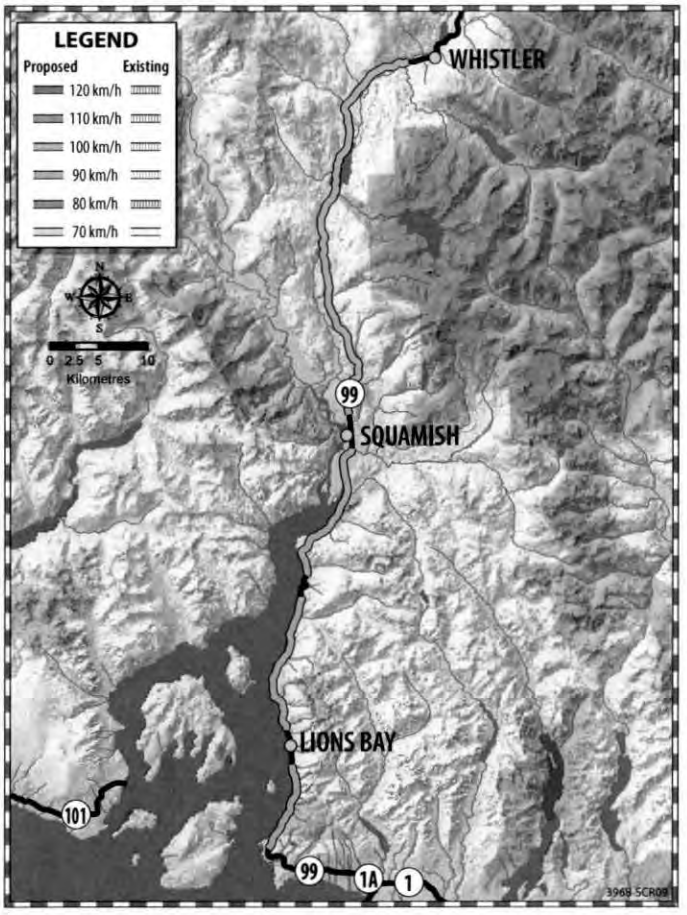
Safety: Serious summer crashes trending down by 39%

Current Speed Limit ..... 80/90 km/h

85th Percentile Speed ..... 105 km/h

Public Consultation Support 84%

Recommendation: 100 km/h



Description

The Sea-to-Sky highway connects Metro Vancouver through the Coast Mountains to Whistler.

The majority of the highway is two lanes divided in each direction to Squamish. North of Squamish the nature of the highway changes to one lane in each direction with passing and climbing lanes. Access to the highway is through several interchanges in the southern section of the highway, but mostly at grade intersections to the north. Traffic volumes fluctuate with seasonal activities and special events.

Conclusion

It is recommended that the speed limits be increased in these areas: Horseshoe Bay to Squamish to 90 km/h, and Squamish to Whistler to 100 km/h.

The 85th percentile speeds are 15-22 km/h over the posted speed limits. Serious summer crashes are trending down by 39%.

Note: Speed limits will not change within the communities of Lions Bay, Britannia Beach, Squamish and Whistler.

Whistler to Pemberton

Physical Characteristics

Start Point: South of Whistler Heliport Rd
End Point: Pemberton Boundary

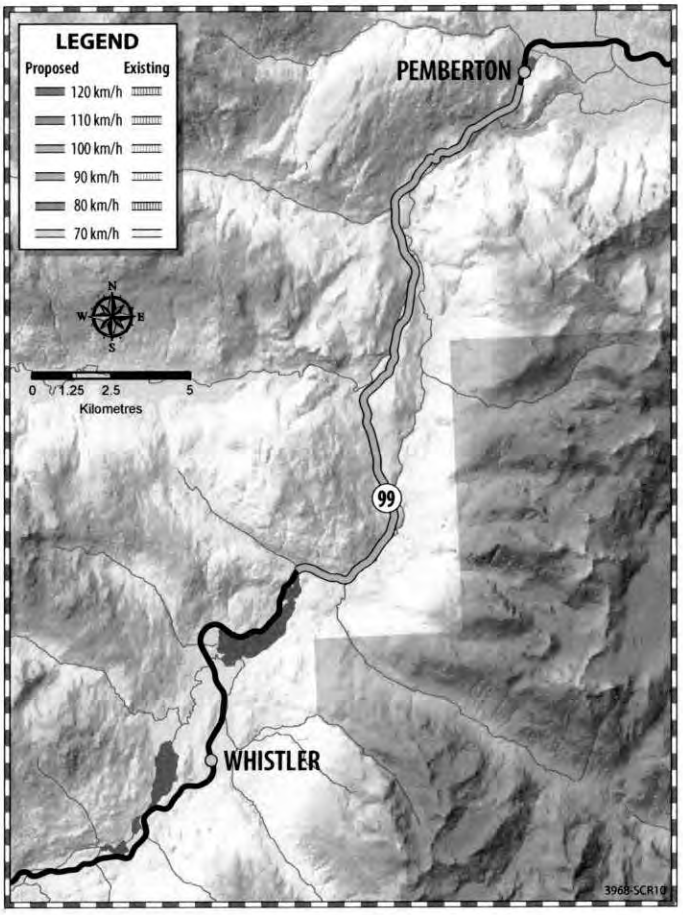
Length ..... 21 km
Number of Lanes 2/3
Divided ..... No

Operational Characteristics

Average Daily Traffic 3,700
% Trucks 2%
Safety: Too few serious summer crashes to determine a trend
Current Speed Limit ..... 80 km/h
85th Percentile Speed ..... 102 km/h
Public Consultation Support 68%

Recommendation: 90 km/h

Lillooett to Cache Creek (on separate map)



Description

Highway 99 (Whistler to Mt. Currie) is an undivided highway through mountainous terrain that connects south coast communities to the interior and North. The majority of the highway is one lane in each direction with passing and climbing lanes.

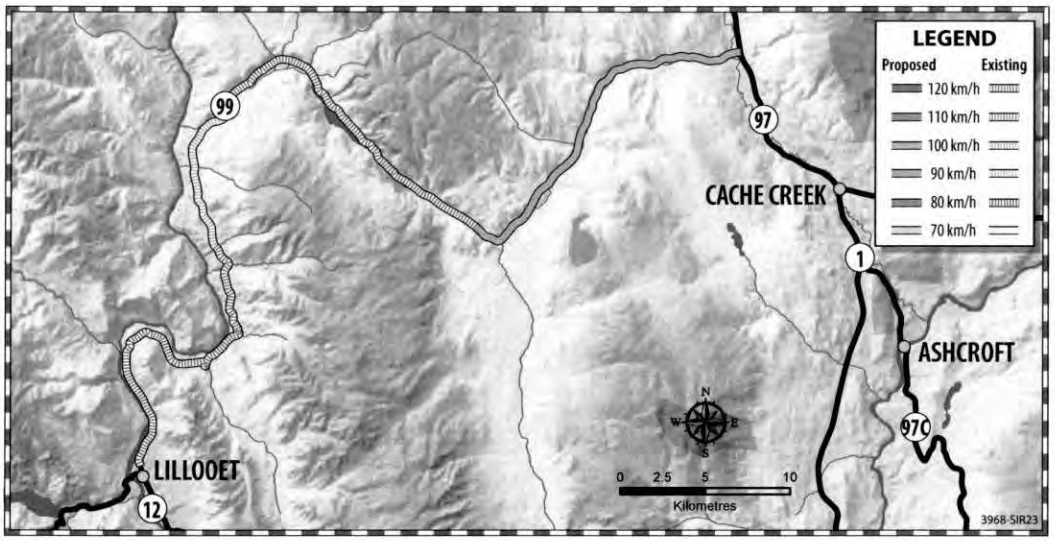
Volumes of general traffic and trucks are low.

Conclusion

It is recommended that the speed limit be increased from 80 km/h to 90 km/h.

The 85th percentile speed is 12 km/h over the posted speed limit.

Speed limits will not change within the communities of Whistler and Mt. Currie.



Lillooet to Cache Creek

Physical Characteristics

Start Point: 2.4 km north of Marble Canyon Provincial Park

End Point: Hwy 97 junction

Length ..... 22 km

Number of Lanes 2

Divided ..... No

Operational Characteristics

Average Daily Traffic 1500

% Trucks 13

Safety: Too few serious summer crashes to determine a trend

Current Speed Limit ..... 90 km/h

85th Percentile Speed ..... 102 km/h

Public Consultation Support 68%

Recommendation: 100 km/h

Description

Highway 99 provides a primary connection to Lillooet with Cariboo to the east, Lytton to the south and Whistler to the west. The segment between Lillooet and Cache Creek carries, on average, 1500 vehicles every day with 13% being heavy trucks. The segment traverses through Marble Canyon with relatively moderate volumes of RVs and motor homes through summer tourist season.

The majority of the segment is a two-lane undivided highway with multiple passing opportunities. The corridor has very few accesses and intersections between Hwy 97 and Lillooet. There exists a 12 km long segment posted at 100 km/h on the western section of Hwy 99 near Lillooet. All warning signs on this segment were replaced with current standards in 2013.

Conclusion

It is recommended that the posted speed limit over a 22 km segment between Hwy 97 and Marble Canyon Provincial Park be increased to 100 km/h for these factors:

- measured 85th percentile speed within the 90 km/h zone is 12 km/h above the posted,
- this increase will result in consistent speed limits between Gibbs Creek and Hwy 97 at a length of 35 km. The 80 km/h through Pavilion will remain unchanged.

APPENDIX B: ADDITIONAL HIGHWAYS FOR FURTHER ASSESSMENT

HIGHWAY DESCRIPTION	Segment Length (km)	Number of Lanes	Divided	Speed limit
Hwy 1, Surrey to Abbotsford				
160th Street to Whatcom Road	45	4	Yes	100
Hwy 6, Nelway to Nelson				
USA Border, Nelway to Burnt Flat (Hwy 3/6 Junction) (Excluding 50 km/h zone in Nelway)	10	2	No	90
First Street (Salmo) to Cottonwood Rd (Nelson)	41	2	No	90
Hwy 6, Lumby to Fauquier				
Quesnel Road (Lumby) to 7 km West of Deep Creek Bridge	77	2	No	80
Hwy 12, Lytton to Lillooet				
Green Meadows Road (Lytton) to Junction with Hwy 99	60	2	No	80
Hwy 17, Patricia Bay Highway				
150 m North of Saanich Firehall to Lands End Road (Swartz Bay)	26	4	Yes	80,90
Hwy 17, South Fraser Perimeter Road[1]				
56th Street (Tsawwassen) to Junction with Highway 1 and 15 (Surrey)	37	4	Yes	80
Hwy 24, Little Fort to Hwy 97 Junction				
Lemieux Creek Bridge to Junction Hwy 97 (Excluding 50 km/h through Lone Butte)	95	2	No	80, 90
Hwy 28, Campbell River to Gold River				
130 m West of the Quinsam River Bridge at Campbell River to 510 m East of Muchalat Drive in Gold River	85	2	No	80
Hwy 43, Sparwood to Elkford				
North of Lower Elk Valley Road to Village of Elkford Boundary	33	2	No	90
Hwy 97C, Logan Lake to Ashcroft				
West of Hwy 97D Junction to West of Mesa Vista Drive	54	2	No	80, 90
Hwy 97D, Hwy 5 Junction to Logan Lake				
Junction with Hwy 5 (Walloper Interchange) to East of Galena Avenue	23	2	No	90

1 For SFPR, Existing 50 km/h zone recommended for increase to 70 km/h

Rhonda Wittman /Dr. Chris Armstrong
9267 Emerald Drive,
Whistler, BC
V0N1B9
skibums59@gmail.com

September 10th, 2014

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

To: Mayor and Council

Re: Infrastructure Upgrades Needed through Emerald Estates

We would like to thank Mayor Wilhem-Morden and the Ministry of Transportation and Infrastructure (MOTI) for your quick review and resolution to the incorrectly increased speed limits by re-establishing the 60kmh through Emerald Estates.

We would however like to continue to draw your attention to the ever increasing traffic and traffic noise on Highway 99 travelling past Emerald Estate. This stretch of highway is long overdue for infrastructure upgrades in regards to exit and entrance lanes for both sides of the highway, sound damping pavement, pedestrian crossings and greater police presence to control those travelling well over the posted 60km hour speed zone.

Emerald Estates is one of the original developments in Whistler, spanning over 40 years. The development of Emerald Estates began most likely due to the proximity of Green Lake and the desire for a secluded residential area. Families/permanent residences and tourists continue to enjoy the lake and the park located just off the highway.

With a speed limit of 60kmh, there exist safety concerns in trying to cross the highway as a pedestrian. Consider the plight and dangers facing our children with their school bus letting them off on the side of the highway expecting them to cross this busy highway. Cyclists are in abundance in their trek to Pemberton, the valley trail ends just before Emerald. The local municipal bus, stops on the side of the highway to let passengers on and off, the bus has 2 of its wheels still on the highway, which results in vehicles moving into the oncoming lane to go around it. When trying to make a turn off the highway in any direction, vehicles will ride the shoulder to go around the stopped vehicle. Several close calls have been described by individuals on how they had narrowly missed being rear ended or clipped by other vehicles while trying to turn. Serious accidents are just waiting to happen.

Emerald Estates is not any different than the areas of Creekside, Nordic, Whistler Cay, Alpine or Rainbow developments, which target safety through traffic lights, crosswalks and exit, merge and turning lanes to Highway 99. It should be noted that Lions Bay has 3.5 km of noise reducing pavement and merge lanes to enter and exit the highway. Squamish is 60 - 70km/hour through the entire corridor and they also have merge lanes, 3.5 km of noise reducing pavement, traffic lights and overpasses to address pedestrian crossings.

Why does a newly established community like Rainbow receive traffic lights, merging lanes to enter/exit and controlled crosswalks in their area and yet Emerald is still without any safety measures after 40 years.

When we first moved to Emerald Estates 14 years ago, you could enjoy sitting on the deck or opening your windows on a summers night and not hear the sound of traffic screaming and roaring by at all hours of the day and night. Emerald Estates residents seem to receive very few amenities and little attention

from the Whistler municipality, yet we continue to willingly support the infrastructure of Whistler. This is a time as taxpayers, we request that our community be treated fairly like many other areas around Whistler.

In addition, the amount of highway noise that residents in the area are subjected to has become overwhelming to a point of interfering with sleep, work and recreation. Some residents have reverted to installing plexi-glass panels onto their decks to reduce the noise while trying to enjoy time outside. For ourselves, we have converted our 'front' yard for sitting (instead of the back) with a waterfall system to try and block out the highway noise (unfortunately doesn't really work). An excerpt from a study stated "Normal highway traffic noise ranks about 75 dB(A) and jet liners around 90 dB(A)". Our recent readings from our balcony of cars, motorcyles and commercial vehicles travelling through Emerald Estates are on average 80 dB(A) and peaking at 105 dB(A). "For most people, discomfort starts in the 70 - 80 dB(A) range, with the threshold of pain around 140 dB(A). The Federal Highway Administration (FHWA) (albeit USA) has chosen 67 decibels as the point where the state and federal agencies must consider reducing the noise level." The link below is to a report on sound damping pavement, where research shows that open-graded friction course (OGFC) mix will reduce highway noise by 3 to 5dB(A) or more. To the average person, this reduction is the same as doubling the distance between the source of the noise and their location.

It is clear (and was recently stated to us by a Whistler RCMP Constable) that the infrastructure for this area is inadequate for speeds of 60 km/hour and thus needs to be addressed immediately. As previously stated the communities along highways of Lions Bay and Squamish have either one or more safety and noise solutions implemented, such as;

- merge and turning lanes
- pedestrian overpasses or controlled crosswalks
- sound reducing pavement;
- greater police presence at the Emerald and Summer Lane entrances (not the view point) to insure that vehicles are adhering to the posted speed limits.

As residences and taxpayers, we request that the infrastructure upgrades mentioned above be instituted to establish safe entrance, exit and travel through our community for pedestrians and vehicles. Anything less is a disregard for the safety and well-being of every person who travels this stretch of road. We look forward to your response in addressing these essential issues affecting Emerald Estates.

Sincerely,

Rhonda Wittman

Dr. Chris Armstrong

Ref: http://www.asphaltfacts.com/news/industry-news/open-graded-friction-course-ogfc-pavement/

Attached reference Document – OGFC Pavement

CC: Premier, Honorable Christy Clark,
Minister of Transportation, Honorable Todd Stone
Deputy Minister of Transportation, Grant Main
MLA, Jordon Sturdy

Reference document

OGFC Pavement

Travelling on a rainy day with OGFC pavement = reduced noise, no spray and no water collection on the road, better traction.

Travelling on the same rainy day WITHOUT OGFC pavement = increased noise, spray and hydro-plane potential.

September 9, 2014

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

Dear Mayor & Council,

On behalf of Zero Ceiling, I am writing this letter to inform you that due to insufficient funds raised, we will be unable to expand our Work 2 Live program this coming winter from four to six youth as we originally proposed in our 2014 Community Enrichment Program grant application. Due to this situation, I'd like to request permission from council for Zero Ceiling to continue to use the funds awarded to us from the 2014 CEP grant to go towards supporting our original Work 2 Live program that will support four (not six) disadvantaged youth to move to Whistler to live and work for the 2014/15 winter season.

Our plan for expanding our Work 2 Live program has not been abandoned it has just been postponed until Summer 2015, as this will give us more time to plan and fundraise. We were counting on continued funding from the Diamond Foundation to help support the Winter 2015 expansion but they moved their grant deadline from April 10th to October 15th, 2014 which doesn't give us enough time to plan. We also hoped funding from Social Venture Partners Vancouver would have been approved this past summer but it has not yet been confirmed.

In place of immediate funding, Social Venture Partners facilitated a strategic planning session this summer with our board of directors in order to help us plot our growth for the next three years. One of our strategic initiatives that came out of the plan was to establish a narrow focus aligning and allocating our current resources available to our new key strategic priorities.

Here are the key strategic priorities that were identified in the 1-year Strategic Plan:

i. Broaden our **Fundraising** efforts to reach out to the Metro Vancouver community whose citizens benefit from our programs and diversify our sources of funds.
ii. Revamp our **Storytelling, Brand and Image** to ensure our message is consistent and reaches the greatest number of people who may find inspiration in our vision.
iii. Formalize our core programs so that we can enable more **People & Partnerships** to get involved in an efficient and effective way.

Note: The one year strategic plan was built off the success from our previous 3-year strategic plan that ended May 31, 2014, and was funded by the Community Enrichment Program in 2011.

After going through the strategic planning process, our board of directors voted not to expand the Work 2 Live program this winter until we are more financially sustainable. Following our current strategic plan will ensure for this to happen.

Zero Ceiling Society of Canada
PO Box 61, Whistler, BC, V0N 1B0
604.902.0996 kasi@zeroceiling.org www.zeroceiling.org

On September 10th, I am presenting a 3-year plan to Social Venture Partners Vancouver to help support the above priorities. One of the goals of the plan is to scale our growth and add a summer 2015 Work 2 Live program for 2 youth. Then, grow our Winter 2015/16 program from 4 – 6 youth. Each season adding another 2 youth allowing us to triple the number of youth we can accept in our program by the third year. If approved, Social Venture Partners will invest in the start up costs of these programs so then we will be guaranteed to operate.

In the meantime, I would like to humbly request that you please consider allowing us to use the $4,500 grant we received from the 2014 Community Enrichment Program to help support our upcoming four youth, rather than six, for the 2014/15 Work 2 Live program. If you agree, the funds will be allocated as such:

WORK 2 LIVE WINTER 2014-15	EXPENSES	CEP GRANT	NOTES
Training/Certifications	$ 2,000.00	$ 400.00	Employment training courses
Office Rent to WCSS	$ 1,020.00	$ 0.00	Paid to Whistler Community Services Society (WCSS)
Contract Labour - Outreach Worker	$ 3,450.00	$ 2,300.00	WCSS's fee for Outreach Services for 4 youth
Contract Labour - Program Coordination	$22,576.00	$ 1,050.00	Contract fee
Insurance	$ 1,000.00	$ 750.00	Cost to insure the youth and staff in our program
TOTAL Work 2 Live Winter Program Expenses:	**$ 30,046.00**	**$ 4,500.00**	

Please accept my apology that we weren't able to deliver on this particular initiative. I assure you it is the right decision for Zero Ceiling at this time and for the health of our programs going forward. Your money will still be supporting the exact same initiatives as you originally agreed to – the only difference is funds originally assigned to support outreach support for 6 youth will now go to support four youth and the remainder has been applied to the program coordinator's fee.

Mayor and Council, thank you for years of support and commitment to our cause. We look forward to growing our transformational programs for at risk and homeless youth when it is a financially sound decision to do so.

Thank you also for your understanding of this unique situation. If you have any questions, I am happy to speak with you and can be contacted at kasi@zeroceiling.org or 604.902.0996.

Sincerely,

Kasi Lubin
Executive Director
Zero Ceiling

Sḵwx̱wú7mesh Íl̓wat7úl
SQUAMISH LÍLWAT CULTURAL CENTRE
WHISTLER, BRITISH COLUMBIA

August 28, 2014

Mayor and Council
Resort Municipality of Whistler

Re: TAXATION EXEMPTION FOR NOT-FOR-PROFIT ORGANIZATIONS - SLCC

The Spo7ez Cultural Centre and Community Society (operating as the Squamish Lil'wat Cultural Centre - SLCC) requests your consideration to continue property tax exemption for:
Plan LMP 21845, Lot B, District Lot 3866, Group 1 New Westminster District
Spo7ez Cultural Centre and Community Society, Blackcomb Way, Roll Number 006166.090

This letter requests that the SLCC be provided the same consideration as the other Whistler not-for-profits who receive a minimum of a five-year exemption and be granted a five-year property taxation exemption beginning in 2015.

Since 2003 the SLCC has been granted property tax emption by the RMOW along with other not-for-profit organizations such as the Whistler Mountain Ski Club, Whistler Children's Centre and more recently the properties used by Whistler Sport Legacies.

On October 15, 2013 Council adopted Taxation Exemption for Not-for-Profit Organizations Amendment Bylaw No. 2037, 2013 which granted a one-year property tax exemption for the SLCC for 2014 as compared to several other not-for-profit organizations who were granted 5-year or longer exemptions. A one-year exemption for the SLCC creates operational uncertainty for our organization and a decision to remove tax exemption status for the SLCC would have debilitating financial impact on our organization.

We continue our efforts to improve our financial performance however our improved bottom line is not yet financially self-sustaining and a municipal property tax expense would put the future of the SLCC in significant jeopardy.

The award-winning SLCC has achieved top-10 status of attractions in Whistler according to TripAdvisor and has received their Certificate of Excellence for the last two years. The SLCC has helped raise the profile of Whistler within the tourism industry and has provided valuable and ongoing assistance in the work to diversify the tourism economy base for the resort of Whistler through cultural tourism. Our 50,000+ guests each year along with over 150 special events that we host (including several fundraisers for Whistler clubs and associations) demonstrate that we have earned an important place in the Whistler community. Our Whistler partners, including Whistler Blackcomb, Four Seasons Resort & Residences Whistler and the Fairmont Chateau Whistler, agree that we play a valuable and impactful role in the Whistler tourism industry.

The SLCC demonstrates through support of local initiatives, active involvement in local committees and working groups and leadership in cultural tourism activation that we are a vital part of Whistler's economy and a key partner in the growing industry of aboriginal

tourism in BC. Our efforts to benefit the community of Whistler can be seen throughout Whistler with the multiple Welcome Figures and cultural kiosks gifted from us to the community that have become part of the daily Whistler experience.

We, at the SLCC, feel we have worked very hard to establish ourselves as a valuable part of the Whistler and Sea to Sky cultural community, also as an important training facility for capacity enhancement of aboriginal youth as well as a valuable legacy of the 2010 Olympic and Paralympic Winter Games attracting national and provincial awards.

We ask that you will consider the factors listed above while reviewing our request for a five-year property tax exemption.

Sincerely,

Casey Vanden Heuvel
Executive Director
Squamish Lil'wat Cultural Centre

Chief Lucinda Phillips
SLCC Board President
Lil'wat Nation

Chief Bill Williams Pes

Chief Ian Campbell
SLCC Board Director
Squamish Nation

From: Laurie Parkinson [mailto:lauriepar@shaw.ca]
Sent: Tuesday, September 09, 2014 8:10 PM
To: Wanda Bradbury
Subject: Woodfibre could export oil from Howe Sound if LNG prices fail - Northern BC First Nations are worrying about this re the Pacific Trails pipeline

Hello Ms Bradbury,
Could you please forward this email to Whistler Mayor and Council?
Please also let them know I have sent this same email all around Howe Sound.
Thanks, Laurie

Hello Mayor and Council,

The First Nations recently negotiated a guarantee that the proposed Pacific Trails natural gas pipeline will never be used to transport oil, unless they approve. Please see the attached article. The first paragraph is below:

"Moricetown Indian Band Chief and Council and members of the Wet'suwet'en Hereditary Chiefs have secured commitments from officials of the Province of British Columbia, Chevron Canada Limited, Apache Canada Ltd., and the First Nations Group Limited Partnership (FNLP) that no oil will be transported in the proposed natural gas Pacific Trail Pipeline (PTP) Project owned by Chevron and Apache unless unanimously supported by the FNLP members."

Globally, LNG prices are dropping, and supply is increasing significantly.

A short pipeline through Port Moody could connect the present Trans Mountain oil pipeline in Burnaby to the natural gas pipeline to Woodfibre.
Leads me to think about oil slicks in Howe Sound.

Cheers,
Laurie Parkinson BSc, MSc
Bowyer Island (Howe Sound)

634 E 4th St, North Vancouver, BC, V7L 1J8
and Bowyer Island, Howe Sound, BC

Ph: 604-980-7067

https://warriorpublications.wordpress.com/2014/08/19/no-oil-to-be-transported-by-the-ptp-unless-approved-and-unanimously-supported-by-the-fnlp-members/#more-4515

Oil could be transported by Pacific Trails Pipeline if approved by FNLP members

Aug 19

Posted by Zig Zag

Members of Unis'tot'en camp, November 2012.

West Coast Native News, August 19th, 2014

Moricetown Indian Band Chief and Council and members of the Wet'suwet'en Hereditary Chiefs have secured commitments from officials of the Province of British Columbia, Chevron Canada Limited, Apache Canada Ltd., and the First Nations Group Limited Partnership (FNLP) that no oil will be transported in the proposed natural gas Pacific Trail Pipeline (PTP) Project owned by Chevron and Apache unless unanimously supported by the FNLP members.

The commitments were made during negotiations underway regarding Moricetown Indian Band's possible entry into the FNLP. The FNLP is a partnership of 15 First Nations dedicated to assuring that First Nations along the proposed route of the PTP benefit substantially from the Project, and that the Project only proceeds in a responsible manner that fully protects the interests of all parties and the environment.

"Before Moricetown considers joining the FNLP, we must be assured no oil will be carried in the Pacific Trail Pipeline," said Barry Nikal, Chief Councillor, Moricetown Indian Band. "With the Province's promise to establish regulation to prevent this from happening, we are prepared to continue to discuss the possibility of joining the FNLP."

Members of the Wet'suwet'en Hereditary Chiefs were invited to observe the ongoing discussions between the Moricetown Band and PTP parties.

"Members of the Hereditary Chiefs are here to make sure the land and water is protected, our people's voices are heard, and that no oil pipeline will come through Wet'suwet'en territory," said Ron Mitchell, Wet'suwet'en Hereditary Chief Hagwilnegh.

To ensure the "no oil" commitment is upheld, the Province intends to establish a regulation preventing natural gas pipelines for LNG projects from being converted to oil or crude bitumen pipelines. The details of the regulation will be developed this fall through ongoing consultation with Moricetown Indian Band and the Wet'suwet'en Hereditary Leadership.

"The Province has given written assurance that we intend to prohibit oil from being transported in natural gas pipelines used for LNG projects," said Rich Coleman, B.C. Minister of Natural Gas Development and Deputy Premier.

Chevron Canada and Apache Canada are in agreement. "The Pacific Trail Pipeline is designed specifically to transport natural gas to the Kitimat LNG facility at Bish Cove. As the pipeline operator, Chevron has listened to the concerns of the Moricetown Indian Band and the Wet'suwet'en people, and are pleased to work towards the mutual goal of building a pipeline that above all protects people and the environment," said Jeff Lehrmann, President, Chevron Canada Limited.

The Chevron-Apache commitment strengthens the "no conversion to oil" clause in the FNLP Agreement by including an amendment to further stipulate that no oil will ever be transported by the PTP unless approved and unanimously supported by the FNLP members. This commitment would be binding on any future owners of the Project.

SOURCE Moricetown Indian Band

Published on *The Vancouver Observer* (http://www.vancouverobserver.com)

West Vancouver Council rips into Woodfibre exec over LNG tanker and safety risks

In a relentless cross examination at a West Vancouver's city hall meeting Monday night, a united council sharply grilled a Woodfibre LNG executive about his company's proposed $1.6-billion project, while also reaffirming the city's recent ban on tankers in Howe Sound.

"There's a lot of opposition to this," said Coun. Mary-Ann Booth, a lawyer, who said she has received well over 100 e-mails from residents about the project.

"For the risk associated with this, and the impact to that area, [all] for dozens of jobs?"

"You haven't convinced me," said Booth.

Woodfibre LNG project director Alex Brigden told council about the natural gas project's benefits, including the creation of 100 permanent jobs, and 500 construction jobs. Brigdon also stressed that the LNG shipping industry's safety record is exemplary.

"I've been involved with delivering LNG ships for many years, and I can tell you they are one of the most sophisticated designed ships that there is sailing," the executive told the chamber.

"We strongly believe the risks of operating LNG ships in the Howe Sounds [are] very small," added Brigden.

The project, if built, would be a small-scale LNG plant in the Squamish area, and is an early favourite for approval, according to industry observers. 40 LNG tankers per year would transit the area's sea lane, alongside the Sea-to-Sky highway, between Vancouver and Whistler.

But question after question was levelled at Brigden about the plant's chlorination of sea water, as well as the safety of LNG tankers in a narrow channel already occupied by ferries and recreational boaters. Howe Sound is only now recovering from decades of industrial impacts from mines and paper mills, councillors reminded.

Mayor says Howe Sounds need protection

Even West Vancouver's Mayor Michael Smith admitted he was not a fan of the petroleum project, despite being a long-time professional with Exxon Mobil.

"In the interests of full disclosure, I have still have contractual relationships with that organization," said Mayor Smith.

"You can minimize the [industrial] risk, but you cannot remove all the risk," he said.

Mayor Smith said he personally has combed every inch of southwestern B.C.'s coastlines in his zodiac boat, and said Howe Sound deserves protection.

"I have to say after 25 years of exploring all that geography, Howe Sound is pretty special," said the Mayor, to a round of applause from a packed and overflowing council chamber.

"The location, next to a major city, with recreational opportunities that close is really unique," he added.

West Vancouver Mayor Michael Smith and Councillor Bill Soprovich at council meeting Monday night - Photo Mychaylo Prystupa

The Woodfibre executive said LNG projects near major cities was not something new. He showed photos of similar terminals in Boston and Tokyo that have operated for years without incident, he said.

Coun. Booth then accused Brigdon of "side stepping" questions about the project's water pollution concerns.

"I am going to ask some questions, that I would appreciate direct answers to. Otherwise it's a waste of council's time to have you here," said Booth.

Woodfibre revealed its plant would process 17,000 cubic metres of seawater per hour – a volume equal to 6.8 Olympic size swimming pools. Its discharge would add .02 parts per million of chlorine – roughly 100 times less than chlorine than that added to drinking water, said Brigden.

Premier Christy Clark and Sukanto Tanoto Woodfibre LNG during Clark's southeast Asia LNG tour -- B.C. government photo

The executive was also asked about the company's singular shareholder Sukanto Tanoto – the controversial Indonesian billionaire, behind Pacific Oil and Gas headquartered in Singapore. Premier Christy Clark met with this same industrial magnate during her LNG promotional tour of Asia.

Coun. Bill Soprovich wanted to know if human rights offences and corruption allegations against Tanoto were true.

"As far as I know, that is not true. Many things are said in the press that I cannot verify," replied Brigden.

Opposition intensifying

But opposition to the project has been rising. The District of Squamish heard vocal opposition at a July 15 council meeting, attended by more than 100 local citizens opposed to the project.

"No Woodfibre LNG" protest outside Squamish council meeting July 2014 - Photo by Mychaylo Prystupa

Then on July 21, West Vancouver's council unanimously passed what the mayor later described was a "rushed" motion banning tankers in Howe Sound.

There were some fears expressed in media reports that councilors may have been confused about what they were voting for, and might be pressured to reverse its tanker ban.

Local Conservative Member of Parliament, John Weston, openly criticized the council's position, saying LNG development was needed to pay for teachers, medicals services and welfare.

"As a result I am a firm believer that the Environment is the Economy as I have indicated many times in the House of Commons," Weston wrote in a letter.

No social licence, says councillor

But Monday night, a united council reaffirmed its tanker ban.

"I do regret about how this came about, with us making a decision before hearing from both sides," said Coun. Craig Cameron.

"Having said that…I do think it's quite evident the proponent has not obtained the social licence for this project," said Cameron.

A spokesperson for a local citizens' group celebrated the council's moves.

"I'm thrilled," said Sean Lumb, with My Sea to Sky.

"I think there was an attempt to discredit the council, and I really think the proponent didn't rise to the occasion."

Sean Lumb with "My Sea to Sky" attending the West Vancouver city council meeting Monday - photo by Mychaylo Prystupa

Councillors stressed that alternatives to LNG were preferred – pointing to major employers such as Microsoft, Sony Pictures, Hootsuite, Google and Amazon – all of whom had been attracted to the region, said Coun. Booth, but don't post a serious environmental risk.

"That is worth investing in," said Booth.

Likewise, Coun. Nora Gambioli said:

"The provincial and federal governments need to let go of their Neanderthal economy positions, and get with the 21st century program of other progressive nations."

"We need to invest in tourism and renewable energy sources, which would create far more jobs, and would be far better for our kids, not to mention the planet."

"That should be the plan for Howe Sound," added Gambioli to huge applause from citizens in the chamber, and those just outside.
