

Revelstoke Bear Hazard Assessment and Bear Human Conflict Management Plan

Prepared for:
Revelstoke Bear Aware Society
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Disclaimer

This report was prepared for the Revelstoke Bear Aware Society by the Revelstoke Bear Aware Coordinator Penny Page-Brittin. The goal of the Society is to produce a document in accordance with the guidelines of the British Columbia Provincial Bear Smart Program. The document will guide the City of Revelstoke and surrounding Columbia Shuswap Regional District through recommendations to reduce conflicts between people and bears. The best possible information available was used to create this document and no liability is assumed with respect to the use and application of the information it contains.



Black bear, photo Zuzanne Driediger 2008

Table of Contents

1. ACKNOWLEDGEMENTS	2
2. SUMMARY	7
3. BEAR SMART PROGRAM	8
4. INTRODUCTION	9
5. STUDY AREA	9
5.1 COMMUNITY PROFILE.....	9
5.2 SOLID WASTE MANAGEMENT.....	10
5.3 ECOLOGY OF THE AREA	10
6. HISTORY BEAR/HUMAN CONFLICT IN REVELSTOKE	11
PHASE I: PROBLEM ANALYSIS	13
7. BEAR HAZARD ASSESSMENT	13
8. METHODOLOGY	13
9. BEAR HAZARD MAP	14
9.1 WILDLIFE TRAVEL CORRIDORS	15
9.2 LIMITATIONS ON DATA	15
10. WILDLIFE ATTRACTANTS	15
10.1 RESIDENTIAL GARBAGE	16
10.2 COMMERCIAL AND MULTI-RESIDENTIAL GARBAGE	16
10.3 FRUIT TREES	18
10.4 LIVESTOCK AND APIARIES	18
10.5 OTHER ATTRACTANTS	19
10.6 GREASE BARRELS	19
11. SURVEY OF THE COMMUNITY	20
11.1 WILDLIFE CORRIDORS AND INTERFACES	20
11.2 SCHOOLS YARDS	20
11.3 PARKS AND PATHWAY SYSTEMS	22
11.3.1 River Trail Pathway System	22
11.3.2 City Parks.....	23
11.4 CAMPGROUNDS	25
11.5 GOLF COURSE.....	26
11.6 QUEEN VICTORIA HOSPITAL AND MOUNT CARTIER EXTENDED CARE COTTAGES	26
11.7 BRIDGE CREEK SPAWNING CHANNEL.....	27
11.8 CANADIAN PACIFIC RAIL YARD	28
11.9 REVELSTOKE MOUNTAIN RESORT (RMR), SKI HILL DEVELOPMENT	29
11.10 MOUNT REVELSTOKE NATIONAL PARK.....	30
12. PREVENTIVE MEASURES IN PLACE	30
12.1 REVELSTOKE BEAR AWARE EDUCATION PROGRAM.....	30
12.2 COMMUNITY WILDLAND FIRE PROTECTION COMMITTEE.....	31
12.3 CITY’S WASTE COLLECTION STRATEGY COMMITTEE.....	31
13. SOLID WASTE MANAGEMENT	31
13.1 BEAR RESISTANT POLYCARBONATE PILOT PROJECT	33

13.2 BEAR RESISTANT GARBAGE CANS AND THE CO SERVICE	33
14. BYLAW REVIEW	34
15. REVIEW OF PLANNING AND DECISION MAKING DOCUMENTS.....	35
15.1 REVELSTOKE AND AREA COMMUNITY DEVELOPMENT ACTION PLAN.....	35
15.2 REVELSTOKE OFFICIAL COMMUNITY PLAN (OCP).....	35
15.3 COLUMBIA SHUSWAP REGIONAL DISTRICT (CSR D), AREA B, OFFICIAL COMMUNITY PLAN.....	35
15.4 REVIEW OF CSR D SOLID WASTE MANAGEMENT PLAN	35
15.5 REVELSTOKE MOUNTAIN RESORT DEVELOPMENT	36
15.6 MOUNT REVELSTOKE NATIONAL PARK MANAGEMENT PLAN.....	37
PHASE II – REVELSTOKE BEAR HUMAN CONFLICT MANAGEMENT PLAN.....	38
16. PRINCIPALS OF THE BEAR/HUMAN CONFLICT MANAGEMENT PLAN.....	38
17. RECOMMENDATIONS AND ACTION PLAN.....	39
17.1 WILDLIFE ATTRACTANTS	39
17.1.1 Residential Garbage	39
17.1.2 Commercial and Multi-residential garbage.....	39
17.1.3 Fruit trees.....	40
17.1.4 Livestock and Apiaries	40
17.1.5 Other Attractants.....	40
17.1.6 Grease Barrels.....	41
17.2 SURVEY OF THE COMMUNITY	41
17.2.1 Wildlife Corridors and Interfaces	42
17.2.2 School yards.....	42
17.2.3 Parks and pathway systems.....	43
17.2.4 Campgrounds.....	43
17.2.5 Golf course.....	43
17.2.6 Queen Victoria Hospital and Mount Cartier Extended Care Cottages.....	44
17.2.7 Bridge Creek Spawning Channel.....	44
17.2.8 Canadian Pacific Rail Yard	44
17.2.9 Revelstoke Mountain Resort (RMR) resort development	44
17.2.10 Mount Revelstoke National Park.....	45
18. BYLAW EDUCATION AND ENFORCEMENT PLAN.....	45
19. HUMAN-BEAR CONFLICT MONITORING SYSTEM.....	45
20. REVIEW OF BEAR SMART CRITERIA.....	46
21. CONCLUSION.....	47
22. PEOPLE CONTACTED.....	48
23. LITERATURE CITED OR CONSULTED	48
23.1. REPORTS	48
23.2 WEBSITES	50
24. APPENDICES.....	51
APPENDIX 1: BEAR HAZARD MAP FOR THE CITY OF REVELSTOKE	51
APPENDIX 2: SAMPLE WILDLIFE ATTRACTANT BYLAW.	52
APPENDIX 3: REVELSTOKE BEAR AWARE SOCIETY - PROGRAM DELIVERY AND PRESENTATIONS AND PUBLIC DISPLAYS IN 2008.....	55
APPENDIX 4: CITY OF REVELSTOKE WASTE COLLECTION STRATEGY COMMITTEE, TERMS OF REFERENCE	57
APPENDIX 5: CITY OF REVELSTOKE WASTE COLLECTION STRATEGY COMMITTEE – MISSION AND VISION STATEMENT.....	59
APPENDIX 6: (EXCERPTS FROM) PROVINCE OF BRITISH COLUMBIA, WILDLIFE ACT	61

APPENDIX 7: BEAR RESISTANT POLYCART PILOT PROJECT 63

APPENDIX 8:(EXCEPTS FROM) REVELSTOKE AND AREA COMMUNITY DEVELOPMENT ACTION PLAN, SEPTEMBER 2007..... 64

APPENDIX 9: (EXCERPTS FROM) CITY OF REVELSTOKE OFFICIAL COMMUNITY PLAN, PRE-FINAL DRAFT FOR COMMUNITY REVIEW, MARCH 2009 65

APPENDIX 10: (EXCERPTS FROM) THE COLUMBIA SHUSWAP REGIONAL DISTRICT, AREA B, OFFICIAL COMMUNITY PLAN, ADOPTED OCTOBER 2008..... 66

APPENDIX 11: (EXCERPTS FROM) MOUNT REVELSTOKE AND GLACIER NATIONAL PARKS AND ROGERS PASS NATIONAL HISTORIC SITE OF CANADA DRAFT MANAGEMENT PLAN (2009)..... 67

2. Summary

People create a number of odours and food sources that attract both black and grizzly bears into the community of Revelstoke. Opportunistic bears enter the community to feed on these attractants, causing a potential safety hazard to residents. If a bear remains in the City feeding on available garbage or unmanaged fruit trees, the bear may become food conditioned to these food sources and habituated to people. The bear becomes a potential threat and in many cases is destroyed. Continually destroying bears each year that feed in the community is not an effective solution to the problem. These bears may be replaced the following season by additional bears that will feed on the same attractants and will once again come into conflict with people.

In 2002, the Ministry of the Environment created the “Bear Smart” community initiative. It is a voluntary, proactive program, which encourages communities to work together to identify the root causes of human bear conflict, and reduce the risk to human safety as well as decrease the number of bears destroyed each year.

A Bear Hazard Assessment was completed for Revelstoke and surrounding area, including a Bear Hazard Map that shows the location of bear sightings in the community and the attractant that was present. Information was gathered from reports of bear activity made to the Provincial Problem Wildlife Occurrence phone line and to Revelstoke Bear Aware phone line. A survey of the community was completed that identified other natural and non-natural bear attractants and areas of high potential for human bear conflict. The two most significant attractants bringing bears into Revelstoke are garbage and fruit.

The City of Revelstoke, the Columbia Shuswap Regional District and its residents have made great strides in reducing human bear conflict over the past 13 years, since the initiation of the Revelstoke Bear Management Committee and the Revelstoke Bear Aware program. The average annual number of bears destroyed as a result of conflict has decreased from 27 to 7 over this period of time. A Bear Aware education program has been in place since 1996, and the City of Revelstoke has converted open garbage cans to bear proof bins along the City’s River Trail system and in most of the City’s parks. Also, “Bear Smart” practices have been included in the Official Community Plan for Revelstoke and the Columbia Shuswap Regional District as well as in other City planning documents.

Using the information gathered in the Bear Hazard Assessment, a Bear Human Conflict Management Plan was created. The management plan identifies recommendations and actions required to mitigate the potential bear hazard observed in the Bear Hazard Assessment and to lead the community towards becoming Bear Smart.

Bear proofing residential garbage was given the highest priority in this plan. By completing the actions laid out in the Bear Human Conflict Management Plan, the City

will become a “Bear Smart” community which is safer and cleaner with a healthier local bear population.

3. Bear Smart Program

The Bear Smart community program was designed by the Ministry of the Environment in partnership with the British Columbia Conservation Foundation and the Union of British Columbia Municipalities. It is a voluntary, preventative conservation measure that encourages communities, businesses and individuals to work together. The goal is to address the root causes of bear human conflicts, thereby reducing the risks to human safety and private property, as well as the number of bears that have to be destroyed each year. A number of communities have applied for “Bear Smart” status, but at this time it has not been granted to any community.

The program is based on a series of criteria that a community must achieve to become recognized as being “Bear Smart”.

The criteria to become a Bear Smart community are:

1. Prepare a bear hazard assessment of the community and surrounding area.
2. Prepare a bear/human conflict management plan that is designed to address the bear hazards and land-use conflicts identified in the previous step.
3. Revise planning and decision-making documents to be consistent with the bear/human conflict management plan.
4. Implement a continuing education program, directed at all sectors of the community
5. Develop and maintain a bear-proof municipal solid waste management system.
6. Implement “Bear Smart” bylaws prohibiting the provision of food to bears as a result of intent, neglect, or irresponsible management of attractants.

(<http://www.env.gov.bc.ca/wld/bearsmart/bearsmintro.html>)

Achieving Bear Smart community status is a two phase process. Phase I requires a Problem Analysis, and Phase II requires a Bear/Human Conflict Management Plan.

4. Introduction

This document consists of Phase I: Problem Analysis and Phase II: Human-Bear Conflict Management Plan, of the “Bear Smart” community program.

In Phase I: Problem Analysis, a Bear Hazard Assessment including a Bear Hazard Map was created for Revelstoke and surrounding area. The assessment identifies non-natural and natural attractants in the community, wildlife corridors and current and potential areas in the community that have a high risk for human/bear conflict. The document is a living document that will change over time as changes occur in the community.

Phase II: Bear/Human Conflict Management Plan, establishes a clear management plan with recommendations and actions to reduce bear hazard identified in the Bear Hazard Assessment. The Bear/Human Conflict Management Plan also develops a timeline for implementation of the criteria to become a “Bear Smart” community, including identifying the agencies, groups and individuals involved, setting priorities, and conducting a cost estimate of the proposed management actions.

5. Study Area

The area of study includes the City of Revelstoke and the immediate surrounding area of Columbia Shuswap Regional District [CSRD] Area B, which includes the Begbie Bench [Hwy 23 South] the Mt McPherson Demonstration Forest area, South Revelstoke on Airport Way, Revelstoke Mountain Resort and Mount Revelstoke National Park.

5.1 Community Profile

Revelstoke is situated in the south eastern part of British Columbia in the Thompson Okanagan region. It is located adjacent to the Columbia River at the north end of upper Arrow Lake. The Monashee Mountains border the community to the west and the Selkirk Mountains, containing Mount Revelstoke National Park, lie to the east. Although Revelstoke is located along two main transportation corridors, the Trans-Canada Highway and the mainline of the Canadian Pacific Railway, the community is relatively isolated.

Revelstoke is a vibrant mountain community that takes pride in its beautiful mountain setting and many recreational opportunities. The bear is a symbol of the community with large grizzly bear statues erected on either side of the entrance to the City and additional grizzly bear statues in the downtown community meeting place “The Grizzly Plaza”.

The population of the City of Revelstoke is estimated to be 8 049 with an additional 700 residents in the surrounding Regional District. The community is made up of

approximately 2569 single family residents with approximately 418 (City of Revelstoke 2007 aerial map) of these being manufactured mobile homes.

Revelstoke Mountain Resort ski hill opened in 2007 and with additional expansion in 2008, boasts the longest vertical run in North America. The resort has long term plans to expand into a four season resort. The opening of Revelstoke Mountain Resort has brought many new residents and visitors to the community.

5.2 Solid Waste Management

Residential garbage in the City of Revelstoke is collected by means of curb side pick up, with approximately 2800 pick up locations. Garbage pick up is done according to neighbourhoods beginning at 7:00 a.m. and is on a rotating schedule which changes with each statutory holiday. The City has a curbside restriction bylaw, which restricts garbage placed on the curb to between 7:00 a.m. and 7:00 p.m. on the day of collection.

Pick up of multi residential, commercial and city dumpsters is contracted to a private waste collection company, Bresco, Ltd. Although many businesses have locks on their dumpsters, there are many that don't and are left open. The City currently does not have a bylaw requiring dumpsters are secured.

Residents living in the Columbia Shuswap Regional District (CSRD) outside of Revelstoke, can contract Bresco Ltd. to collect their garbage or bring it to the CSRD landfill, located just north of the City. The Jordan Pit, the City's free yard and garden waste disposal site is located just north of the CSRD landfill. The CSRD land fill is protected from wildlife by electric fencing.

There are two recycling depots available to residents, one located within the City, near Public Works and the other at the CSRD landfill site. The depots accept glass, tin cans, newspapers and mixed paper. Corrugated cardboard is only accepted at the depot in town. Milk containers can be recycled at the bottle depot and there is a recycling fair three times a year that accepts other recyclable materials including plastics.

5.3 Ecology of the Area

Revelstoke is located in the biogeoclimatic zone of the Interior Cedar Hemlock forest. The Interior Cedar Hemlock forest receives abundant rain and heavy snow falls. This is the most productive forest of British Columbia's interior and contains more tree species than any other ecological zone in the province. The lower slopes and valley bottoms provide rich habitat for many plants and animals and contain some of the province's best grizzly bear and black bear habitat. Surrounding Revelstoke at higher elevations are the Engelmann Spruce – Sup alpine Fir and Alpine Tundra biogeoclimatic zones. These zones are areas traveled by grizzly bears and in years of low abundance of natural food sources these bears may be drawn down into the Revelstoke area. Revelstoke is located in bear country!

(<http://www.for.gov.bc.ca/hfd/pubs/docs/Bro/bro48.pdf>)

6. History Bear/Human Conflict in Revelstoke

The relative isolation of Revelstoke and its proximity to bear habitat has contributed to a high number of bear/human conflicts in the past. Over the ten year period between 1986 and 1996, 15 grizzlies and 266 black bears were destroyed in or near Revelstoke. During the same period, 107 grizzlies and 54 black bears were relocated.

In September of 1994, the municipal landfill was protected with electric fencing. Prior to this, the garbage at the dump provided a major food source for bears, resulting in unnaturally high numbers of garbage habituated grizzly and black bears near Revelstoke. The bears, already accustomed to feeding on garbage at the landfill, started to access alternate food sources within the City. A large number of bears were destroyed and relocated that year and the following year as seen in figure 1 below.

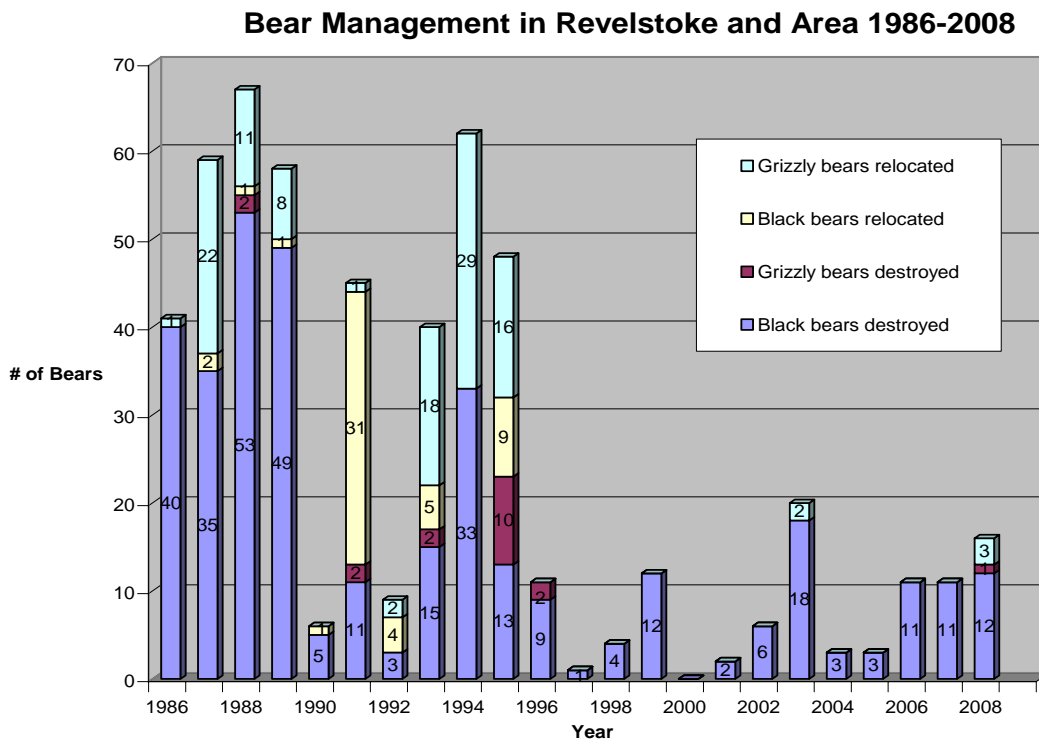


Figure 1: This table shows bear management in Revelstoke 1986-2008

Groups of citizens voiced their concern about this situation and pressured the local governments to stop or reduce the destruction of bears within and around the City. In an effort to remedy this situation, local residents, agencies, organizations and various levels of government created the Bear Management Committee. The goal of the committee was to develop strategies that would reduce bear/human conflicts and the unnecessary destruction of bears.

In 1996 the committee acquired funding and created the position of Bear Aware Program Coordinator. The role of the coordinator is to educate the citizens of Revelstoke of their responsibilities and the importance of identifying and reducing or eliminating bear attractants on their property. In 2004 the committee formed the Revelstoke Bear Aware Society and became a registered non-profit organization that accepts donations, grants and in-kind contributions to achieve this goal.

The Revelstoke Bear Aware program has now been operating consistently in Revelstoke for the past 13 years and has proven to be very successful in reducing human/bear conflict. The yearly average number of bears destroyed has been reduced from 27 to 7, since inception of the program.

Phase I: Problem Analysis

7. Bear Hazard Assessment

An initial assessment of the community was done to identify both non-natural and natural wildlife attractants, commonly used wildlife corridors and locations that may have an increased risk for bear encounters.

8. Methodology

To gain a better understanding of the potential areas and factors affecting bear/human conflict within the area, a number of resources were used including:

- Provincial Problem Wildlife Occurrence reports (PWOR's) received from phone calls made to the Provincial Problem Wildlife phone line.
- Calls received to the Revelstoke Bear Aware phone line.
- Information provided by the local Conservation Officer regarding problem areas and the existence of bear travel corridors.
- Information provided by the Revelstoke Bear Management committee.
- A review of the Revelstoke Bear Aware annual reports dating back to the beginning of the program in 1996.
- A general survey of the community during the bear season to identify potential attractants and concerns.
- Information gathered from interviews with knowledgeable people.
- Information provided from the City and residents.
- A review of bear hazard assessments done for other communities.

Between 2005 and 2008, there were 416 complaint calls made to the Provincial Problem Wildlife Occurrence phone line. An attractant was identified in 216 of these calls. To gain a better understanding of the non natural bear attractants present and to determine which attractants were most significant, a pie graph was created. Calls where only a bear sighting was reported without an attractant were not included. Figure 2, shows in 57% of calls the attractant identified was garbage. Fruit trees (22%) and livestock related (8%) attractants were also noteworthy. Other attractants observed include birdfeeders, pet or pet food, grain, barbeques, outdoor freezers and compost.

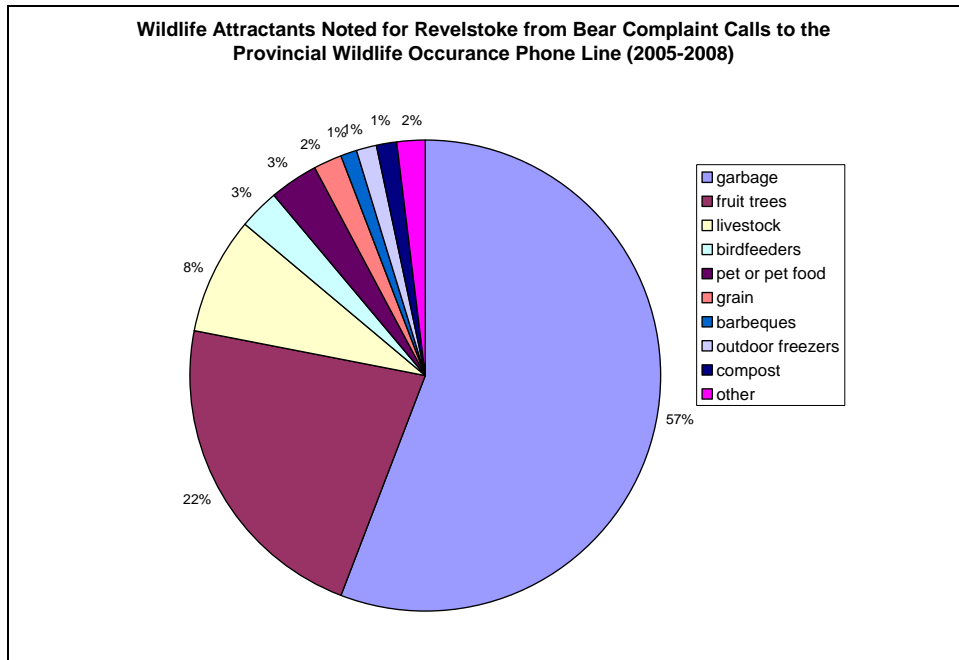


Figure 2: This figure shows the bear attractants recorded from complaint calls between 2005 and 2008.

9. Bear Hazard Map

A Bear Hazard Map was created (Appendix 1). The sites plotted on the map are from information collected between 2005 and 2008. Locations where the action taken was to destroy the bear are marked using a red bear. Sightings where an attractant was present are shown using different colored bears; the number of incidents involving each attractant is noted on the map's legend as well as the number of incidents that resulted in a bear being destroyed.

In cases where there have been more than one incident reported at the same location only one bear symbol will show on the map, according to the order identified on the legend. For example if there was a bear feeding on garbage and birdfeeders at the same location, the green garbage bear symbol would appear on the map.

A density analysis was done for garbage and fruit sightings. The relative bear observation density is shown in green for garbage and purple for fruit. This analysis identifies areas where there have been multiple observations of bears feeding on fruit or garbage in the same or approximate location. The areas of highest density are displayed as darker colours.

From the map we see that bears are seen throughout the community. Areas of highest concern are those which are adjacent to active wildlife interfaces and near commonly

used bear travel corridors. Active wildlife interfaces occur in the neighbourhoods adjacent to Mount Revelstoke National Park, the Colombia River, the Illecillewaet River and Mount Mackenzie.

Mapping the location where bears feed on garbage and fruit allows for a better understanding of the problem areas in the community and highlights where to make changes and target education from the Bear Aware program. This information will be further addressed in the solid waste and fruit tree sections of this report.

9.1 Wildlife Travel Corridors

Wildlife travel corridors are areas where wild animals travel at certain times of the year to access different habitats. Areas used for security cover are areas where a bears will travel to avoid contact with people and will frequently pull garbage in to feed on, “garbage stashes”. Commonly used bear travel corridors and frequently used areas for bear security cover are located on the Bear Hazard Map in yellow. These areas were identified by the local Conservation Officer.

9.2 Limitations on data

The following limitations need to be considered when using the information collected by the Problem Wildlife Occurrence phone line and Revelstoke Bear Aware phone line.

- Although Revelstoke Bear Aware encourages residents to report sighting of bear activity, many residents feel that a phone call results in a dead bear, and do not report bear activity.
- There are many long time residents that have become accustomed to bears in their yard and garbage, and do not report these incidents.
- When an incident involves livestock, or property damage the resident is more likely to make a report.

Although these limitations in reporting exist, the information gathered and plotted on the map is a valuable tool in understanding areas of bear hazard and determining ways to mitigate the risk of potential conflict between people and bears.

10. Wildlife Attractants

People create a number of odours and food sources that attract bears into our community. Bears that are traveling through or close to Revelstoke will enter people’s properties to feed on these attractants.

10.1 Residential Garbage

Residential garbage is the single largest attractant bringing bears into Revelstoke. Bears access garbage on porches, in sheds, in carports and beside houses. Many residents understand the importance of securing garbage and go to great length to secure their garbage, while some have become complacent. Others live in mobile home parks or have carports with limited options for securing garbage. The Bear Hazard Map shows two of the high density green areas are



Bear scat containing a plastic bag, found in Southside, photo Verena Blasy 2008

large mobile home parks that are adjacent to wildlife corridors. It should also be noted that in Columbia Park, where there were a large number of incidents of bears accessing garbage, a large number of homes in the area have carports.

Currently the City has a bylaw that prohibits garbage from being brought to the curb until the day of pick up, but does not require residents to store garbage in a secure manner outside of this time. The garbage collection day rotates with each statutory holiday. This creates confusion and the number of garbage cans placed on the curb the night before was observed to be greater on weeks where there has been a change in the day of collection.

The City provides a dumpster at the Public Works yard, where garbage can be brought during business hours. This dumpster is for people that will be away for garbage day, have missed garbage day, or who have limited ability to secure their garbage. Although the availability of a dumpster is positive and it is used by some residents, it is not convenient for most people.

10.2 Commercial and Multi-residential garbage

In 2008, there were reports of 4 dumpsters being assessed by bears. The majority of dumpsters in Revelstoke have a steel top lid, but are not bear proof. Many of the dumpsters are secured by a lock, but there still remains a large number that are left open or not secured. In 2008 a Bear Aware sticker, purchased by the City of Revelstoke and Bresco was placed on each dumpster to encourage closing of the lids. Rarely are dumpsters observed to be overflowing.



Bear at dumpster, photo Darrell Goodman, 2007



Bear Aware Dumpster stickers, 2008



Bear across from the community center, photo Francis Maltby 2008

While some of the businesses in the downtown core have chosen to purchase bear proof garbage bins the majority are open garbage cans. There are approximately 37 City owned open garbage cans in the downtown core. The cans were designed for Revelstoke and purchased in the first phase of the downtown revitalization project in 1986. The City does not have plans to change these garbage cans to bear proof garbage cans. They are currently being emptied three times a day during the busy summer months. The open garbage cans are located along Mackenzie Ave, running from the

Community Center at the river to Victoria Avenue and through out the downtown core area. In 2008 a bear was observed eating garbage from one of these garbage cans across from the Community Center.

10.3 Fruit Trees

Warm summers and a long growing season in Revelstoke create perfect conditions for fruit trees, and often results in a bumper crop of cherries, plums, apples and pears. A large number of properties in the City have fruit trees. The majority of homeowners maintain their fruit trees and pick their fruit, however, there are areas where problems with bears and fruit occur each year as the fruit ripens. There are also a few properties where residents do not manage their fruit trees. As seen on the Bear Hazard Map the areas of greatest concern are in Southside, Big Eddy and Arrow Heights.

At the advent of the Bear Aware program in 1996, areas of abandoned orchards and fruit trees on empty lots were identified and removed during the first couple of years of the program. (Bennett 1996). The City has shown support for removal of fruit trees on City property. Rogue fruit trees, often a result of fruit trees growing up as a result of bear scat, remain in a number vacant lots and field areas in the community, but the majority of trees are located in people's yards and gardens.

Revelstoke Bear Aware and Community Connections Food Bank, through the Provincial Food Share program, administer a Fruit Exchange program in the fall as the fruit starts to ripen. In this program fruit is picked by volunteers, where the resident is unable to or unwilling to pick the fruit themselves. The volunteers receive some of the fruit and the remaining fruit is donated to the Food Bank. The program has been very successful in the past couple of years, resulting in a large quantity of fruit being donated to the Community Connections Food Bank, and not going to waste or being consumed by bears.

An education program regarding the importance of pruning to reduce fruit and to maintain the tree to be more manageable to pick would be beneficial. In some cases residents pick the fruit that is easy and leave the high fruit to be consumed by bears, who are not deterred by the need to climb.

In a number of communities including Squamish, Kaslo and Fernie a Wildlife Attractant Bylaw is in place (see Appendix 2 – Sample Wildlife Attractant bylaw.) The bylaw requires residents manage the fruit trees on their property.

10.4 Livestock and Apiaries

As noted on the Bear Hazard Map and seen in figure 2, there were a high number of incidents relating to livestock and a large number of bears being destroyed as a result. It should be noted that a property owner where livestock is being threatened is more likely to make a complaint call, compared to bears accessing garbage, and also more likely to result in a management action. In any case, livestock has been identified as an attractant and is posing a bear hazard in the community. Currently the City has zoning bylaws that restrict livestock to specific zoning destinations within the City. Although a few residents with chickens were grandfathered in when the zoning bylaw came into effect, the number of illegal chicken coops within Revelstoke has decreased substantially in the past couple of years, with only a few remaining. Chickens and other livestock in the area

surrounding the City are more prevalent than within the City. The City of Revelstoke prohibits the use of electric fencing within City limits.

Currently there is only one active apiary in the area that is registered with the Ministry of Agriculture and Land and it is electrically fenced.

10.5 Other Attractants

Other things that have attracted bears into our community include pets and pet food, birdfeeders, unmanaged compost, outdoor freezers, grain and dirty barbeques. All of these attractants are much less prevalent compared with fruit and garbage, but should be addressed. It is difficult to identify these attractants on the Bear Hazard Map, as in many cases there is also garbage or fruit that is attracting the bear to the area.

In the majority of calls where one of these attractants were identified the location has been identified to be along a commonly used bear travel way.



Bear at birdfeeder, photo Zuzanna Driediger 2008

10.6 Grease Barrels

Grease barrels have not been identified as an attractant in any of the complaint calls received between 2005 and 2008. On a survey of the restaurants in Revelstoke approximately half of the restaurants had proper grease containers, while the other half use grease barrels, like the one seen in the adjacent picture. It didn't appear that any of the restaurants had grease containers that were fenced or contained in a building. Although bear sightings as seen on the Bear Hazard Map are found throughout Revelstoke, fortunately there are not any restaurants that are located directly along a wildlife corridor or wildlife interface.



Grease Barrels seen in a lane way, 2009

11. Survey of the Community

Although it must be accepted that that potential to encounter a bear exists in any part of the community and that it is not possible to accurately predict bear activity from year to year, the aim of this section of the report is to identify areas that have a higher potential than others to encounter a bear. This is based on the historical activity as reported to the Bear Aware Phone line and the Provincial Problem Phone line, previous Revelstoke Bear Aware annual reports, the presence of security cover and commonly used bear travel corridors, the presence of natural and non-natural bear attractants and a walk/drive around the community.

It should be noted that the residents of Revelstoke appear to have a high tolerance for bear sightings. Many of the residents actively hike, mountain bike, hunt and bird watch in bear habitat, while others frequently encounter bears through their employment in the Forestry Industry or Canadian Pacific Railway.

11.1 Wildlife Corridors and Interfaces

Active wildlife interfaces occur in neighbourhoods adjacent to Mount Revelstoke National Park, the Columbia River, the Illecillewaet River and Mount Mackenzie. These areas provide natural food sources including wild berries and vegetation as well as providing shelter for bears. Of particular concern is CPR hill located at the base of Mount Revelstoke. In this area the houses are surrounded by thick forest and there is a ravine running down Mount Revelstoke which is commonly used by bears. In 2008, bears broke into homes in this area on two separate occasions. The south slopes of Mount Revelstoke have been identified as an area of concern in the Development Permit section of the City's Official Community Plan. (Appendix 9)

11.2 Schools yards

Revelstoke School District #19 is comprised of four elementary schools and one secondary school. The locations of the schools are noted on the Bear Hazard Map. In 2008, calls were received to the Provincial Wildlife Occurrence phone line reporting bear sightings at each of the schools. Bear travel corridors are noted on the map

to come close to all of the schools with the exception of Mount Begbie Elementary school.



Play structure at Arrow Heights Elementary school, 2009

The two schools of greatest concern are Arrow Heights and Columbia Park. Both of these schools have “short cuts” where children walk to school through forested areas.

Arrow Heights is surrounded by areas frequented by bears. The children are instructed not to go into the forested areas located at the back of the school and beside the playground equipment.

The playground equipment at Columbia Park is located near to the road and is fenced. The playing field located at the back of the school is surrounded by forested area. This area forms a buffer between the school and the road, but also provides security cover for bears.

In the fall of 2008 each school had 4-5 open garbage cans surrounding the school. On two occasions a garbage can at Arrow Heights was found knocked over, and garbage pulled out, although there is no evidence that this was done by a bear, heavy bear activity was noted in the area at the time.



Field located at back of Columbia Park Elementary school, 2009

Due to concerns regarding open garbage cans in the school yards, the school superintendent was contacted. As a result of this conversation, the School District installed eight bear proof garbage cans, two which were purchased by Parks Canada, in the school yards in April 2009. Arrow Heights Elementary, Columbia Park and Mount Begbie were the schools chosen to receive the bear proof cans as a result of historic bear activity. All open garbage cans have been removed at these three schools.

11.3 Parks and Pathway Systems

The City of Revelstoke has a lengthy River Trail pathway system, and a large number of parks including three large community parks, (which include Williamson Lake Park and Campground), six smaller neighbourhood parks and several other park areas (City Revelstoke Parks Master Plan, 2005).

11.3.1 River Trail Pathway System

The City of Revelstoke began implementation of bear proof garbage cans along the River Trail pathway system in 1999 and presently all of the garbage bins along the trail are now bear proof.

The River Trail pathway system is divided into two main sections. The first section parallels parts of the Illecillewaet and Columbia River and includes the “Greenbelt area”, which is maintained by the Greenbelt Society. The area is very popular with walkers, runners, cyclists and visitors to the community. The area is also often used by bears, as indicated by the bear travel corridor identified on the Bear Hazard Map that parallels the trail system. In 2008 there were a number of reports of bear activity along the pathway. In one report a woman felt that she was being stalked by a black bear and was very concerned about the high bear activity in the area and the large number of people using the trail system.

The majority of the main trail system is built on a dike that is maintained by BC Hydro. Vegetation and brush is cleared back three feet on each side to maintain the integrity of the dike. This also allows for farther line of sight, increasing the chances of seeing a bear from a greater distance. The greenbelt path that leaves the main trail is in a more heavily forested area and there is a greater chance of coming upon and startling a bear while using this path system.

The other section of the River Trail Pathway system begins in the Big Eddy just past the Columbia River crossing. This section of the trail parallels the Columbia River and the Tonkawatla or Tum Tum River and is often referred to as the “Big Eddy Dike Trail”. This portion of the pathway system is heavily used by dog walkers, pedestrians and cyclists. This trail is also maintained by BC Hydro and a clear view of potential bear activity can be observed while using the trail. The trail is an “off leash” area and the potential for dogs to leave the trail and bring back a bear exists.

At the section where the Tum Tum River meets the Columbia River there is a large number of naturally occurring mountain ash trees. The trees are heavily frequented by bears as indicated by the large number of bear scat in the area observed in the fall of 2007. A stream in the area has also been identified as containing spawning fish (Maltby 2000). There are also a large number of trailer homes in the area, where residents may have limited ability to secure their garbage.

The land adjacent to the trail and beside the Big Eddy Park is often referred to as the old “Gymkhana” grounds and currently contains privately and City owned land. At the time of writing this report it is unclear how many, if any fruit trees are located on this property. Reports to Revelstoke Bear Aware late in the fall of 2008 indicated the area contained fruit trees and was attracting bears. Previous Bear Aware annual reports (Robinson 1997, Robinson 1998, Maltby 2000), have identified fruit trees in the area. In 1997 the City agreed to remove the trees. The trees were flagged and when City crews arrived to remove them the flagging had been removed by residents in the area. The residents agreed in 1998 to ensure that the fruit in the area was picked. This portion of the River Trail and the Big Eddy Park area contains both natural and unnatural attractants and has a high potential for bear encounters.

11.3.2 City Parks

Two of the community parks, Centennial Park and Queen Elizabeth Park both contain bear proof garbage cans. The third community park, Williamson Lake Park and campground will be discussed in the campground section.



Bear Proof garbage cans, Queen Elizabeth Park, 2008

Although Queen Elizabeth Park and Centennial Park have bear proof garbage cans, they are not adequate to meet the needs of the park when baseball and soccer seasons are in full force. Additional open garbage cans are placed in the parks at each of the ball diamonds and remain there for the season. There are approximately ten ball diamonds in the City, where additional garbage cans are placed. Currently the City’s Public Works department is looking at options to replace the seasonal garbage cans with either the traditional bear proof garbage bin above or with new under ground garbage containers.



Open garbage cans at ball diamonds, 2008

Woodhead Park, located just off the Trans Canada Highway is a popular rest stop for people traveling along the highway. The park contains a large number of new underground garbage containers. Although the garbage can is on the ground, the bin is sitting on a large hole, which greatly increases its capacity. The can appears to be mainly bear proof and the garbage is located deep underground reducing odours coming from the can. These cans can be used for recycling or garbage. The cans cost more to install and require a backhoe to be emptied, but the much larger capacity greatly decreases the emptying frequency.



Underground garbage bins in Woodhead Park, 2009

The six smaller neighbourhood parks in the City include Moose Park, Columbia Park, Beruschi Park, Kovach Park, Farwell Park and Big Eddy Park.

Moose Park is located in Arrow Heights at Park Drive and Arrow Drive. The park is surrounded by forest and contains large mature cedar trees. The areas surrounding and including the park are identified as commonly used bear travel corridors on the Bear Hazard Map. This park has high potential for bear human conflict.

Columbia Park is located off Colbeck Road at the north end of the Golf Course. The park contains a tennis court and paved hockey court and is adjacent to the Columbia River and golf course. The park has surrounding vegetation to the west and an

embankment to the east, making the park very dark at night. The garbage can is not bear proof. In August of 2007, the Provincial Wildlife Occurrence line received a call regarding a bear eating garbage and plums at Columbia Park. It is unclear at the time of writing this report whether the plums are located at the park or in the area. This park is included in the City's Public Works proposal to receive a bear proof or underground garbage bin. This park has high potential for bear human conflict.

Beruschi Park is a small fenced park located downtown on Second Street East at McArthur Avenue. The park is located in a relatively busy area, surrounded by houses. The garbage can is not bear proof, but has been included in City's Public Works proposal to receive a bear proof bin. This park has relatively low potential for bear encounters.



Kovach Park, along the River Trail Path, 2009

Kovach Park is located along the River Trail Path on Edward Street. The park contains a skateboard park and playground equipment. The park is in a fairly open space and contains a bear proof garbage bin. It's location along the River Trail and proximity to a bear travel corridor gives this park a high potential for bear encounters.

Farwell Park is located at First and Benson Streets and contains a fenced wading pool. The park is in close proximity to a commonly used bear travel corridor. The

park is privately owned and maintained by the Knights of Pythias, who receive some financial assistance for park maintenance from the City of Revelstoke. The park contains open garbage cans, and has medium to high potential for bear encounters.

Big Eddy Park is located in the Big Eddy at Griffiths Road, with access to the River Trail Path. This park was discussed in the River Trail Pathway section.

11.4 Campgrounds

There are three campgrounds located in the City of Revelstoke, two privately owned and one City owned. All three campgrounds were visited by bears in 2008.

Lamplighter Campground located in the Big Eddy neighbourhood, does not have bear proof garbage cans, but the owner ensures garbage is secured in a building in the evening. There are also a number of mountain ash trees located in the campground.

KOA Campground located off the Trans Canada Highway on the eastern side of the City uses dumpsters to collect garbage. The garbage areas are not kept clean, and on a number of occasions the dumpsters were not secured and had garbage placed beside them.

Williamson Lake Campground is located at the base of Mount Mackenzie. The public beach and park area along with the campground are owned by the City, with maintenance contracted out to a private individual. Garbage at the campground is collected in a dumpster. Although the area is kept neat and tidy the dumpster is not secured. There are open garbage cans at the public beach area and at the playground. There is a hiking trail that runs through thick forest and beside the lake with an abundance of natural bear food. A “Bear in Area” sign has been erected near the beginning of the trail.



Open garbage cans at Williamson Lake beach area, 2008

11.5 Golf Course

There is currently one golf course in Revelstoke, located in Columbia Park. There have been a number of bears sighted on the golf course in the past few years. There is an open garbage can located at each tee off on the course. The garbage cans are emptied daily, but not necessarily at the end of the day, and it’s possible that garbage can remain in them over night. In the fall of 2008, it was reported that plums were placed at a tee off for golfers.

11.6 Queen Victoria Hospital and Mount Cartier Extended Care Cottages

Queen Victoria Hospital and Mount Cartier Extended Care Cottages are located in Arrow Heights on Newlands Road. The facilities back on to a heavily forested area. There have been a few bear sightings in the area over the past few years, but the area was not identified as a commonly traveled bear corridor on the Bear Hazard Map.



Queen Victoria Hospital located in Arrow Heights, 2009

At the back of Mount Cartier Extended Care Cottages there

are paved walkways and a fenced in seating area. Residents that are able can use the seated area, but do not leave this area unless accompanied by a care giver. The area has a medium to high potential for bear human conflict.



Area behind Mount Cartier Extended Care Cottages included a fenced sitting area and paved walking paths.

11.7 Bridge Creek Spawning Channel

Bridge Creek spawning channel is located within the City of Revelstoke, approximately 1km upstream from the bridge crossing the Illecillewaet River. The creek had historically supported a small kokanee population. In 1988, habitat enhancement occurred to increase the number of kokanee spawning in the area. In cooperation, the City of Revelstoke, the Rod and Gun Club, Rotary Club and Chamber of Commerce built the spawning channel using funds from the Habitat Conservation Trust Fund. The habitat enhancements to the channel included the



A bear at Bridge Creek, photo Revelstoke Bear Aware Program, 2002

laying of spawning gravel that had been washed of silt, and increasing water flow to the channel with the use of pumps in dry years. The fish enhancement project was a big success and became the focus of education and conservation, with the students of Mount

Begbie Elementary School adopting the stream. Unfortunately an unintended outcome of the increased number of kokanee was to create a good source of food for bears within the City. The spawning channel is located approximately 300 meters from the largest mobile home park in the City. Maltby(2000) reported as many as three black bears in the spawning channel at one time. High bear activity at the spawning channel and in the neighbouring mobile home park lead to a warning sign being placed at the channel to ensure visitors were aware of bear activity.

In more recent years, the Ministry of the Environment has prohibited habitat enhancement from occurring at the spawning channel. The spawning channel does not create a significant production of fry to Upper Arrow lakes, and the Ministry does not support the channel as a fishery production area. Although the Ministry does not support increasing production in the channel, they do support the use of the channel as a public viewing area. Currently, there is less water flow and the quality of the spawning gravel has decreased leading to decreased viability of eggs resulting in less productivity.



”Caution Bears in Area” sign at Bridge creek Spawning Channel, 2009

Although the number of spawning fish has greatly decreased, there still remains an adequate fish population to provide an outdoor classroom and an educational experience for local children.

The annual Kokanee Fish Festival occurs each fall. Elementary students from local schools spend an afternoon learning about kokanee. Bear Aware education has been included in this program. Volunteers from the Rod and Gun Club provide volunteer monitoring of bear activity in the area during the festival. Although the spawning channel is a bear attractant, its hazard level has decreased in recent years.

11.8 Canadian Pacific Rail Yard

The main line of CP rail, containing a large rail yard runs along the north part of Revelstoke. Yellow bears on the Bear Hazard Map represent bear sightings where grain is the attractant identified. Calls are received each year to the Problem Wildlife Occurrence phone line and to Revelstoke Bear Aware regarding bears feeding on grain along the track.



Canadian Pacific rail yard Revelstoke, 2008

Grain that spills along Canadian Pacific Right of Ways inside and outside of town is proving a particularly appealing food source to bears that also draws bears into our community. Bears feed on fermenting grain and become intoxicated and subsequently become a danger to themselves and to Canadian Pacific employees. In August of 2006, it was reported that a bear chased an engineer on to the top of a rail car. Canadian Pacific employees in the area currently receive bulletins from Canadian Pacific on how to respond in the case of a bear encounter and are asked to be watchful for wildlife activity on the tracks.

It is unclear whether Canadian Pacific has clean up protocols in place to respond quickly to spilt grain in the rail yard or along Canadian Pacific right of ways. Although spilt grain all along the railway attracts wildlife, this report will focus only on its implication to wildlife in and immediately surrounding the City of Revelstoke. A number of calls made to Canadian Pacific head office in Calgary, and a letter written in November of 2007 by Revelstoke Bear Aware requesting information regarding clean up protocols, were not answered. Following these calls, it would appear that existing grain spills at the rail yard were cleaned up. Recently, Canadian Pacific has made contact with Revelstoke Bear Aware and indicated an interest in working with them more proactively.

11.9 Revelstoke Mountain Resort (RMR), Ski Hill Development

Revelstoke Mountain Resort ski hill opened its lifts to skiers in December 2007. In 2008 with the addition to their gondola now boasts the longest vertical descent in North America.

The opening of RMR has brought a great deal of change to Revelstoke. The community has seen an increase in seasonal residents, visitors and recreational properties. New

residents living in Revelstoke may not understand the importance of securing wildlife attractants, making it important to ensure Bear Aware education reaches this segment of the population.

RMR plans to increase the number of runs on Mount Mackenzie in the future, and also to expand to a four season resort. As the resort expands to include summer hiking and mountain biking it will be important to ensure bear safety education is in place. The development on and at the base of the mountain will have implications to bear habitat in the area and create the potential to increase conflict between bears and people. To better understand the actions taken by the resort to mitigate the potential for creating wildlife conflict, planning documents that pertain to resort development are reviewed later in this document.

11.10 Mount Revelstoke National Park

As seen on the Bear Hazard Map, Mount Revelstoke National Park is a large protected wilderness area located on the north eastern edge of Revelstoke. The area provides prime black and grizzly bear habitat and the opportunity for visitors to gain access to the alpine for hiking. Bear activity in the area is heavily monitored by Parks Canada with weekly reports within Parks and signs posted at trail heads indicating bear activity.

Parks Canada has a large office in Revelstoke which provides information to visitors to the area and visitors accessing the park regarding bear safety. They have a well developed bear program including bear proof garbage cans and bear poles or caches provided to back country campers. Parks Canada has biologists who are knowledgeable about bears, a person sitting on the Revelstoke Bear Management Committee, and provide in-kind funding to the Revelstoke Bear Aware program.

Friends of Mount Revelstoke and Glacier National Park are a non-profit society that supports the protection, appreciation, education and understanding of Mount Revelstoke and Glacier National Parks. Friends of Mount Revelstoke and Glacier Park host the Chickadee Nature Festival in May, as well as the Junior Naturalist Club during the summer months. Both of these programs are attended by local children and include Bear Aware education.

12. Preventive Measures in Place

12.1 Revelstoke Bear Aware Education Program

A comprehensive Bear Aware education program has been in place in the City of Revelstoke since 1996. Revelstoke Bear Aware aims to reduce human/bear conflict through preventative education. A coordinator is hired to work part time throughout the year to achieve this mandate. The coordinator takes direction from the Bear Management committee, which consists of members from the City of Revelstoke, the Columbia Shuswap Regional District, Conservation Officer Service, Park's Canada and concerned members of the community.

Some of the activities of the coordinator include school and public presentations, media articles and interviews, door to door visits, administering a Fruit Exchange program, providing a website, maintaining records, fundraising and coordinating volunteers. The program is designed to reach all members of the community. (See Appendix 3 for a complete list of program delivery in 2008)

12.2 Community Wildland Fire Protection Committee

In the fall of 2006 the City of Revelstoke formed the Community Wildland Fire Protection Committee. The committee is currently identifying areas in the City that are potential interfaces for forest fires. By decreasing logs and debris on the forest floor, it decreases the fuel available for a fire and the potential for a fire to become out of control. Currently three of the areas that the committee is considering as potential areas to “Fire Smart” are behind Columbia Park Elementary school, behind Arrow Heights Elementary school and the bank below Revelstoke Secondary School. All of these areas have been identified as commonly used bear travel corridors on the Bear Hazard Map. By clearing the deadfall and reducing the branches at lower levels in these areas, it will also likely decrease the security cover value of the area for bears that frequent these areas and increase line of sight for people traveling in these areas.

12.3 City’s Waste Collection Strategy Committee

In November of 2007, the City created a Waste Collection Strategy Committee. The terms of reference can be seen in Appendix 4. The Revelstoke Bear Aware coordinator sits on this committee. The committee has established a vision and mission statements and created a number of strategy initiatives and goals to lead the community toward creating a Bear Smart solid waste management system. (See appendix 5). As a means of better understanding a way to achieve this goal, different options including their pros and cons were reviewed and discussed. Strategies discussed included bear proof centralized dumpsters, residential bear resistant polycarts and a review of current “Bear Smart” related bylaws.

13. Solid Waste Management

Garbage has been identified as the single largest attractant drawing bears into Revelstoke. When bears are allowed to access human food and garbage, they quickly learn to associate it with people and become what is referred to as food-conditioned. These bears lose their fear of humans and become habituated to people and a potential threat. It is of utmost importance that when bears enter our communities that they do not find garbage.

There are approximately 418 mobile trailer or manufactured homes in Revelstoke, (City of Revelstoke from a 2007 aerial photo) representing approximately 16% of single family residents. Residents in mobile homes often have limited ability to secure their household waste. There are also a large number of homes that have carports, particularly in the

Columbia Park area, which may have limited ability to secure garbage or be unwilling to store garbage in their basement.

Centralized bear proof garbage bins have proven to be an effective means of preventing access of bears to garbage in the community of Jasper (Phillipp 2000) and Canmore (Canmore Solid Waste Services, 2000). In this system, a bear proof dumpster is placed for approximately every 30 households, allowing for a means of securing garbage at all times. The implementation of centralized bins has a high implementation cost, but has been determined to be more cost effective in the long run compared with curbside pick ups (Phillipp 2000). The cost of implementing a centralized bin system for Revelstoke in 2007 was estimated to be approximately \$657,000.00.

In Squamish, garbage cans have been retrofitted with a bear proof clip system in areas where high bear activity has been observed. The clips are manually closed by the home owner and need to be left open on the day of garbage collection. The company “Critter guard” makes this retrofit for standard garbage cans that are compatible with a semi or automated lifter. The cost of the critter guard retrofit is approximately \$90.00 to an existing garbage can. Rollins Machinery is also manufacturing a retrofit, which is available for cans which is compatible with European style semi and fully automated arm systems.

In the past few years a number of bear resistant residential polycarts have become available which include the Bear Saver polycart, (\$143 US) Bear Necessities Bin 120 (\$155) and Dawg bear proof cans (\$55 - \$208 US). Not all of the containers available are the same. Each has a different latching or closing system, and some are large requiring an automated lifter arm to facilitate lifting and dumping.

At the time the Waste Collection Committee was formed, the City had just purchased a single operator side loading garbage truck. The City’s curbside pick up needs are serviced by one garbage truck. The new truck does not have the capability of unloading dumpsters. The installation of community wide centralized bear proof dumpsters was not accepted at that time as an option due to its high implementation cost. The life expectancy of the new garbage truck is ten years. Bresco, a private waste management company, currently unloads the existing commercial and multi residential dumpsters in the City.



Ravens commonly spread garbage, creating increased odour, photo Michael Morris 2008

Other options to create a bear proof waste management system for residents with limited ability to secure garbage were considered. The use of residential bear resistant polycarts, or a combination system of bear resistant polycarts and bear proof dumpsters in areas of greatest hazard are potential options. One of the advantages identified by the committee, with respect to residential polycarts, is that residents are accountable for the quantity of garbage they bring to the curb.

It should also be noted that not only do bear resistant polycarts prevent bears from assessing garbage they will also prevent ravens and dogs from gaining access to garbage. Although ravens don't pose a threat to people's safety, they are a nuisance and are commonly seen in garbage in Revelstoke. They spread garbage around, increasing the smell and potentially leading to an increased bear attractant.

13.1 Bear Resistant Polycart Pilot Project

To gain a better understanding of the use of bear resistant residential polycarts, the Waste Collection Strategy committee and Revelstoke Bear Aware initiated a pilot project of the use of the Bear Saver polycarts. (Appendix 7). Johnson Heights Mobile Home Park was chosen to pilot the use of the bins. The area was chosen due to high numbers of bear and garbage related complaints in previous years. The mobile home park is located just off the Trans Canada Highway at the base of Mount Revelstoke National Park. There are 50 homes in the trailer park and it is surrounded by wilderness. The pilot project will be completed in November of 2009 and the committee will then make recommendations to the City on how to best create a bear proof solid waste management system.



Residential bear resistant garbage can.

13.2 Bear Resistant Garbage Cans and the CO Service

At the beginning of this year, the City of Revelstoke and Revelstoke Bear Aware purchased ten residential bear resistant polycarts to be used by the local Conservation Officer. In the coming bear season, the cans will be loaned to residents that are experiencing a persistent garbage conditioned bear and where the resident has limited option for securing garbage. This will add to knowledge regarding the use of the polycarts and may increase community awareness and support for the polycarts.

14. Bylaw Review

The City of Revelstoke currently has two bylaws that are partially Bear Smart:

- Bylaw #1759, Garbage Collection
- Bylaw #1378, Unsightly Premises.

The garbage collection bylaw restricts the placing of garbage on the curb to between 7:00 a.m. to 7:00 p.m. on the day of collection, prohibiting residents from putting garbage out the night before. The curbside restriction bylaw has been in place since November of 1996. Compliance with this bylaw has been high in the past, although on weeks following a statutory holiday the number of garbage cans put out the night before increases as a result of a rotating garbage day. Although an important bylaw, with the exemption of secure storage of garbage outside of collection day, bears are still able to access garbage. Other communities in British Columbia have passed bylaws that require garbage to be stored in a secure location as to not attract wildlife. The City of Fernie has also included in their bylaw that dumpsters must be secured at the end of each business day. The City of Fernie has crimped a carabineer to the chains on the dumpster, allowing for ease of securing the lid.

The Unsightly Premises bylaw states that rubbish and filth may not accumulate on private property. This bylaw could be extended to include other wildlife attractants, including unmanaged fruit trees and unmanaged compost. Some communities in British Columbia have passed wildlife attractant bylaws, which regulate the provision of wildlife attractants to bears and other wildlife. Communities that have adopted such a bylaw include the District of Squamish, Village of Kaslo (see appendix 2) and the City of Fernie.

The Provincial Wildlife Act, (see appendix 6) prohibits a person from feeding or attracting dangerous wildlife to ones property. In the Wildlife Act, a Conservation officer can issue a Dangerous Wildlife Protection Order, and where non-compliance is seen is finable under the Offense Act. This is an important means of enforcing wildlife attractants, but is very time consuming for the local Conservation Officer and requires a return trip to ensure compliance. Although appropriate where a large problem exists with repeat offenders, it is not appropriate or a practical solution as a means of enforcement for residents who leave out their garbage. The formation of a municipal Wildlife Attractant bylaw could compliment the Provincial Wildlife Act.

At the time of writing this report, the City's Waste Collection Strategy committee is making amendments to the Garbage Collection bylaw and to the Unsightly Premises bylaw to include the provision that requires garbage and other wildlife attractants are stored in a secure place in such away to not attract wildlife. The committee plans to recommend these amendments to City Council in the summer of 2009.

The committee is also recommending amendments be made to the City's Municipal Ticket Utilization bylaw to include a sliding scale fining system. In this system a ticket

could be issued with a fine and time frame for the fine to be paid. If not paid in the set timeframe the amount of the ticket would increase. This would allow for issuing tickets of a nominal fee, but would encourage compliance and paying of the ticket.

15. Review of Planning and Decision making Documents

15.1 Revelstoke and Area Community Development Action Plan

In September 2007 a Community Development Action Plan was developed for the City of Revelstoke and Columbia Shuswap Regional District. The Community Development Action Plan is a process where community members come together to decide how to address community issues and take advantage of opportunities. It is a plan that provides guidance to citizens, community organizations and federal and provincial agencies, as well as the City and Regional District.

The Community Development Action Plan has taken into account Bear Smart practices in a number of areas throughout the document. These include conditions in specific areas for bear proof containers and also in the section pertaining to Solid Waste Management and Recycling to encourage Bear Aware household composting. The main section pertaining to Bear Smart practices is the Fish and Wildlife section (see appendix 8).

15.2 Revelstoke Official Community Plan (OCP)

At the time of writing this report the City of Revelstoke Official Community Plan (OCP) is in the pre-final draft stage for community review. The City Planning department has included Revelstoke Bear Aware in drafting this document and has included many of the Bear Smart practices that have been outlined in this report, including identifying and the elimination of wildlife attractants in all segments of the waste stream as a goal. Appendix 9 reviews excerpts from the OCP that directly pertain to Bear Smart practices.

15.3 Columbia Shuswap Regional District (CSRD), Area B, Official Community Plan

A revised OCP for the CSRD which includes the rural area of Revelstoke was adopted in October 2008. The OCP, Environmental Management section 11, shows support for the Revelstoke Bear Aware Program and promotes Bear Smart practices. (Appendix 10)

15.4 Review of CSRD Solid Waste Management Plan

The City of Revelstoke and surrounding area fall into the CSRD Solid Waste Management Plan. The CSRD operates a landfill just north of the city on Westside Road. All of the solid waste from Revelstoke and surrounding area are deposited at this landfill site. The landfill was electrically fenced from bears in 1994. A City of Revelstoke owned gravel pit just north of the landfill accepts yard waste free of charge.

The CSRD has recently reviewed the Solid Waste Management Plan and created a new revised Solid Waste Management Plan, March 2009. The document establishes goals for the CSRD as well as establishes planned programs for each “Waste shed” over the following 5 years.

Programs planned for Revelstoke include:

- In 2009, expanding the depot recycling program to include residentially generated cardboard and mixed plastics.
- In 2010, providing curbside recycling.
- By 2010, partnering with the City of Revelstoke to establish a regional yard waste and septage composting facility.

In the Solid Waste Management Plan it states “The Columbia Shuswap Regional District will ensure Bear Aware/Bear Smart programs are considered with any initiatives involving new solid waste management programs.”

15.5 Revelstoke Mountain Resort Development

To gain a better understanding of current plans for development on Mount Mackenzie and to understand the steps being taken to mitigate the effects on bears in the area and potential bear human conflict, the pertinent sections of the following documents were reviewed: The City of Revelstoke, Mount Mackenzie Resort area OCP amendment (2006), the Master Development Agreement (2005), and the Mount Mackenzie Resort Master Plan (2003).

The area included under the Mount Mackenzie Resort Area OCP Amendment includes approximately 500 acres of land situated at the base of Mount Mackenzie, south of Nichol Road and at the eastern edge of the Illecillewaet River, east of the Columbia River and Airport Way. The Mount Mackenzie Resort Area OCP Amendment considers only private land holdings that are within the recently expanded City boundary, that include the area mentioned above. The OCP amendment states in section 5.3.7 that the “Resort Neighbourhoods shall be planned to provide for centralized wildlife proof garbage, composting and recycling depots, bus shelters and postal kiosks”. In section 5.6.8 it states “The Resort should help facilitate visitors’ and residents’ awareness and respect for the surrounding natural environment. This may include providing visitors and residents with information on wildlife management programs (such as Bear Aware),.....”

The Master Plan was approved by the Provincial Government in accordance with the Commercial Alpine Ski Policy whereby the on-mountain ski facilities should be on crown land while the broader resort development should be on both private and crown land. Section 4.0 - Solid Waste Management Plan of the Master Plan provides proposed policies for solid waste management which include a completely bear proof solid waste management system. Section 8 – Grizzly Bear Management Plan, details mitigation measures to decrease the impact the resort would have on the local grizzly bear and black

bear populations. The detailed management plan includes provisions for bear proof solid waste management, management of other attractants, education and enforcement.

The Master Development Agreement requires management of bear/human interactions during spring to fall activities will be addressed in a Bear Management Plan and that Revelstoke and Area Land Use Planning Minister's Advisory Committee (RMAC) guidelines should be referred to and applied specifically on forest harvesting adjacent to high value grizzly bear habitat.

15.6 Mount Revelstoke National Park Management Plan

Mount Revelstoke National Park forms one border of the City of Revelstoke and is well connected to the City by both trails and road access via the Meadows in the Sky Parkway. Bear conservation and public safety are major concerns for the Park and the Park has an interior "Bear Smart" program in place including bear proof waste management and public education. The program is directed by the Parks Management Plan, a document that is revised every five years. Bear Management within the park is the responsibility of Parks Canada. The Parks Management Plan is currently under review. Appendix 11 reviews excerpts from the draft plan that pertain to Bear Smart practices.

Phase II – Revelstoke Bear Human Conflict Management Plan

16. Principals of the Bear/Human Conflict Management Plan

The Bear Human Conflict Management Plan provides a concrete vision and timeline for all of the parties involved to meet the goal of reducing bear/human conflict in the community. Recommendations and actions are made that address hazards identified in the Bear Hazard Assessment.

Proactive management, education and prevention are the keys to eliminating bear conflict issues in the community. Reduction and elimination of attractants will save time and money for individuals, the City, Regional District and Provincial Government. While management of problem bears is the responsibility of the Provincial Conservation Officer Service, the control of waste management and attractants are the responsibility of the Regional and Municipal government as well as individual residents.

Within Revelstoke and area, the Provincial Government, Regional District, Municipality, and individual citizens must work together to reduce the number of attractants within the community and to reduce the number of bear/human conflicts that occur.

This dynamic working document is a method of consolidating knowledge and resources to provide direction and strategy for these organizations, so that they may work together in a coordinated and effective way towards achieving Bear Smart goals.

17. Recommendations and Action Plan

Based on the bear hazards identified in Phase I, recommendations and actions have been made to mitigate each of the hazards that were identified. The group or groups required to carry out the action have been identified following each recommendation.

17.1 Wildlife Attractants

17.1.1 Residential Garbage

The single most effective way to prevent bears and other wildlife from being attracted into Revelstoke is to decrease the availability of household garbage.

When recommendations are made by the **City Waste Collection Strategy committee** the following should be taken into consideration:

- Provide a better means of securing garbage for areas with limited ability to secure garbage, including mobile trailer parks and homes with carports.
- The location of a neighbourhood with relation to wildlife travel corridors and wildlife interfaces.
- Absence of residents on garbage collection day including second home owners, or weekend residents.
- Quantity of garbage that is currently generated per household.
- Future recycling initiatives that may impact the amount of garbage generated per household.
- New development.

17.1.1 Residential Garbage

Recommendation Action	Leader	Priority	cost	timing
1. Waste Collection committee make recommendations to the City on how to create a bear proof solid waste management system.	WCS, Public Works	Highest	High	2010
2. Amend Garbage Collection bylaw to include secure storage of garbage outside of collection day.	WCS, City	High	Low	2009
3. Public education on the proper storage of garbage.	RBAS	High	Low	On-going

17.1.2 Commercial and Multi-residential garbage

Recommendation/Action	Leader	Priority	cost	timing
4. Amend the Garbage Collection bylaw to require dumpsters to be either bear proof, or secured at all times.	WCS, City	High	Low	2009
5. When City owned open garbage cans are replaced, they are replaced with bear proof garbage cans.	City	Med	Med	On-going
6. The City owned open garbage cans located outside of the downtown core (notably by the Community Center and on Mackenzie avenue south of Fourth Street) are replaced with bear proof garbage bins.	City	High	Med	2010

17.1.3 Fruit trees

Recommendation/Action	Leader	Priority	cost	timing
7. Use the Bear Hazard Map to target education to areas of high fruit related bear activity.	RBAS	High	Low	On-going
8. Provide education on pruning to reduce fruit and to make fruit picking more manageable.	City/RBAS	Med	Low	On-going
9. Look into options to deter bears including motion sprinklers and electric fencing.	RBAS	Med	Low	On-going
10. Identify rogue/unmanaged fruit trees on empty lots or fields and encourage their removal.	RBAS/Property owners	High	Med	On-going
11. Continue administering the “Fruit Exchange” program between homeowners with unwanted fruit and the Community Connection Food Bank.	Homeowners/ RBAS/ Community Connections Food bank/ Volunteers	High	Low	On-going
12. Encourage property owners of unmanaged/unwanted fruit trees to replace with non-fruit bearing trees.	RBAS	Med	Low	On-going
13. Enact a Wildlife Attractant bylaw requiring residents to manage fruit trees.	City	High	Low	2009
14. Following the passing of above bylaw, use GIS mapping to identify the location of fruit trees to aid in bylaw enforcement.	City/RBAS	Med	Med	On-going

17.1.4 Livestock and Apiaries

Recommendation/Action	Leader	Priority	cost	timing
15. Education on the importance of secure storage of livestock feed and securing chickens in a building at night.	RBAS	High	Low	On-going
16. Provide information to rural residents on electric fencing and encourage its use around chicken coops.	CSR/D/RBAS	High	Med	On-going
17. Look at properties on an individual case basis within the City of Revelstoke for electric fencing.	City/RBAS	High	Med	On-going
18. Include livestock feed as a wildlife attractant in a Wildlife Attractant bylaw.	City	High	Low	2009

17.1.5 Other Attractants

Recommendation/Action	Leader	Priority	cost	timing
19. Continue education on the need to secure or manage pet food, greasy barbeques, compost, outdoor freezers and birdfeeders.	RBAS	High	Low	On-going
20. Promote composting that does not attract bears.	RBAS/City/ CSR/D	High	Low	On-going
21. Include other attractants, pet food, birdfeeders (May through December), unmanaged compost and unsecured outdoor freezers in a Wildlife Attractant bylaw.	City	High	Low	2009

17.1.6 Grease Barrels

Recommendation/Action	Leader	Priority	cost	timing
22. Encourage restaurant owners to use proper grease containers.	RBAS/City	High	Low	ongoing
23. Encourage restaurants to fence or contain grease containers in a building.	RBAS	Low	High	ongoing

17.2 Survey of the Community

The below recommendations and actions are aimed at reducing both natural and non-natural bear and other wildlife attractants in the community. As previously mentioned Revelstoke is surrounded by wilderness with active bear travel corridors running through the community. Even when all of the above actions are taken it is not possible to completely eliminate the chances of encountering a bear, only to reduce the potential for conflict between bears and people.

In the District Municipalities of North and West Vancouver and City of North Vancouver Bear Hazard Assessment (McCrorry 2006), it is recommended that “Residents with unfenced backyards, especially in identified bear/wildlife areas, should fence their backyard and/or use caution when children are playing.” Although fencing of backyards in these areas of Revelstoke would possibly act as a deterrent to bears and perhaps decrease the potential for bear encounters, it is felt by the Revelstoke Bear Aware Society that given the vast amount of wilderness in, and surrounding the area, there would likely not be public support for such an action nor would it be realistic for the community.

The same situation exists with respect to schoolyards. Other bear hazard assessments state “schoolyards should be completely fenced where they border on black bear habitats/travel corridors” (McCrorry 2006) and “play sets whether at schools or parks, should be located well away from dense shrubs, trees and other things that obstruct visibility and that offer cover for bears. If they cannot be moved at least 50 meters away from bear cover, they should be enclosed in a sturdy fence that is high enough to deter bears and that is spaced well away from adjacent vegetation. In areas where bears have previously been observed, play areas should be posted with permanent bear warning signs”.(Paquet, McCrorry 2007) Although these recommendation may decrease the potential of bear hazard, and are appropriate for other locations, would not likely gain support or be realistic for the City of Revelstoke. Education with regards to preventing bear encounters and what to do if an encounter occurs is of utmost importance.

In Revelstoke, signs warning about the possibility of encountering bears should be located at three areas on the River Trail system, Bridge Creek, the Greenbelt and near the Big Eddy Park. There are many other locations where it is likely that a bear encounter is probable, but is not possible to cover all of the potential areas for bear encounters. It is unlikely there would be public support for signage throughout the City and likely the effectiveness of such signage would be lost if a large number of signs were erected. It is more reasonable in Revelstoke to educate the residents regarding bear encounters and their avoidance. Bear safety information is available through Parks Canada and through

provincial literature. The video “Staying safe in Bear Country” is also available at the Revelstoke video store as a free over night rental.

Composting in bear country requires extra diligence to ensure the compost does not begin to smell and attract bears. The community of Canmore has prohibited composting completely, while the community of Kalso allows composting, but has included unmanaged compost in a Wildlife Attractant Bylaw. Education on how to compost in a Bear Aware way is of utmost importance. It is possible that composting along heavily traveled bear corridors may be very difficult. Composting for residents living on CPR Hill at the base of Mount Revelstoke National Park is discouraged.

17.2.1 Wildlife Corridors and Interfaces

Recommendation/Action	Leader	Priority	cost	timing
24. High priority of Bear Aware education to residents in these areas.	RBA	High	Low	ongoing
25. Encourage residents in these areas, particularly CPR hill to clear heavy brush around their house, thus improving visibility.	RBA/City	High	Low	ongoing
26. Discourage composting in the CPR hill area.	RBA/City	High	Low	ongoing
27. Educate parents living along wildlife corridors to closely monitor their children, and educate children about what to do if you see a bear.	Parents/RBA/ School District	High	Low	ongoing
28. Work closely with the Community Wildland Fire Protection Committee to identify areas that are mutually beneficial to decrease wildfire potential and bear security cover.	City/RBA/ Community Wildland Fire Protection Committee	Med	High	ongoing

17.2.2 School yards

Recommendation/Action	Leader	Priority	cost	timing
29. Continue to install bear proof garbage cans in the school yards, until all open garbage cans have been replaced or removed.	School district	High	Med	2009- 2011
30. Continue to educate on the importance of avoiding short cuts to school during the late spring and fall.	School district/RBA	High	Low	On-going
31. Continue to provide education in the school regarding bear biology, ecology and safety.	School district/RBA	High	Low	On-going
32. Consider reducing or thinning the heavily forested area beside the play structure at Arrow Height Elementary and behind Arrow Heights and Columbia Park Elementary schools.	School district	Med	Med	2010
33. Consider individual “Bear Smart” plans at each of the school, which encourage student involvement	School district/RBAS	Med	Low	2010

17.2.3 Parks and pathway systems

Recommendation/Action	Leader	Priority	cost	timing
34. Place signs on the River Trail path by the Green Belt and by the Big Eddy Park, warning of a high potential for bear encounters, include information regarding dogs and bears.	City/RBA	High	Med	2010-2011
35. Consider removing some or all of the mountain ash trees at the turning point on the Big Eddy dike portion of the River Trail path.	City	Med	Med	2010-2011
36. Ensure the fruit trees in the land adjacent to the Big Eddy Park and Big Eddy Dike trail are being maintained.	City/residents of Big Eddy/RBA	High	Low	2010
37. Continue removal of vegetation on edges of dike on the main trail to increase line of sight.	BC Hydro	Med	Med	On-going
38. Install adequate number of bear proof bins or deep underground garbage cans at all City soccer fields and ball diamonds where additional seasonal open garbage cans are currently being placed.	City	High	High	2011
39. Install bear proof garbage bins at Columbia Park (tennis court), Beruschi Park and Farwell Park.	City	High	Med	2011
40. When replacing or adding trees to City parks, plant non fruit bearing trees	City	High	Low	On-going
41. When new pathways and trails are designed in the City, consider existing bear travel corridors and ensure trails allow for increased visibility to prevent bear encounters.	City	High	Low	unknown

17.2.4 Campgrounds

Recommendation/Action	Leader	Priority	cost	timing
42. Provide Bear Aware education to all three campgrounds	RBA	High	Low	On-going
43. The dumpsters at the KOA are switched to bear proof dumpsters or are secured at all times, frequency of pick up should be addressed to prevent overflow.	KOA/City/RBA	High	Med	2010
44. The open barrel garbage cans at Williamson Lake are changed to bear proof garbage cans. (This is also a recommendation in the City of Revelstoke, Parks Master Plan, June 2005,). The dumpster is secured at all times or replaced with a bear proof dumpster.	City	High	Med	2010

17.2.5 Golf course

Recommendation/Action	Leader	Priority	cost	timing
45. Garbage cans are emptied just prior to closing for the day or replaced with bear proof garbage bins.	Revelstoke Golf course	High	Low	2009
46. Fruit is prohibited from being placed at tee offs.	Revelstoke Golf course	High	Low	2009

17.2.6 Queen Victoria Hospital and Mount Cartier Extended Care Cottages

Recommendation/Action	Leader	Priority	cost	timing
47. Bear safety information is available to care givers and to patients at the hospital.	Interior regional health	High	Low	now
48. Consider reducing the heavily forested area behind the hospital to increase line of sight.	Interior regional health	Medium	high	now

17.2.7 Bridge Creek Spawning Channel

Recommendation/Action	Leader	Priority	cost	timing
49. The Ministry of the Environment continues to prohibit improvements to the area that would increase fish production.	Ministry of the Environment	High	Low	ongoing
50. Bear Aware Education continue to residents in the area.	RBA	High	Low	ongoing
51. The “Caution Bears in Area” sign at the spawning channel is maintained.	City/RBA	High	Med	unknown
52. Following spawning, the remaining fish carcasses are removed to prevent farther attraction of bears to the area.	RBA/ Community volunteers	Med	Low	yearly

17.2.8 Canadian Pacific Rail Yard

Recommendation/Action	Leader	Priority	cost	timing
53. Canadian Pacific put in place proactive measures to address spilled grain in and surrounding the Revelstoke area, before it attracts bears.	CP Rail	High	Low	now
54. The City of Revelstoke require Canadian Pacific provide such protocols.	City	High	Low	now
55. Canadian Pacific continues to provide their employees with information regarding safety and bears.	CP Rail	High	Low	ongoing

17.2.9 Revelstoke Mountain Resort (RMR) resort development

Recommendation/Action	Leader	Priority	cost	timing
56. Ensure visitors and staff receive Bear Aware education	RMR/RBA	High	Low	ongoing
57. Ensure the resort follows the Master Development Plan recommendation that pertain to Bear Smart development.	RMR/City/ Ministry of the Environment	High	High	ongoing
58. Educate weekend residents regarding the availability of garbage drop off at Public Works yard during business hours.	RBA/City	High	Med	ongoing

17.2.10 Mount Revelstoke National Park

Recommendation/Action	Leader	Priority	cost	timing
59. Provide a bear safety public education program	Parks Canada	High	Low	In place
60. Provide bear proof garbage cans through out the Park	Parks Canada	High	High	In place
61. Support environmental steward efforts such as Revelstoke Bear Aware program	Parks Canada	High	Low	In place
62. Sit on Revelstoke Bear Management Committee	Parks Canada	High	Low	In place
63. Human Bear Conflict Monitoring system, coordinate with Revelstoke Bear Aware	Parks Canada/ RBA	Med	Low	In place

18. Bylaw Education and Enforcement Plan

Provided the bylaw amendments to the Garbage Collection bylaw and Municipal Ticket Utilization bylaw are adopted and a Wildlife Attractant bylaw is created, a clear, education and enforcement plan should be created with a phase-in of a zero tolerance policy for non-compliance.

The plan should include:

- Education directed at all members of the community. **(RBA, City)**
- A timeline to commence issuing of an initial warning letter, followed by ticketing with zero tolerance. **(Bylaw Department)**
- monitoring of bylaw compliance, **(RBA, Bylaw Department)**

19. Human-Bear Conflict Monitoring System

Revelstoke Bear Aware and the City of Revelstoke encourage residents to call bear sightings to the Revelstoke Bear Aware phone line or to the Provincial Problem Wildlife Report phone line (RAPP line). A report from the calls made to the Provincial Problem Wildlife line is faxed on a daily basis to the Bear Aware coordinator. The report includes the address of the sighting, contact information and the attractant is noted if present. This information is used as a means of targeting Bear Aware education in the community as well as a means of predicting bear movement in the community. The Bear Aware coordinator also works closely with the local Conservation Officer to identify where Bear Aware education is needed. Parks Canada also provides information on bear sightings in the park, through weekly reports.

The year to year situation with regard to human-bear conflict and seasonal changes in natural or non natural food supply is documented in the Revelstoke Bear Aware Annual report. This allows for recommendations to be made for the following year and new objectives to be set.

20. Review of Bear Smart Criteria

1. Prepare a Bear Hazard Assessment

The Bear Hazard Assessment is a living document, that will change from year to year, as changes occur in the community and progress is taken to decrease bear hazard. Changes that occur annually will be documented in the Revelstoke Bear Aware Annual report, with a full revision of the Bear Hazard Assessment and Bear Hazard Map to be done every 5 years.

2. Prepare a Bear/Human Conflict Management Plan

Any changes in the Bear Hazard Assessment, where a bear hazard is identified that has not been addressed previously, ways of mitigating or eliminating the hazard will also be addressed in the Revelstoke Bear Aware Annual Report. A full revision of the Bear/Human Conflict Management Plan will be done every 5 years.

3. Revise planning and decision making documents to be consistent with the Bear/Human Conflict Management Plan

The planning documents that have been reviewed in this document include the Revelstoke and Area Community Development Action Plan, the City of Revelstoke Official Community Plan, the Columbia Shuswap Regional District Official Community Plan, The Revelstoke Mountain Resort planning documents, the Columbia Shuswap Regional District Solid Waste Management Plan and Parks Canada Management Plan. All of the above planning documents have been revised in the past two years and all include Bear Smart practices in their documentation.

4. Implement a continuing education program directed at all sectors of the community.

The Revelstoke Bear Management Committee formed in 1996 and created a Bear Awareness education program. The Revelstoke Bear Aware education program has been consistently running in Revelstoke for thirteen years. The education program is directed at all sectors of the community and advocates for Bear Smart practices. In 2004, Revelstoke Bear Aware Society became a registered non-profit and charitable organization. The Revelstoke Bear Aware Society contracts a year-round, part-time Bear Aware Coordinator to deliver the program. The Revelstoke Bear Aware Society fundraises to ensure the program continues.

5. Develop and maintain a bear proof municipal solid waste management system.

Following completion of the residential bear resistant garbage can pilot project in October 2009, the City's Waste Collection Strategy Committee will be in the position to make recommendations to the City on the best means of creating a bear proof solid waste

management system. Implementing a bear proof solid waste management system is given highest priority to address the hazards in the Bear Hazard Assessment.

6. Implement “Bear Smart” bylaws and Bylaw enforcement.

The current bylaws are only partially Bear Smart. The Waste Collection Strategy committee is currently making amendments to these bylaws and will recommend them to City Council in the coming months. With the amendments the committee will also bring forth a “sliding scale” ticketing amendment to the City’s Municipal Utilization Ticketing, Bylaw. This will allow for ease of enforcement. Provided the amendments are adopted an education and enforcement plan will be created.

21. Conclusion

Since the inception of the Bear Management Committee, and formation of the Bear Awareness education program in 1996, great strides have been made to decrease human bear conflict within Revelstoke and area.

The City of Revelstoke has shown support for the Bear Aware/Bear Smart initiative by the implantation of bear proof garbage cans along city paths and in parks, a curb side restriction bylaw and more recently by including Bear Smart practices in the City’s Official Community Plan and the formation of the City’s Waste Collection Strategy committee. Bear Smart practices have also been included in the CSRD Official Community plan and CSRD Solid Waste Management Plan.

Although much progress has been made, bears entering Revelstoke still encounter non-natural food sources. Residential garbage and unmanaged fruit trees account for the majority of incidents. Recommendation and actions to reduce the availability of attractants and decrease the potential for bear/human conflict are addressed in Phase II, the Bear Human Conflict management plan of this report.

This working document provides the direction and strategy necessary for Revelstoke to continue to grow and work toward Bear Smart status. By addressing these actions and recommendations the City and surrounding area will become a safer, healthier community for people, while also creating a healthier local bear population.

22. People contacted

Alan Nibbs, Public Works, City of Fernie

Ann Cooper, School Superintendent, School District 19.

Brett Renauld, Bresco Ltd,

Cindy Pearce, Community Wildland Fire Protection Committee, Mountain Labyrinths Inc.,

Darcy Mooney, Waste Management Coordinator, Columbia Shuswap Regional District.

Darren Komonoski, Manager of Public Works, City of Revelstoke

Geoff Wilson, Programmer/Analyst, City of Revelstoke

Jen Walker-Larsen, Stakeholder Engagement Advisor, BC Hydro

John Bell, Ministry of the Environment, Fish and Wildlife division.

Laurel Corrigan, Parks Foreman, City of Revelstoke

Paul Carney, Carney's Waste System, Squamish, BC.

Paul van Westerndorp, Provincial Apiculturist, Ministry of Agriculture and Lands.

Susan Smith, Ministry of the Environment, Cranbrook, Administrative support.

Tim Luini, Senior Building and Bylaw Officer, City of Revelstoke

Tristan Holmes, Public Works, Town of Canmore

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24. Appendices

Appendix 1: Bear Hazard Map for the City of Revelstoke

Appendix 2: Sample Wildlife Attractant bylaw.

VILLAGE OF KASLO

BYLAW 1070

A BYLAW TO REGULATE ANIMAL ATTRACTANTS WITHIN THE VILLAGE OF KASLO

WHEREAS the Council of the Village of Kaslo deems it advisable to regulate attractants so as not to attract animals;

NOW THEREFORE the Council of the Village of Kaslo, in open meeting assembled, enacts as follows:

1. This bylaw may be cited for all purposes as the *Village of Kaslo Animal Attractants Regulation Bylaw 1070, 2008*.

2. In this bylaw, unless the context otherwise requires,

"Animal" means a dog, cat, bear, cougar, coyote, wolf, skunk, raccoon, raven or crow;

"Animal attractant" means antifreeze, paint, food products, food waste, unclean barbecues, pet food, livestock and livestock feed, beehives, offal, bird feeders containing bird feed between April 15th and December 1st and hummingbird feeders, improperly maintained composts, restaurant grease barrels on public or private land which are accessible to animals, accumulation of fruit in containers or on the ground and any other edible products or waste that could attract animals;

"Container" means a receptacle constructed of non-corrosive durable metal or plastic equipped with a tight fitting cover constructed of the same or similar material and handles for lifting, having a capacity not greater than 17.5 gallons, which is capable of being completely closed to reduce odours and secured with a latching device of sufficient strength and design to prevent access by animals;

"Stand" means a fully enclosed wooden or metal enclosure designed to hold all containers required by the premises on which the stand is provided, which shall be so designed as to reduce odours, to keep all containers a minimum of 250 mm (10 inches) and a maximum of 750 mm (29.5 inches) from ground level, to have no more than a 1 cm gap or opening at any location, to be in a closed position at all times and to be protected from interference from animals;

"Waste" means discarded or rejected materials but does not include human or animal excrement, industrial waste, compostable matter or recyclable material.

3. No person shall store any animal attractant or waste in such a manner that it is accessible to animals.
4. A person storing animal attractants or waste shall
 - (a) use a container, or;
 - (b) store such container in a stand.
5. Every owner or occupier of real property shall ensure that a container or stand on such real property is:
 - (a) maintained in good condition and kept in a clean and sanitary condition;
 - (b) kept closed and secure when material is not being deposited or emptied, and;
 - (c) if damaged, repaired within 7 days of the damage occurring.
6. A person is exempt from sections 4 and 5 for temporary special events if waste receptacles required for the special event are emptied into a container or stand in accordance with section 4 by 10pm on the day of the event.
7. Every owner or occupier of real property shall ensure that fruit fallen from a tree or bush on such real property is removed from the ground and properly disposed of at least every 3 days.
8. Every owner or occupier of real property shall ensure that a bird feeder containing bird feed on such real property is suspended on a cable or other device in such a manner that it is inaccessible to animals, that bird feed fallen from a bird feeder is removed from the ground and properly disposed of at least every 3 days, and bird feeders containing bird feed are not used between April 15th and December 1st in each year.
9. Every owner or occupier of real property shall store or place an outdoor fridge or freezer containing food products on such real property in such a manner that it is inaccessible to animals.
10. Every owner or occupier of real property shall ensure that livestock or beehives are inaccessible to animals by use of properly maintained electrified fencing.
11. Every person who violates any of the provisions of this bylaw, or who suffers or permits any act or thing to be done or omitted to be done in contravention of this bylaw is liable, upon conviction, to the maximum penalties prescribed by the Community Charter and the Offence Act, plus the costs of prosecution.
12. Each day that a contravention or violation of or failure to perform any provision of this bylaw continues to exist will be deemed to be a separate offence.

13. If any portion of this bylaw is held to be invalid by a court of competent jurisdiction, such invalidity shall not affect the validity of the remaining portions of this bylaw.

14. This bylaw shall come into full force and effect upon adoption.

READ A FIRST TIME this 24th day of June, 2008.

READ A SECOND TIME this 24th day of June, 2008.

READ A THIRD TIME this 24th day of June, 2008.

RECONSIDERED AND FINALLY ADOPTED THIS 8th day of July, 2008.

Appendix 3: Revelstoke Bear Aware Society - Program Delivery and Presentations and Public displays in 2008

Revelstoke Bear Aware 2008 Program Delivery Summary		
Volunteers	Volunteers picked fruit, participated in door to door campaigns, and garbage tagging.	10 individuals volunteered for a total of 37 hours.
Door to Door Visits	The coordinator conducted door to door visits to distribute brochures and information regarding bear activity.	Delivery to 520 homes and 110 contacts made.
Information Displays and Presentations	The Bear Aware public information display was set up at various community events and presentations were given.	Approximately 1250 contacts were made.
Children's Programs	Presentations at 2 preschools and a number of other children's programs. Letters to all of the schools. Presentation at one school assembly.	500 children, teachers, and adults were reached.
Media Presentations	The following media coverage was utilized: <ul style="list-style-type: none"> • 6 newspaper articles, • 2 editorials and two news articles, • 1 radio interviews, • Radio advertisement • 200 brochures were handed out at events • public advisory brochure mailed to all residents. • 3400 garbage schedule brochures. • Website received 2651 visits • Ongoing ad on cable community channel • Video "Staying safe in Bear Country" was available at the local video store – out 26 times 	.
Fruit Picking	A fruit exchange was initiated, where fruit tree owners and fruit pickers were connected. Volunteers picked fruit for the program.	8 large baskets of fruit provided to Community Connections Food Bank
Garbage Tagging	11 garbage taggings were completed in various neighbourhoods. In several areas, repeat offenders were not deterred by the stickers.	
Working with City Officials	<ul style="list-style-type: none"> • 2007 annual report was presented to City Council. • Coordinator sitting on the city's Waste Collection Strategy committee. • Council member sitting on Bear Management committee. 	Ongoing bear proof bins installed in parks, bear resistant garbage can pilot project, draft wildlife attract bylaw, "Composting in Bear Country" added to city's website

Public displays and presentations in 2008:

Date	Event	Details	number of people attended
March	CBT Community Initiatives	Community meeting	100
April	Revelstoke City Council meeting	Presentation of 2007 annual report	25
May	Jumping Jack's preschool	Presentation, songs, stories and a craft	22
May	Farmer's Market	Bear Aware display	75
May	Chickadee Nature Festival	Bear Aware display, music, bear cookies, stories and games.	130
May	Community Center Preschool	Presentation, songs, stories and a craft	25
June	Friends of Mount Revelstoke and Glacier National Park - Junior Naturalist club	Bear Aware display, music, stories and games	13
June	Farmer's Market, and RAPP van visit	Bear Aware display, Conservation Officer present, RAPP information given.	200
July	Timber Days	Bear Aware display	250
July	Revelstoke Mountain Resort	Display, video "Staying Safe in Bear Country"	40
July	Vic Van Isle and other contractors working at the resort	3 presentations given -Bear Aware, and safety discussed.	95
July	Okanogan Regional Library, summer reading program	Bear Aware board game, story, city map	35
August	Friends of Mount Revelstoke and Glacier National Park - Celebrate the summit	Bear Aware display	200
September	Arrow Heights School	Bear Aware presentation	150
September	Kokanee Fish Festival	Bear Aware display, and game	125
September	Community Connections Adult individualized Inclusion Program	Bear Aware display, discussion regarding bear safety and attractants	15
October	Revelstoke Museum - BC Conservation Tour	Bear Aware display	250
Total			1750

Appendix 4: City of Revelstoke Waste Collection Strategy Committee, Terms of Reference

City of Revelstoke Waste Collection Strategy Committee Terms of Reference

Purpose:

To develop a Waste Collection Strategy for Revelstoke, including a written plan guiding the community through the process of becoming a “Bear Smart” community. The mandate will focus on proactive planning and action in order to maintain a responsible and effective waste collection program.

Process:

The Committee shall conduct an open process, encouraging two-way communication that informs and listens to residents. This will involve the use of an open house and media releases. The Committee will consider options such as centralized bins, bylaw amendments, collection and recycling initiatives and public education, referencing experiences and successes in other communities in BC and elsewhere. From this, the Committee should be able to establish a basic strategy to guide the community through the development of a written plan. Affordability is also a critical issue.

The Committee should meet bi-weekly in view of the many issues and the City’s need to consider new equipment options in the near future. A working group of City staff will provide administrative, secretarial and technical support to the Committee.

Participants:

Committee:

The Waste Collection Strategy Committee members appointed by City Council shall include:

- A member of City Council
- Operations Manager (City)
- Community at large (3) with preference that one member be from the Business Community
- A representative from Bylaw Enforcement
- A representative from Bear Aware
- A representative from the RMR

Public: Community residents are key participants and will be asked to provide input at an open House. The Committee will also receive input in writing at any time.

Council: Council’s responsibility is to make all decisions regarding the expenditure of funds and will make the final decisions regarding the acceptance and

implementation of the Committee's recommendations. Council members may to attend the Committee meetings in order to be completely informed.

Media: All local media will be invited to attend the open house. All technical and other information presented to the Committee will be available to the public and the media at City offices and the library.

Appendix 5: City of Revelstoke Waste Collection Strategy Committee – Mission and Vision Statement

CITY OF REVELSTOKE WASTE COLLECTION STRATEGY

Vision Statement: A clean healthy community, protecting wildlife and our natural environment.

Mission Statement: To operate a solid waste management system with minimal impact for wildlife and the natural environment, providing a safe and healthy community.

Strategic Goals:

1. Promote a community-friendly waste management service.
2. Provide an efficient and cost-effective waste collection system.
3. Ensure our success in becoming a designated bear smart community.
4. Maximize recycling within the limits of the recycling service provided by the CSRD.
5. Promote a waste collection service which does not conflict with the provision of other City services such as snow removal.
6. Provide a waste collection service with minimal and simple enforcement requirements.
7. Educate the community about the importance of: being bear aware; recycling; minimizing waste volumes and collection and disposal costs..
8. Work collectively with the CSRD to incorporate Bear Smart initiatives into their Solid Waste Management Plan.

Strategic Initiatives:

1. To become Bear Smart.
2. To gain support from the CSRD for inclusion of Bear Smart initiatives in their Solid Waste Management Plan.
3. To make continued improvements in the Bear Aware and waste management programs.
4. To strive for efficiencies in the waste collection program.
5. Maintain an ongoing public information program dealing with Bear Aware and other waste management issues.
6. Achieve reduction and deflection of the solid waste stream through reduction, reuse and recycling.

7. Ensure a cost effective waste collection program.
8. Ensure all waste is dealt with effectively, eliminating illegal dumping.

Task for 2008/2009:

1. Undertake a pilot project within an area of Revelstoke to test bear smart waste collection methods as advocated by Bear Aware. **(Action: City/ Bear Aware)**
2. Create a Bear Attractant Management Plan and the Bear Smart Community for Revelstoke. **(Action: Bear Aware)**
3. Undertake a public education campaign providing information on: bear aware issues and becoming a bear smart community; recycling; waste collection and disposal costs; and enforcement challenges.**(Action: City/Bear Aware)**
4. Review and amend bylaws to include Bear Smart Initiatives.**(Action: City)**
5. Provide a public feedback forum on our website regarding our waste collection service and our proposed strategy. **(Action: City)**

Performance Measures:

1. Assess the effectiveness of the pilot project to determine if it should be implemented in its present or modified form to other parts of the community.
2. Monitor the effectiveness of the education campaign on changing waste disposal behavior.
3. Assess the volume and nature of the public feedback on the City's waste collection service and our proposed strategy and the City's response to this feedback.

Appendix 6: (excerpts from) Province of British Columbia, Wildlife Act

WILDLIFE ACT

[RSBC 1996] Chapter 488

Definitions and interpretation

1 (1) In this Act:

“dangerous wildlife” means

- (a) bear, cougar, coyote, or wolf, or
- (b) a species of wildlife that is prescribed as dangerous wildlife;

Feeding dangerous wildlife

33.1 (1) A person who intentionally feeds or attempts to feed dangerous wildlife commits an offence.

(2) A person commits an offence if the person, with the intent of attracting dangerous wildlife to any land or premises, provides, leaves or places in, on or about the land or premises food, food waste or any other substance that could attract dangerous wildlife to the land or premises.

(3) Subsection (2) does not apply to a person who is engaging in hunting or trapping dangerous wildlife in accordance with all other applicable provisions of this Act and the regulations.

Dangerous wildlife protection order

88.1 (1) In this section:

"attractant" means food, food waste, compost or other waste or garbage that could attract dangerous wildlife;

"private dwelling" means a structure used solely as a private residence or a residential accommodation within any other structure.

(2) If a conservation officer believes on reasonable grounds that dangerous wildlife is or may be attracted to any land or premises other than a private dwelling, the conservation officer may, without a warrant, enter and search the land or premises.

(3) If a conservation officer believes on reasonable grounds that the existence or location of an attractant in, on or about any land or premises, other than in a private dwelling, poses a risk to the safety of any person because the attractant is attracting or could attract dangerous wildlife to the land or premises, the conservation officer may issue a dangerous wildlife protection order directing an owner, occupier or person in charge of that land or premises to contain, move or remove the attractant within a reasonable period of time specified in the order.

(4) Despite subsection (3), a dangerous wildlife protection order may not be made in respect of any of the following:

- (a) a farm operation, as defined in section 1 of the Farm Practices Protection (Right to Farm) Act, that
 - (i) is conducted on, in or over land anywhere in British Columbia, and
 - (ii) meets the requirements set out in section 2 (2) (a) and (c) of that Act;
- (b) a person who is engaging in trapping in accordance with all other applicable provisions of this Act and the regulations;
- (c) a facility for the disposal of waste, that is operated in accordance with the Environmental Management Act by a municipality, as defined in section 1 (1) of that Act.

(5) A person to whom an order under subsection (3) is expressed to apply must comply with the order within the period of time specified in that order.

(6) For the purpose of ensuring that an order issued under subsection (3) is being, or has been, complied with, a conservation officer may, without a warrant, enter and search the land or premises other than a private dwelling that is affected by the order.

(7) A person commits an offence if the person neglects or refuses to comply with an order in accordance with subsection (5).

Fines and penalties

88 (1) For the purpose of determining the fines and penalties to which a person is subject on conviction for an offence under this Act or a regulation under this Act,.....

(3) Subject to subsection (3), a person who commits an offence referred to in subsection (1)(b) (includes section 33.1 and 88.1) is liable,

- (a) on a first conviction, to a fine of not more than \$50 000 or to a term of imprisonment not exceeding 6 months, or both, and
- (b) on each subsequent conviction for the same offence or another offence referred in subsection (1)(b), to a fine of not more than \$100 000 and not less than \$1 000 or to a term of imprisonment not exceeding one year, or both.

Appendix 7: Bear Resistant Polycart Pilot Project

**Bear Resistant Bins
Creating a Safer Community**



To determine the effectiveness of bear resistant bins as a means of creating a Bear Resistant Waste Management System in the City of Revelstoke and a safer community.

Johnson Heights has been chosen to be part of an exciting pilot project!



Garbage is one of the largest bear attractants in our community. When bears eat garbage they become food conditioned and habituated to humans. Bears that are habituated become unpredictable and create a risk to our community, leading to their ultimately demise. When garbage and other bear attractants are properly managed the risk of human/bear conflict is greatly reduced.

Finding a secure place to store garbage is often difficult. Recently, bear resistant residential bins have become available, giving homeowners another option for securing their garbage. These bins have met provincial standards as an effective means of securing garbage from bears. They have passed the test - 60 minutes with a grizzly bear!

Johnson Heights residents

Your participation in this study is very important!

Due to the high incidence of bear activity in previous years and limited options for securing garbage, Johnson Heights has been chosen for this exciting pilot project. We sincerely hope that you will be part of this very important study.



As participants in this study, you will be part of determining the effectiveness of bear resistant bins in the city of Revelstoke as well as protecting your community from potentially dangerous bears.

To be part of the study, we ask that you:

- Place all garbage in the bin provided.
- Put only this bin out for curbside pick up.
- Ensure all bear attractants are removed from your property including garbage, ripe fruit, pet food, smelly compost, and bird feeders.
- Maintain a log of bear activity at your residence.
- Complete a survey at the beginning, during and at the end of one year of the study.

If you move residence during the study, we ask that the bin remain at the Johnson Heights address. Following completion of the one year study, you will get to keep the bin, at no cost to you, with a value of \$150.

All information that is collected will remain confidential. It will be used by the city's Waste Collection Strategy committee and Revelstoke Bear Aware to determine the effectiveness of bear resistant bins as:

- A means of refuse collection with the use of a lifter.
- reducing garbage in our community
- reducing the availability of garbage to bears and other wildlife and ultimately creating a cleaning and safer community!

Thank you for your participation.

The pilot project is expected to begin mid to late September, 2008. Revelstoke Bear Aware will be visiting door to door in the coming weeks to provide more information and answer any questions that you may have.

If you have any concerns please contact Revelstoke Bear Aware at beaware@telus.net, or 250-837-8624.

Appendix 8:(excepts from) Revelstoke and Area Community Development Action Plan, September 2007

26.Fish and Wildlife

Community goal – Maintain healthy fish and wildlife populations by reducing the number of human-wildlife conflicts, retaining habitats and taking actions to recovery species at risk.

Objective: Eliminate bear deaths and relocations that are a result of bears being attracted into the city by garbage, domestic fruit, compost and other human generated attractants.

Target: Number of bear deaths and relocations

Projects/Tasks	Priority	Leader	Cost
304. Continue support and funding for the Revelstoke Bear Aware Program.	Highest	City/CSRD	Medium
305. Strive to become classified as a Bear Smart community by implementing outstanding required action of developing and maintaining a bear-proof municipal solid waste management system.	High	(City/CSRD) RBAS	High

Objective: Minimize all other human human-wildlife conflicts

Target: Number of human-wildlife conflicts.

Projects/Tasks	Priority	Leader	Cost
306. Prior to implementation, all activities and projects supported or approved by the city should be examined to identify potential human-wildlife conflicts and appropriate mitigation actions	High	(City)	Low

Appendix 9: (excerpts from) City of Revelstoke Official Community Plan, Pre-Final Draft for Community Review, March 2009

Section 3.2 *The Environment - Ecosystems*

Community goals

- Retain and, where possible, enhance the ecosystems and biodiversity within the community and the North Columbia area.

Policies

- Conserve the functioning, connectivity, habitat conditions, fish and wildlife populations and the natural heritage of ecosystems.
- Tacitly support recovery of threatened and endangered species.
- Encourage the use of native plant species in landscaping while limiting bear hazards, prohibit the use of invasive species and support eradication of existing invasive plants.
- Retain and augment trees and treed areas within developed areas while limiting bear hazards and wildfire risk
- Minimize human/wildlife conflicts in all municipal activities and developments
- Recognize wildlife corridors and incorporate them in land use planning and development.
- Eliminate bear deaths and relocations resulting from human attractants.
- Encourage the Regional District and provincial agencies to effectively manage front country and backcountry recreational opportunities to sustain healthy ecosystems as the basis for high quality experiences.

Section 3.5 *Community Infrastructure*

Utilities – Solid Waste

Goals

- Reduce the need to landfill waste
- Eliminate wildlife attractants in all segments of the waste stream.

Development Permit Area J – Environmentally Sensitive and Environmental Hazard Areas

South Slopes of Mt. Revelstoke Policies

1. Development in this area is discouraged unless it can be demonstrated that mitigative measures such as sensitive timer removal, noise abatement or other steps will be effective in preserving this important wildlife habitat.
2. Mitigate human/wildlife conflicts in this area by requiring restrictive covenants under Section 215 of the Land Title Act as a condition of subdivision approval. These covenants will require the use of animal-proof garbage containment and management systems, and preclude fruit trees and gardens to minimize potential conflicts.

Appendix 10: (excerpts from) The Columbia Shuswap Regional District, area B, Official Community Plan, adopted October 2008.

Section 11, Environmental Management

11.3 *General Environmental Policies:*

11.3.16 Support the Revelstoke Bear Aware Program to effectively reduce bear/human conflicts to achieve the goal of becoming a Bear Smart Community.

11.4 *Environmentally Sensitive Areas:*

11.4.3 Plan for and protect wildlife corridors, habitat for threatened and endangered species and ecosystem connectivity in advance of expansion of settlement area or tenures. It is recognized that the area supports sensitive species (e.g. Great Blue Heron and Painted Turtle) and there are specific Best Practices for species that are to be addressed in any development proposals. All development applications in the Columbia Basin should be referred to the Fish and Wildlife Compensation Program, specifically noted are lands in the South Revelstoke area.

11.4.4 Encourage all developers including developers of infrastructure projects to conserve wetlands, wildlife habitat, trees or other indigenous vegetation. Encourage alternative development methods, such as considering concentrating density, narrowing right-of-ways, or accommodating cluster housing.

Appendix 11: (excerpts from) Mount Revelstoke and Glacier National Parks and Rogers Pass National Historic site of Canada *draft* Management Plan (2009).

4.6 Confluence of Conservation with Science, Stewardship and Technology

This strategy focuses on:

6. Continuing to support environmental stewardship efforts beyond park boundaries, such as the Revelstoke Bear Aware program and transit service from the community to the park.

5.2 Mount Revelstoke and Glacier National Park Backcountry Areas

Backcountry trails are designed to support the experience visitors are seeking while minimizing the potential for conflict with wildlife. Hiker group size recommendations are implemented when necessary, to reduce the likelihood of conflict with bears.

5.2.3 Actions

3. Design and locate backcountry facilities to optimize visitor opportunities in ways that support and secure wildlife habitat, and monitor the effectiveness of those designs.

- Facilitate low-impact visitor experiences in the backcountry through trail re-alignments to avoid high quality habitat for grizzly bears, mountain caribou and olive-sided flycatchers, or damage to soil and vegetation.

- Create visitor education materials to promote awareness and personal choices that minimize the disturbance of wildlife, including mountain caribou and grizzly bears

- Minimize the risk to female grizzlies and to visitors by seasonally closing or controlling recreational use of important bear areas

- Continually review and adjust hiking group size restrictions

- Close facilities as a last resort

9. Protect grizzly bear and their habitat, and minimize the potential for conflict between bears and people through careful management of visitor opportunities.

5.3 Major Rogers' Route - The Trans-Canada Highway Corridor

5.3.3 Actions

10. Improve ecosystem health by restoring ecological connectivity.

- Restore wildlife movement corridors across the highway and railway as opportunities arise during highway expansion or reconstruction (e.g.: overpasses or culvert underpasses).

- Protect grizzly bears and reduce the potential for conflict between bears and people by implementing temporary closures and enhance communications programming when grizzly bears are present at roadside facilities, and by eliminating food attractants along the highway and railway.

5.5 Meadows in the Sky Area

5.5.3 Actions

4. Continue to strengthen the ties between Mount Revelstoke National Park and the community of Revelstoke.

- Engage and collaborate with the community on, and foster ecological awareness of mountain caribou recovery and grizzly bear protection in the Meadows in the Sky Area.