RECORD OF AMENDMENTS TO OFFICIAL COMMUNITY PLAN BYLAW NO. 0999, 2010 HATZIC VALLEY, ELECTORAL AREA F				
Amending Bylaw No.	**Type of Amendment**		**Summary of Amendment**	**Date of Adoption**
	Text	**Map**		
FVRD 1131	✓		Text amendment to agricultural policies (5.1.8) Re: non-farm use in ALR.	2012 05 23
1228		✓	10990 Sylvester Rd, Limited Use to Rural	2013 09 25
1265	✓		Riparian Area Regulations	2014 05 27
1413		✓	36333 Ridgeview Rd, Limited Use to Rural	2017 10 24
1668	✓		Omnibus Amendment re Regional Consolidated Zoning Bylaw 1638, 2021	2022 10 27

FRASER VALLEY REGIONAL DISTRICT

Bylaw No. 0999, 2010

A Bylaw to Adopt an Official Community Plan for Hatzic Valley, Electoral Area "F"

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1. CITATION

This bylaw may be officially cited for all purposes as "Fraser Valley Regional District Official Community Plan for Hatzic Valley, Electoral Area "F" Bylaw No. 0999, 2010".

2. AREA OF APPLICATION

This bylaw shall apply to the areas shown on the map attached hereto as 'Schedule 0999-A Official Community Plan Boundary' which forms an integral part of this Bylaw.

3. SCHEDULES

a) "Fraser Valley Regional District Official Community Plan for Hatzic Valley, Electoral Area "F" Bylaw No. 0999, 2010" is comprised of the following:

Schedule 0999-A	Official Community Plan Boundary
Schedule 0999-B	Official Community Plan which includes text, maps, tables, figures, and the following schedules:
	Schedule 1 Boundary of the Plan Area
	Schedule 2 Designations
	Schedule 3 Parks
	Schedule 4 Development Permit Area 1-F
	Schedule 5 Development Permit Area 2-F

b) The Schedules listed in Paragraph 3(a) are an integral part of this bylaw.

c) The Schedules listed in Paragraph 3(a) constitute the Official Community Plan for Hatzic Valley, Electoral Area "F" of the Fraser Valley Regional District, the location and area of which is outlined on Schedule 0999-A Official Community Plan Boundary.

d) If any schedule, section, subsection, sentence, clause or phrase of this Bylaw is for any reason held to be invalid by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this Bylaw.

4. REPEAL

a) Dewdney-Alouette Regional District McConnell Creek-Hatzic Prairie Official Community Plan Bylaw No. 454-1987, and amendments thereto, are hereby repealed.

c) Dewdney-Alouette Regional District Dewdney-Hatzic Lake Official Community Plan Bylaw No. 478-1988, and amendments thereto, are hereby repealed.

5. READINGS & ADOPTION

READ A FIRST TIME THIS	22nd DAY OF JUNE, 2010
A PUBLIC HEARING WAS HELD ON THE	23rd DAY OF SEPTEMBER, 2010
READ A SECOND TIME THIS	23rd DAY OF NOVEMBER, 2010
A PUBLIC HEARING WAS HELD ON THE	19th DAY OF JANUARY, 2011
RESCINDED SECOND READING	22nd DAY OF FEBRUARY, 2011
REREAD A SECOND TIME THIS	22nd DAY OF FEBRUARY, 2011
A PUBLIC HEARING WAS HELD ON THE	8th DAY OF MARCH, 2011
READ A THIRD TIME THIS	29th DAY OF MARCH, 2011
ADOPTED THIS	29th DAY OF MARCH, 2011

Chair/Vice-Chair

Corporate Officer/Deputy

6. CERTIFICATIONS

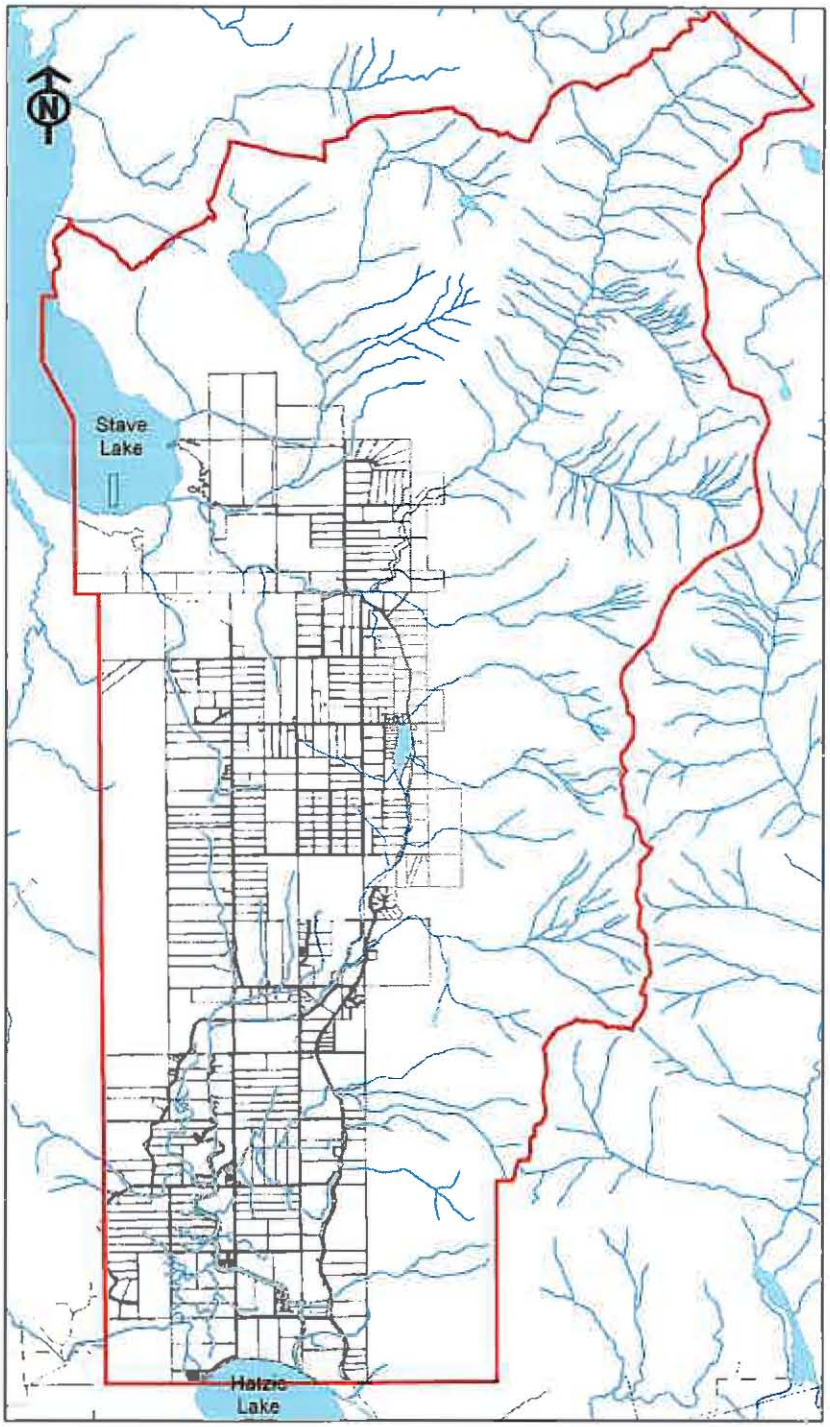
I hereby certify the foregoing to be a true and correct copy of "Fraser Valley Regional District Official Community Plan for Hatzic Valley, Electoral Area "F" Bylaw No. 0999, 2010"as adopted by the Board of Directors on the 29th day of March, 2011.

Dated at Chilliwack, BC on the 30th day of March, 2011

Corporate Officer/Deputy

FRASER VALLEY REGIONAL DISTRICT
OFFICIAL COMMUNITY PLAN FOR HATZIC VALLEY, ELECTORAL AREA "F"
BYLAW No. 0999, 2010

Schedule 0999-A
Official Community Plan Boundary



LEGEND

Official Community Plan Boundary

This is Official Community Plan Schedule 0999-A, attached to and an integral part of Fraser Valley Regional District Official Community Plan for Hatzic Valley, Electoral Area "F" Bylaw No. 0999, 2010.

Chair/Vice Chair

Corporate Officer/Deputy

FRASER VALLEY REGIONAL DISTRICT

OFFICIAL COMMUNITY PLAN FOR HATZIC VALLEY, ELECTORAL AREA "F"

BYLAW No. 0999, 2010

Schedule 0999-B

Official Community Plan

This is Official Community Plan Schedule 0999-B, attached to and an integral part of Fraser Valley Regional District Official Community Plan for Hatzic Valley, Electoral Area "F" Bylaw No. 0999, 2010.

Chair/Vice Chair

Corporate Officer/Deputy

McConnell Creek Durieu Hatzic Prairie

Fraser Valley Regional District

45950 Cheam Avenue, Chilliwack, BC
604 702-5000 or 1-800-528-0061
www.fvrd.bc.ca

SCHEDULE 0999-B

Official Community Plan for Hatzic Valley, Electoral Area "F"

Bylaw No. 0999, 2010

SCHEDULE 0999-B

OFFICIAL COMMUNITY PLAN

TABLE OF CONTENTS

SCHEDULES

MAPS

1.0 PLAN PURPOSE & STRUCTURE

Community planning in Hatzic Valley dates back to 1979 when Dewdney Alouette Regional District[1] adopted McConnell *Creek – Hatzic Prairie Official Settlement Plan Bylaw No. 183-1979.* This plan was updated in 1987 with the adoption of *McConnell Creek - Hatzic Prairie Official Community Plan Bylaw No. 454-1987*.[2] The Dewdney-Alouette Regional District plans have served the community well for many years. This Plan comprehensively updates and consolidates the old plans to reflect current community values, legislation, and development trends.

1.1 Purpose of the Official Community Plan

Official community plans (OCPs) are defined by the Local Government Act as broad statements of objectives and policies which guide planning and land use management decisions. OCPs are forward-thinking. They direct change and provide policy about future land use and services. OCPs reflect community values and goals. Accordingly, as legislation and community values change, OCPs may require amendments to remain current.

In contrast, zoning bylaws establish current regulations for the use of land, density, and the massing and siting of structures.

The Official Community Plan for Hatzic Valley must meet the content requirements for OCPs established in the Local Government Act, including:

a. An official community plan must include statements and map designations for the area covered by the plan respecting the following:
   i. the approximate location, amount, type and density of residential development required to meet anticipated housing needs over a period of at least 5 years;
   ii. the approximate location, amount and type of present and proposed commercial, industrial, institutional, agricultural, recreational and public utility land uses;
   iii. the approximate location and area of sand and gravel deposits that are suitable for future sand and gravel extraction;
   iv. restrictions on the use of land that is subject to hazardous conditions or that is environmentally sensitive to development;
   v. the approximate location and phasing of any major road, sewer and water systems;
   vi. the approximate location and type of present and proposed public facilities, including schools, parks and waste treatment and disposal sites;
   vii. other matters that may be required or authorized by the minister.

b. An official community plan must include housing policies of the local government respecting affordable housing, rental housing and special needs housing.

[1] In 1996, Dewdney-Alouette Regional District amalgamated with the Central Fraser Valley Regional District and the Regional District of Fraser-Cheam to form the present day Fraser Valley Regional District.

[2] A small portion of Hatzic Prairie adjacent to the north end of Hatzic Lake was covered by *Dewdney-Alouette Regional District Dewdney-Hatzic Lake Official Community Plan Bylaw No. 478-1988.*

Official community plans may also include:

- policies of the local government relating to social needs, social well-being and social development;
- a regional context statement, consistent with the rest of the community plan, of how matters dealt with in the community plan apply in a regional context;
- policies of the local government respecting the maintenance and enhancement of farming on land in a farming area or in an area designated for agricultural use in the community plan;
- policies of the local government relating to the preservation, protection, restoration and enhancement of the natural environment, its ecosystems and biological diversity; and,
- objectives respecting matters not within the jurisdiction of the local government.

1.2 Effect of the Plan

In accordance with the provisions of the Local Government Act, the Regional Board is required to comply with the policies of the Official Community Plan as follows:

a. A zoning bylaw enacted prior to the effective date of this Plan is not altered by this Plan. Where such a bylaw is amended, the amending bylaw must be consistent with the provisions of the Official Community Plan.

b. The adoption of this Plan does not commit the Regional Board or any other governmental body to undertake any project outlined herein, nor does it authorize the Regional Board or any other governmental body to proceed with a project except in accordance with the procedures and restrictions laid down by any Act.

c. All bylaws enacted and works undertaken by the Regional Board shall be consistent with the Official Community Plan.

d. Consolidated Zoning Bylaw: The Board intends on consolidating and updating all nine zoning bylaws within the Regional District for the limited purposes of creating one new, more user-friendly, region-wide consolidated Zoning Bylaw applicable to all electoral areas. It is a policy of the Regional District that this Plan facilitates that zoning bylaw consolidation including by not requiring that all regulations applicable to each property and each zone implement fully the policies and land use designation of this Plan. While an objective of the consolidation is to avoid significantly altering the regulations applicable to any particular parcel of land or zone, there will inevitably be different regulations in certain instances as the current zoning bylaws were adopted between 1976 and 1992, and many similar zones can and should be consolidated. Where similar zones have different regulations, it is generally intended the most permissive would apply, and permitted land uses would not be taken away with the consolidation, which may result in land uses becoming available after the consolidation. Therefore, OCP Policies in this Plan, including land use designations and zone categories, permitted uses, densities, and subdivision regulations for the creation of new parcels, are, where necessary to achieve consistency, expanded to include the existing regulations under the various zoning

bylaws and the new consolidated zoning bylaw. For certainty, these accommodations are limited to the Consolidated Zoning Bylaw Project and the situation where the existing zoning of a property or new consolidated zoning bylaw permits a use, density, or other development regulation different than otherwise identified in this Plan; by virtue of this provision, this Plan incorporates and permits those zoning regulations for that property such that there is no inconsistency with this Plan. Also, lands that have no zoning, may continue as such in the new zoning bylaw. However, all subsequent amendments to the new zoning bylaw must be consistent with this Plan without recourse to this policy. [Bylaw No. 1668, 2022]

1.3 Plan Area Location & Boundaries

Hatzic Valley, a portion of Electoral Area "F", is located east of the District of Mission on the north side of the Fraser River. It is bounded by the District of Mission in the west, Hatzic Lake to the south, Durieu Ridge to the east and Stave Lake to the north. Hatzic Valley includes the historic settlement areas of Hatzic Prairie, Durieu and McConnell Creek.

The Hatzic Valley community is greatly affected by geological and hydrological processes originating in the upper watersheds. Accordingly, watersheds draining to Hatzic Valley have been included in the Plan area to facilitate better watershed management and policy. The boundaries of this OCP area are shown on *Schedule 1 – Boundary of the Plan Area*.

It is the policy of the Regional Board that:

1.3.1 This Plan shall apply within the boundaries established in *Schedule 1 – Boundary of the Plan* Area.

1.4 Planning Process

The preparation of this Official Community Plan involved extensive consultation with Hatzic Valley residents, government agencies, First Nations and others, including:

- a public information meeting on September 18, 2008 to launch the planning process and present overview geotechnical hazard mapping;
- a newsletter and survey mailed to all households in the Plan area;
- early and ongoing consultation with government agencies and First Nations;
- extensive dialogue with an Advisory Planning Commission (APC) comprised of local residents; and,
- an open house and two public hearings prior to plan adoption.

Consultation efforts were guided by the *Consultation Strategy for the Update of the Hatzic Prairie – McConnell Creek Official Community Plan* adopted by the Regional Board in June, 2008. Additional details about some components of the planning process are provided below.

Advisory Planning Commission

Pursuant to s.898 of the Local Government Act, an Advisory Planning Commission (APC) consisting of nine local residents was established by *FVRD Bylaw No. 0858, 2008* to guide the development of the Plan. The APC met fourteen times between November, 2008 and May, 2010 to develop this Plan.

Community Planning Survey

In March 2009, a community survey was delivered to all households within the Plan area. An on-line version was also available. The survey contained questions intended to identify community values, issues and priorities respecting growth, development, and services. Of the approximately 700 surveys delivered, 72 responses were received - a return rate of about 10%.

Analysis of survey results focused on qualitative observations rather than quantitative methods due to the low numbers of returns and the structure of survey questions.

Survey results indicate that Hatzic Valley residents appear to:

- place great value on rural aesthetics and the natural environment;
- favour a low-growth approach to development;
- believe the OCP should focus on the protection of drinking water and maintenance of the rural landscape; and,
- support increased flood protection services.

Open Houses & Public Hearing

After the Plan received first reading from the Regional Board, an open house was held on September 20, 2010 to present the plan to residents and interested parties. The open house format provided a casual atmosphere and opportunities for questions and discussion.

The public hearing for Official Community Plan for Hatzic Valley, Electoral Area "F" Bylaw No. 0999, 2010 was held on September 23, 2010. Notice of the public hearing was provided in accordance with *FVRD Procedures Bylaw No. 0831, 2007* and the requirements of the Local Government Act.

1.5 Plan Structure & Interpretation

In this Official Community Plan, plan policies are numbered and clearly identified. They follow the phrase, "it is the policy of the Regional Board that". Policies are often preceded by a discussion which is intended only to provide the reader with context. Discussions are summaries only and are not comprehensive. They do not constitute plan policies and must not be interpreted as complete statements of the intention of the Regional Board with respect to the policies that follow them. Ultimately, plan policies stand on their own.

Particular attention should be given to the wording of the Regional Board policies contained in the Plan:

"shall" describes an imperative course of action which is within the scope of the Regional Board's powers to provide, enact, regulate or enforce;

"should" describes a desirable course of action to be taken by the Regional Board or other body or person;

"may" describes a permitted course of action which is available to the Regional Board or other bodies or persons; and,

"will" describes a result to be expected on the basis of present information.

This Plan contains both *Schedules* and *Maps*. Schedules contain official designations of the Regional Board including designations, current and potential parks, and development permit areas. Schedules will be updated and amended as required. Maps display information that is useful in understanding Plan policies. Maps are unlikely to be updated; data shown on Maps will become outdated.

Terms in bold print are usually defined in the Section 15 of the Plan.

It is the policy of the Regional Board that:

1.5.1 In this Plan, only statements clearly identified as policies of the Regional Board should be understood as Plan policies. Plan policies stand on their own as expressions of the Regional Board.

1.5.2 Discussions, or non-policy statements, within the Plan are brief summaries provided for context only. They do not constitute plan policies and must not be interpreted as complete statements of the intention of the Regional Board with respect to the policies that follow them.

1.6 Review & Amendment

From time to time, this Official Community Plan may be amended to allow for a development, a project of major significance, or a series of development proposals which warrant revision of the policies within the Plan. The Plan may be amended through two procedures:

- Applications for rezoning to permit developments that are inconsistent with the OCP shall be accompanied by applications for Plan amendments. The Board may reject the applications or initiate Plan review and amendment procedures in accordance with the provisions of the Local Government Act and pertinent FVRD bylaws.
- The Board may periodically initiate review and amendment of the Plan where warranted by development trends, new information regarding natural hazards, or at the request of local, provincial or federal governments.

It is important that the Plan policies and objectives reflect the community interests. To remain current, the Plan should be updated every five to eight years. All Plan reviews should be substantially justified by new circumstances and provide ample opportunity for public input.

It is the policy of the Regional Board that:

1.6.1 The Official Community Plan should be reviewed at intervals of five to eight years and this review should be followed by appropriate amendments to guide development and land use for the next five to eight years.

1.6.2 The Official Community Plan may be reviewed and amended where deemed necessary by the Board only after consultation and public hearing and in accordance with the provisions of the Local Government Act.

1.6.3 All rezoning applications which are inconsistent with the Official Community Plan shall be accompanied by applications for amendment to the Plan.

1.6.4 Applications for amendments to the Plan may be made to the Regional Board, in accordance with the provisions of the Local Government Act and bylaws.

1.6.5 The Regional Board may defer Plan amendment applications. The Board may give particular consideration to deferring applications for major amendments to the Plan – especially amendments to facilitate developments or land uses which are particularly complex, require services not provided for in the Plan, or involve uses not contemplated within the Plan area – until a broader Plan amendment and consultation process can be undertaken. Additionally, the Board may wish to consider such Plan amendment applications separate from any related zoning amendment applications.

1.7 Consultation

Implementation of the Official Community Plan depends upon community support and the co-operation of senior governments. Accordingly, the policies of this Plan reinforce the Regional Board's commitment to open discussion, local involvement and agency cooperation in community development.

The Local Government Act outlines requirements for consultation with affected parties and specified groups and organizations during the development, amendment or repeal of an Official Community Plan.

Hatzic Valley shares a border with the District of Mission and Electoral Area "G". There is a clear need for the north shore electoral areas to coordinate land use, services, parks and other matters among themselves and with the District of Mission.

The Leq'á:mel First Nation, Kwantlen First Nation and Stó:lō Nation have interests which may potentially be impacted by land use regulation and planning in Hatzic Valley. Lands within Hatzic Valley may be used for traditional activities such as hunting, gathering and ceremonial duties. What is more, there are several documented First Nations archaeological sites within the Plan area and high likelihood of undocumented sites.[3] It is anticipated that Hatzic Valley is subject to aboriginal rights and title claims. The Regional District should consider the potential effects of land use plans and development approvals on the interests of First Nations and identify appropriate means of consultation. Consultation regarding land use matters may also be seen as

[3] Further discussion and policies related to First Nations cultural resources are outlined in Section 7.3 of this Plan.

an avenue for increased cooperation, understanding, and dialogue between First Nations and the Regional District and a basis for good-neighbour relations.

It is the policy of the Regional Board that:

1.7.1 Consultation during the development, amendment or repeal of this official community plan will meet or exceed the requirements of Section 879 of the Local Government Act. Consultation should be commensurate with the scope of the change contemplated.

1.7.2 Property owners and residents are invited to meet privately or in groups with Regional District staff and Board members to discuss individual or local concerns.

1.7.3 Regional District staff will, where requested, assist in coordinating discussions between property owners and residents, school districts and Provincial agencies on matters of land use, roads and services.

1.7.4 The District of Mission should be consulted about amendments to this Plan that may affect their interests, particularly when land designations along the municipal boundary are under consideration. The scope and form of consultation shall be determined by the Regional Board and informed by discussion with the municipality.

1.7.5 Leq'á:mel First Nation, Kwantlen First Nation and Stó:lō Nation shall be consulted respecting amendments to this Plan that may affect their interests. The scope and form of consultation shall be determined by the Regional Board and informed by discussion with First Nations.

1.7.6 Leq'á:mel First Nation, Kwantlen First Nation and Stó:lō Nation are encouraged to consult with the Regional District on matters that may affect the land and residents of Hatzic Valley

1.8 Implementation

The policies of the Plan may be implemented in a number of ways. Policies respecting matters within the jurisdiction of the Regional District can be implemented through the subdivision and development control process, including zoning bylaws, subdivision standards and the issuance of permits. The Plan also contains advocacy policies which relate to matters that are the jurisdiction of provincial agencies or other authorities. These policies may be implemented or advanced through liaison with the responsible authority, including referral responses. Moreover, this Plan may be taken by the Subdivision Approving Officer as a statement of the public interest.

It is the policy of the Regional Board that:

1.8.1 The policies of this Plan will be implemented by the Regional Board in a variety of ways, including subdivision and development control, servicing decisions and policy

approaches. Plan policies which relate to matters that are the jurisdiction of provincial agencies or other authorities will be advanced through liaison, advocacy and referral responses.

1.8.2 This Plan may be taken by the Subdivision Approving Officer as a statement of the public interest.

1.8.3 The policies of this Plan, including minimum parcel sizes, should be considered and addressed in subdivision approval processes. Where this Plan establishes a designation and/or parcel size policy that differs from zoning, the conditions identified in the Plan should be addressed.

2.0 COMMUNITY PROFILE

2.1 Community History

The Hatzic peoples were the first known residents of the area. They were members of the Stalo who inhabited the lands of the Lower Fraser River and its tributaries. The Hatzic peoples lived along the north side of the Fraser River in the vicinity of Hatzic Lake. They disappeared from evidence before the first census of the Stalo people recorded in 1839, likely as a result of disease epidemics introduced by colonial explorers and occupiers.

Colonial settlement in Hatzic Prairie began in the late 1860's with the arrival of Ralph Burton, a Caribou teamster. For several years the area was known as Burton's Prairie. Richard Phare, a Caribou miner and teamster, was also an early settler on the Prairie. These homesteads were at first wintering farms, however, the teamsters gradually stopped driving ox-wagons to settle permanently.

In 1873 James Robinson, a river boat captain on the Fraser River, acquired land at the southern end of Hatzic Prairie for cattle range. During the freshet he navigated his steamer up Hatzic Slough to load livestock. In 1875 S.J. Lehman settled the area and began dairying. These farming attempts were challenging because of recurrent floods.

Around this period, Captain Livingston Thompson, a veteran of the British army and a land surveyor, purchased land in Hatzic Prairie and started dairy farming. H. Brealey took up land in the area around this time, too. They constructed a dyke that was destroyed in the 1894 flood. An English syndicate, the British North America Company, purchased this land, rebuilt the dyke and subdivided the property into smaller farms.

While farming has been the dominant activity in Hatzic Prairie since the days of early settlement, sawmills and gravel pits have also been operated in the area. The McConnell Creek area north of Hatzic Prairie is named after a logger in the area called Jack McConnell. Cascade Creek was formerly called McConnell Creek. This area was settled somewhat later than Hatzic Prairie by loggers who were attracted by the tall timber. Early sawmills in the area produced railway ties, cedar shakes and finished lumber. Settlers soon followed the loggers into the area and the importance of the forest industry gradually decreased. By 1949 only one mill was still operating in the area.

The first road into the valley was Sylvester Road. By 1886 it extended to the northern limit of Hatzic Prairie. By 1905 a trail from Mission into the area had become Stave Lake Road. In the following two decades these two roads were extended northwards and Hartley Road was constructed as the crossroad.

The Hatzic Prairie post office was established in 1889 on Durieu Road. Early postmasters were Livingston Thompson and Amable Lagace. In 1910 the Hatzic Prairie post office was renamed Durieu after Bishop Paul Pierre Durieu, a pioneer missionary with the Order of Oblates of Mary Immaculate. The Durieu Post Office was closed in 1942. Between 1895 and 1899 a post office was established in McConnell Creek. This second post office has also been closed.

The first Hatzic Prairie school was opened in 1895 near the Durieu Road and Stave Lake Road intersection. It was replaced in 1925 with a new school on Dale Road which has since been closed. The McConnell Creek School was first opened in 1920 and replaced with a new school

in 1931. The only school in the area today is Durieu Elementary School which is located on Seux Road.

In 1933 the Hatzic Prairie Community Hall was built and in 1949 the McConnell Creek Farmers Institute Hall was opened.

The 1948 flood was a dramatic event in the history of the plan area. On June 3rd the dyke broke at Hatzic Lake and hundreds of feet of the railway line were swept away. Within twelve hours, Hatzic Lake was enlarged to over 25 km^2 and Hatzic Prairie was under water. Some families from Hatzic Prairie moved to McConnell Creek with their livestock to escape the rising waters. Damage was severe for the whole area including the Hatzic Prairie School and the Community Hall which were rebuilt in 1949 and 1950.

2.2 Population Characteristics

Understanding the dynamics and character of population growth is important for identifying the land use needs of a community. This section will look at the indicators that identify the character of the community, specifically population, mobility, household and family characteristics, and economic properties.

Unless otherwise noted, data used in this section is derived from the 1996, 2001 and 2006 Statistics Canada census.

Total Population

In 2006, Canada Census reported a population of 1,339 for Area F, an increase of 8.2% since 2001. At 2,030 sq km, Area F is the fourth largest Electoral Area in the FVRD. It comprises 15.2% of the land area of the Region and has 0.5% of the regional population. Table 2-1 shows the population growth pattern between 1996 and 2006.

TABLE 2-1
POPULATION CHARACTERISTICS, ELECTORAL AREA "F"

	1996	2001	2006	% Growth 2001 - 06	% Growth 1996 - 06
Area F Population	1,410	1,237	1,339	8.2%	-12.3%
Persons/km^2	---	17.8	19.2/km^2	---	---
FVRD Population	222,397	237,550	257,031	8.2%	6.8%

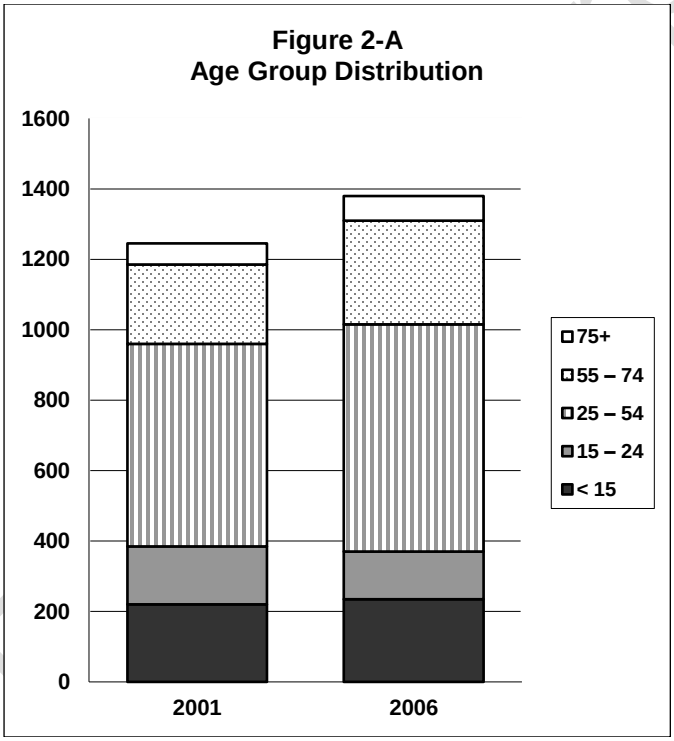
Age Composition

Table 2-2 examines the distribution of population by age group. The majority of the population is found in the 25 – 54 age group.

TABLE 2-2 POPULATION & AGE COMPOSITION, ELECTORAL AREA "F"					
Total Population by Age Groups	**2001 Area F**		**2006 Area F**		**% Total Change 2001 - 2006**
	Pop.	**% Total Pop**	**Pop.**	**% Total Pop**	
Total Population	1237	100	1339	100	8.2%
< 15	220	17	235	17	6.8%
15 – 24	165	13	135	10	-18.2%
25 – 54	575	46	645	48	12.2%
55 – 74	225	18	295	22	31.1%
75+	60	5	70	5	16.7%

Figure 2-A illustrates the change in population age group distribution.

Figure 2-A
Age Group Distribution



Housing Characteristics

The number of housing units in Area F increased marginally between 2001 and 2006 from 475 to 525. In 2006, over 78% of all homes in Electoral Area "F" were occupied by the owners. Table 2-3 shows the proportion of owned to rented dwellings in 2001 and 2006. In 2006, there was on average 2.6 persons living in each dwelling.

TABLE 2-3 HOME OWNERSHIP, ELECTORAL AREA "F"			
Area F Population	**2001**	**2006**	**% Growth 2001 - 2006**
Occupied Private Dwellings	475	525	10.5%
# Owned Dwellings	355	410	15.5%
# Rented Dwellings	120	115	-4.2%

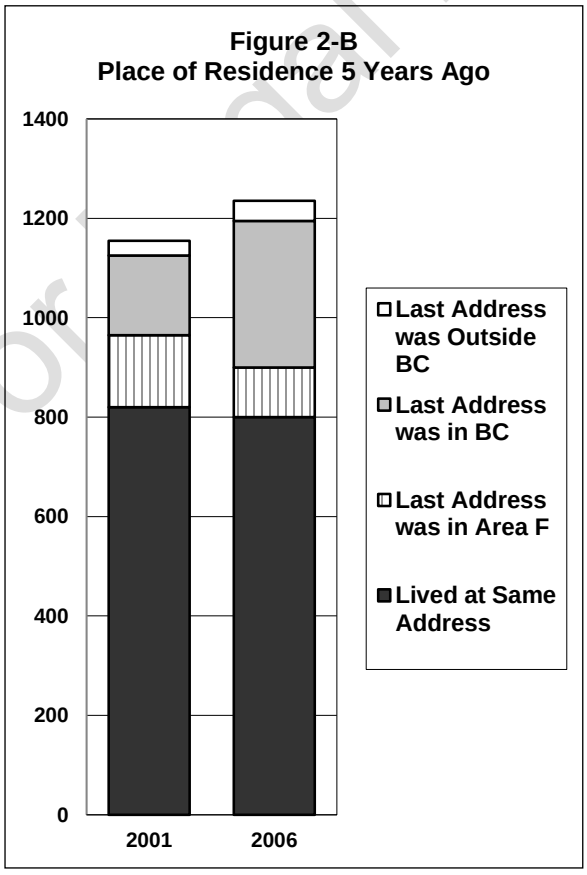
Within Area F, single unattached dwellings are the dominant residential form comprising 95% of the housing stock in 2006. Of the remaining stock, 4% were movable dwellings, including mobile homes. Note that multiple unit dwellings are not generally permitted in the current zoning bylaw.

Mobility

There was minimal residential mobility in Area F over the last five years. This includes those who remained in the same house and those who moved houses within the area. Figure 2-B compares place of residence five years ago for 2001 and 2006.

The low mobility rate of the Area F population is indicative of an established community with a population committed to long term investment in their community. The slight increase in population between 2001 and 2006 was a result of intra-provincial in migration.

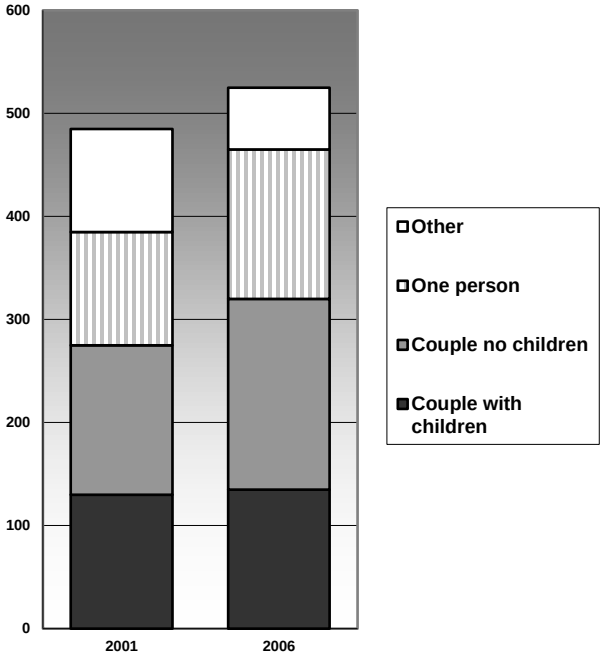
Figure 2-B
Place of Residence 5 Years Ago



Household, Family & Language Characteristics

The number of households in Area F grew by about 10% between 2001 and 2006 with the growth focused in the "Couple No Children" and "One Person" categories. Figure 2-C illustrates the proportion of household types for 2001 and 2006. Note that there was a substantial decrease in number of "Other" households – the "Other" category includes lone parent, multi family and non family households.

Figure 2-C
Household Composition



Between 2001 and 2006, people identifying themselves as aboriginal increased from 20 to 60.[4]

In 2006, the majority of Electoral Area "F" residents (84%) were Canadian born. Although 16% of the 2006 Area F population is classed as immigrant, only 11% of the population spoke a language other than English when at home.[5]

Employment & Education Characteristics

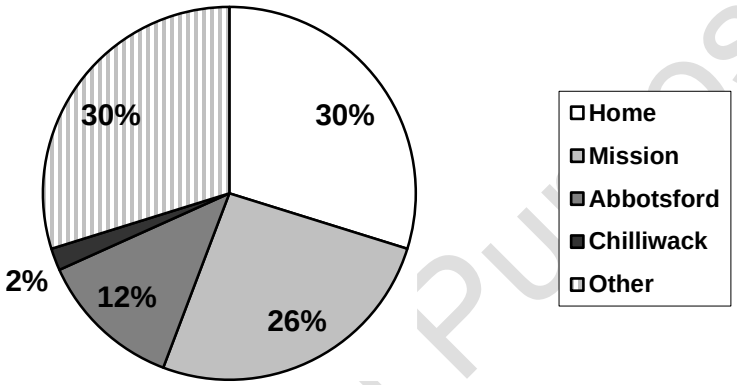
Of the total 2006 population over 15 years of age, 52% have High School Certificate or lower while 48% have post secondary education, including trade diploma, college certificate, or university degree.

[4] This includes those who identified with an aboriginal group, those who reported being a treaty or registered Indian and those who reported membership with an Indian band or First Nations. This statistic may be questionable. Canada Census identified general reporting inaccuracies for aboriginal identified populations.

[5] Canada Census defines immigrant as an individual who was or is currently a landed immigrant in Canada.

The labour force of Area F was 50.4% of the total population in 2006, a modest decrease from 2001. The biggest employment sectors in this area are Manufacture, Construction and Business Services. Certainly, agriculture is also an important source of employment within Hatzic Valley. Figure 2-D shows the place of employment for Electoral Area "F" residents in 2001 (for which year better data is available). About 25% work from home and another 22% work in Mission.

Figure 2-D
Place of Employment (2001)



2.3 Building Statistics

The major portion of the existing building stock in Area F was built before 1986. Only 13% of buildings reportedly require major repairs.

TABLE 2-4
BUILDING STOCK CHARACTERISTICS

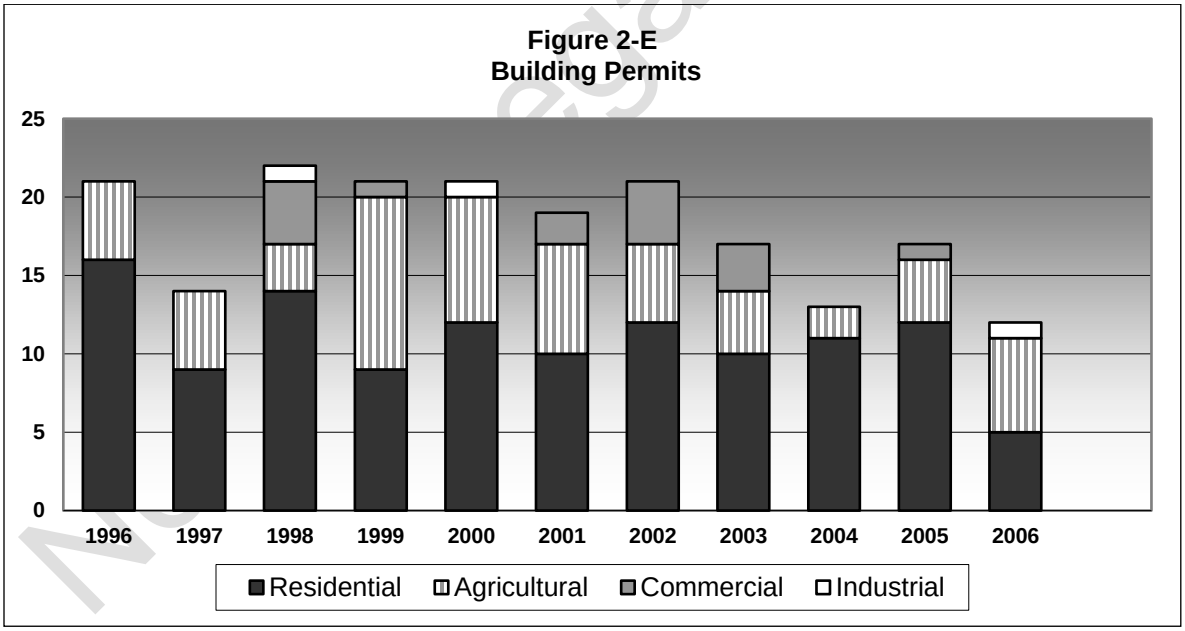
	2001		2006	
	No.	% of Total	No.	% of Total
Total Occupied Private Dwellings	700	100	750	100
Dwellings Built < 1986	565	81	565	75
Require Regular Maintenance Only	345	49	385	51
Require Minor Repairs	265	38	265	35
Require Major Repairs	80	11	100	13

The pace of development in the Plan area has been relatively modest between 1996 and 2006. The total number of building permits completed ranged from 13 to 22 per year during this period. The most active years were in the late 1990s. Construction activity was focused on the residential and agricultural.

TABLE 2-5 BUILDING PERMITS, ELECTORAL AREA "F" 1996 – 2007 [6]											
Year	Residential		Agricultural		Commercial		Industrial		Demo	Total No.	Total Value ($)
	No.	Value ($)	No.	Value ($)	No.	Value ($)	No.	Value ($)			
1996	9	188,270	5	231,968	0	0	0	0	0	14	420,238
1997	16	710,740	5	484,888	0	0	0	0	1	22	1,195,628
1998	14	679,783	3	303,584	4	494,743	1	85,759	0	22	1,563,869
1999	9	514,585	11	932,832	1	18,000	0	0	0	21	1,465,417
2000	12	689,728	8	318,196	0	0	1	192,000	1	22	1,199,924
2001	10	890,615	7	829,020	2	337,639	0	0	3	22	2,057,274
2002	12	902,136	5	229,008	4	488,000	0	0	1	22	1,619,144
2003	10	529,975	4	397,140	3	60,564	0	0	2	19	987,679
2004	11	919,842	2	43,456	0	0	0	0	2	15	963,298
2005	12	861,824	4	593,880	1	97,440	0	0	5	22	1,553,144
2006	5	241,590	6	673,932	0	0	0	0	2	13	915,522
Tot.	120	7,129,088	60	5,037,904	15	1,496,386	2	277,759	17	214	13,941,137

Figure 2-E illustrates the distribution of building permits between residential, agriculture, commercial and industry construction for each year. Building activity was principally single family residential and accessory farm building construction. The minimal commercial and industrial activity during this time period was for building renovations rather than new construction.

Figure 2-E
Building Permits

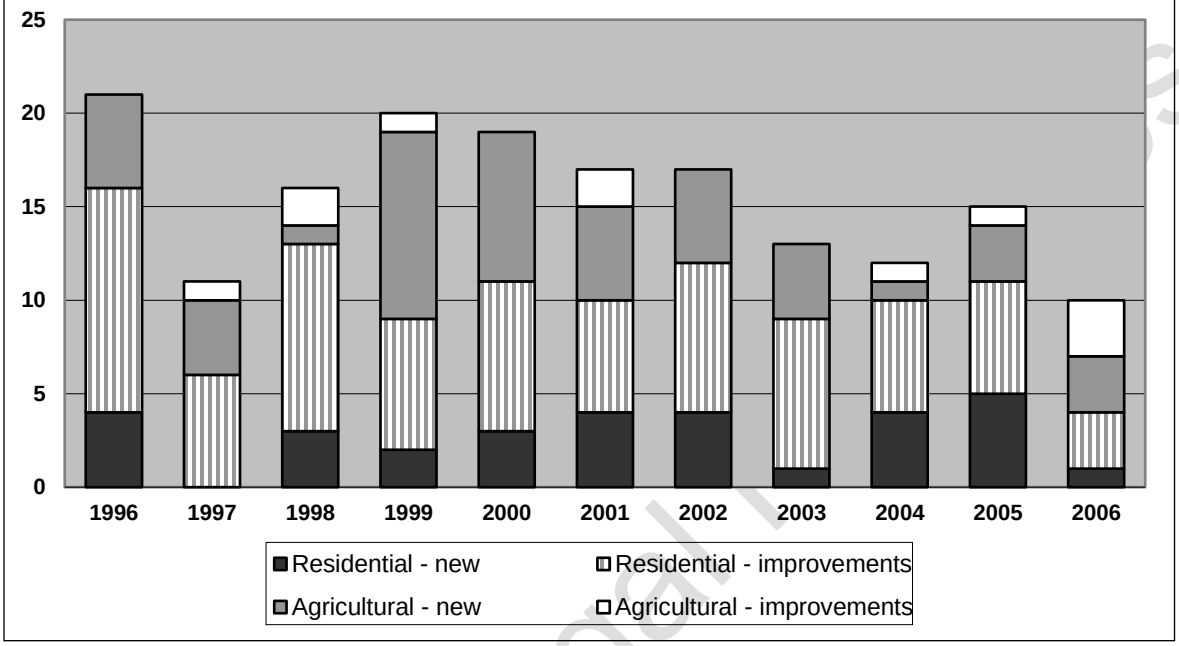


The agriculture and residential categories had the largest number of building permits. For residential building permits, the greatest activity occurred in improvements to the residence through renovation, addition of garage or workshop, or the installation of a woodstove/chimney.

[6] New construction and renovation

For agriculture, the greatest activity occurred with the construction of new accessory structures such as barns, silos or manure pits.

Figure 2-F
Residential and Agricultural Building Permits,
1996 - 2006



2.4 Land Use Pattern & Economic Opportunities

The land use pattern in Hatzic Valley is shaped by the Agricultural Land Reserve, the Fraser River floodplain and the steep slopes that border the valley. The valley bottom and floodplain areas are primarily agricultural; dairy, blueberries, Christmas trees and forage are the most common farm uses. The lower slopes bordering the valley bottom support a range of rural, primarily rural residential, uses. The upper slopes are used for forestry and recreational activities. While this general pattern holds true, there is a great diversity of uses in the Plan area including a film production facility, two aggregate quarries, a fish farm, a mobile home park, a seasonal recreational development and many others. Agricultural uses and residential parcel sizes very tremendously.

By and large, this Plan maintains the existing land use pattern that, in most respects, is determined by landscape constraints. Development in Hatzic Valley is constrained by geological and hydrological hazards, limitations to on-site water supply and sewage disposal, hydrogeological conditions, and vulnerability of water supplies, surface water and groundwater to contamination. While this Plan takes these constraints into consideration, site-level investigation is often required to determine the extent to which constraints apply to specific parcels.

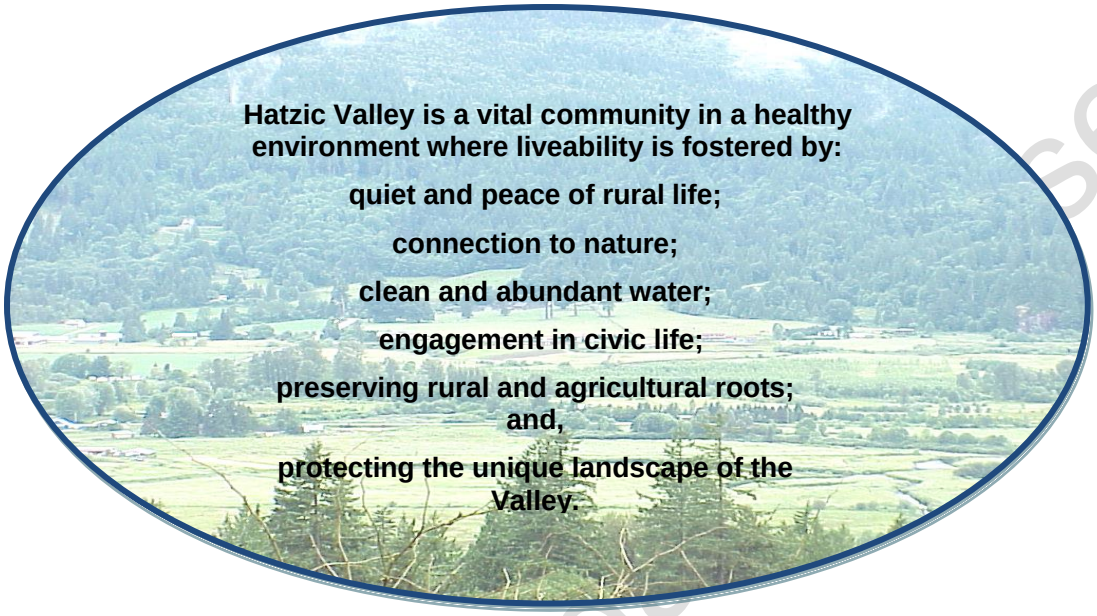
This Plan presents a number of economic opportunities that are in keeping with the environmental limitations of the Valley and the values of its residents:

- agriculture - vacant and under-utilized agricultural lands exist but may require drainage or other improvements; there is particularly strong community support for organic and sustainable farming practices;
- small-scale agri-tourism which draws on the agricultural landscape and local products;
- suburban residential development in identified areas;
- infill rural development;
- a variety of associated residential uses that are compatible with rural lifestyles and environmental policies; and,
- environmentally sustainable low density commercial recreation uses that draw on the rural aesthetics, agricultural assets and crown land recreation opportunities

3.0 COMMUNITY PLAN VISION & OBJECTIVES

3.1 Vision for Hatzic Valley

This Official Community Plan is guided by the following vision for the future of Hatzic Valley:



3.2 Plan Objectives

The following seven objectives have guided the policies of this Plan:

1. protect ground and surface water and maintain hydrological functions;
2. responsibly steward the environment;
3. respect geological and hydrological processes, reduce hazards where feasible, and avoid unacceptable risks to people and property;
4. enhance sustainable agriculture by reserving agricultural lands for farming, minimizing conflicts between farm and non-farm uses; and, supporting the viability and sustainability of the agricultural sector;
5. accommodate housing needs primarily through infill development on rural and residential lands;
6. enhance community liveability and rural landscape aesthetics; and,
7. encourage a range of rural land uses, supported by appropriate servicing levels, that sustain the community and environment.

3.3 Regional Context

The Plan objectives and policies of the Hatzic Valley, Electoral Area "F" Official Community Plan must respond not only to local circumstances, but also to the regional context. The Fraser Valley Regional District *Choices for Our Future: Regional Growth Strategy*, adopted in 2004, outlines a broad framework for achieving sustainable, socially responsible, and environmentally sound communities which protect agricultural and rural areas and make efficient use of public facilities, services, land and other resources.[7]

Official community plans (OCPs) are a primary means of implementing the Regional Growth Strategy (RGS). OCPs apply the broad goals of the Regional Growth Strategy to local communities and provide detailed policies for achieving those goals. Section 865 of the Local Government Act requires that all bylaws adopted by the Regional District be consistent with the Regional Growth Strategy. A discussion of the regional context and the compatibility of this Plan with the RGS follows.

FVRD is nearly 14,000 square kilometres in area, yet over 90% of the population resides on less than 1% of the land base. Only a small portion of the Region, mostly located in the fertile Fraser Valley floor, is considered habitable. Most development pressure is directed to this small area. However, growth on the valley floor is greatly constrained by the Agricultural Land Reserve and the floodplain of the Fraser River and its tributaries. As a result, growth in the Region will generally be accommodated by redeveloping urban centres at higher densities and by new development in upland areas within the Urban Growth Boundaries established in the RGS.

The rate of population growth in the Fraser Valley is expected to slow down in relation to the past decade. Still, the population is anticipated to double over the next twenty to thirty years to approximately 450,000. RGS policies direct the development necessary to accommodate this population growth to municipalities. For example, the District of Mission – located immediately west of the Plan area – is expected to grow from 34,505 people[8] about 70,000 by 2031[9], an increase of 90%. This growth is expected in the southwest and downtown parts of the community. Nonetheless, it remains that Hatzic Valley will be subject to development pressures.

The value placed on the natural areas and agricultural lands – and their perceived contribution to the regional environment and landscape – will increase over time as the Region develops and the population increases. The Plan area provides visual qualities; sustains fish and wildlife populations; affords opportunities for recreation and nature study; and, gives a sense of proximity to wilderness. All of these are central to the idea many residents have of the liveability and appeal of the Region. And certainly, the upland and riparian habitats of the Plan area make a significant contribution to the biodiversity of the Region.

The Official Community Plan for Hatzic Valley shares the growth management goals of the Regional Growth Strategy (RGS), particularly the RGS goals to:

- support and enhance the agricultural sector;
- protect the natural environment and promote environmental stewardship;
- protect and manage rural and recreational lands;

[7] Fraser Valley Regional District. *Choices for our Future: Regional Growth Strategy*. 2004.

[8] Canada Census, 2006.

[9] Urban Futures Institute. *Population Growth and the Context for Managing Change*. January, 2005.

- achieve sustainable economic growth;
- minimize development costs to communities and the risks associated with geotechnical and environmental constraints; and,
- manage water, energy resources and waste responsibly.

This community plan is consistent and complementary with *Choices for our Future, Regional Growth Strategy for the Fraser Valley Regional District*.

4.0 GENERAL LAND USE POLICIES

4.1 Permitted Uses & Parcel Sizes

Permitted land uses are identified within the Use Policies section of each designation in Section 5 of this Plan. A summary index of the permitted land uses is provided in Table 4-1 for convenience. Specific conditions of use may apply, as prescribed in designations or other parts of this Plan, in zoning bylaws and in other regulations. Use Policies outlined in each designation are particularly relevant to the Regional Board's consideration of proposals to establish, or temporarily permit, new uses not currently permitted by zoning. Designations also establish minimum parcel size policies for subdivision (which are summarized for convenience in Table 4-2).

Permitted uses and minimum parcel sizes are based on a number of considerations including the suitability of the land for on-site services, hazards, access, community planning objectives, regional growth strategies, environmental carrying capacity and thresholds, and others. Moreover, they facilitate effective planning by providing a basis for avoiding land use conflicts and predicting density levels, servicing needs and environmental impacts.

TABLE 4-1
SUMMARY OF DESIGNATIONS & PERMITTED LAND USES *

Permitted Land Uses*	AGRICULTURAL	CONSERVATION AREA	FOREST	INSTITUTIONAL	LIMITED USE	LOCAL COMMERCIAL	RESORT	RURAL	SUBURBAN RESIDENTIAL
RESIDENTIAL									
Single Family Residential	✓				✓			✓	✓
Accessory Residential	✓			✓		✓	✓		
Associated Rural Residential	✓				✓	✓		✓	✓
RESOURCE & INDUSTRIAL									
Forestry			✓						
AGRICULTURAL									
Agricultural	✓				✓			✓	
COMMERCIAL & RESORT									
Local Commercial						✓			
Low Density Commercial Recreation				✓	✓		✓		
Holiday Park							✓		
Commercial Campground							✓		
Outdoor Recreation							✓		
PUBLIC & INSTITUTIONAL									
Park and Park Reserve	✓	✓	✓	✓	✓			✓	
Public	✓	✓	✓	✓	✓	✓	✓	✓	✓
Conservation	✓	✓	✓	✓	✓		✓	✓	
Recreation	✓	✓	✓	✓					
Institutional				✓					
Assembly				✓					

* This table presents a summary of land uses supported in each Plan designation. It is provided for convenience only. Users must consult the policies in Section 5.0 to confirm the uses supported in each Plan designation.

TABLE 4-2 SUMMARY OF DESIGNATIONS & PARCEL SIZES FOR SUBDIVISION *	
Designation	**Minimum Parcel Size**
AGRICULTURAL	16 ha within floodplains; 4 ha outside floodplains
CONSERVATION AREA	n/a
FOREST	35 ha
INSTITUTIONAL	n/a
LIMTED USE	8 ha
LOCAL COMMERCIAL	0.5 ha with approved community water supply; 2.0 ha with on-site services
RESORT	8 ha
RURAL	2 ha
SUBURBAN RESIDENTIAL	0.5 ha with approved community water supply; 1.0 ha with on-site services
* This table is a summary. It is provided for convenience only. Users must consult the applicable designation to confirm minimum parcel size policies and other Plan policies regarding subdivision.	

4.2 Residential Uses

The Local Government Act requires that an official community plan include statements and map designations respecting the approximate location, amount, type and density of residential development required to meet anticipated housing needs over a period of at least five years.

As discussed in Section 3.3 of this Plan, the Regional Growth Strategy (RGS) for the Fraser Valley Regional District forecasts a doubling of the Regional population by 2030. RGS policies direct the development needed to support this population growth to existing urban areas and other locations within municipal boundaries where complete, compact communities can be realized. At the same time, it aims to preserve rural lands which are expected to remain stable with modest, incremental growth over the next twenty years.[10]

The RGS vision of modest growth in rural areas is consistent with historical growth rates in Hatzic Valley. Statistics Canada data indicates that between 1971 and 2006 the average annual population increase in Electoral Area "F" was fifteen persons per year. The average annual increase in the number of dwellings over this period was thirteen dwellings per year. Results for the period 1986 to 2006 – which roughly coincides with the life of the previous Official Community Plan – are similar.[11]

[10] Fraser Valley Regional District. *Choices for our Future: Regional Growth Strategy*. 2004. p. 30.

[11] These figures were derived from Statistics Canada data from various census years.

Review of development approval data indicates that about twenty new parcels were created, and about seventy new dwellings were added to the total dwelling pool, between 1996 and 2008.[12] On average, 1.5 new parcels were created each year and seven dwellings added.

While development approval data and Statistics Canada census information are not entirely consistent, both show a history of modest annual demand for new housing units in the range of seven to thirteen dwellings per year. Most of this demand was accommodated on existing parcels rather than through subdivision.

Considering: 1) the RGS policies of preserving rural areas and providing for growth within existing municipal development areas; and, 2) the historic rate of growth in Hatzic Valley; it is anticipated that housing needs over the next five to ten years will be modest and in keeping with historic levels.

This Plan will meet anticipated housing needs primarily through infill development of new dwellings on existing vacant parcels and subdivision under existing zoned densities. It is expected that about eight to fourteen years of growth at historic levels can be accommodated in this manner.

In 2009, there were about sixty-five residential parcels that did not have houses built on them, and a number of agricultural parcels without houses. As well, it is conservatively estimated that existing zoning will provide at least thirty-six new parcels through subdivision. Rezoning in accordance with the use and density policies of this Plan would facilitate the creation of many more.

True subdivision and development potential must be determined on a site-specific basis, particularly in light of geological and other constraints in Hatzic Valley. Nevertheless, it is reasonable to conclude that infill development will satisfy the majority of housing needs over the expected life of this Plan. However, the Plan also presents limited opportunities for new development, primarily in SUBURBAN RESIDENTIAL areas.

It is the policy of the Regional Board that:

4.2.1 It is anticipated that housing needs in Hatzic Valley will primarily be addressed through infill development.

4.2.2 Single family residential uses are permitted in the AGRICULTURAL, LIMITED USE, RURAL and SUBURBAN RESIDENTIAL designations.

4.2.3 Under certain conditions, the Regional Board may establish zoning in areas designated AGRICULTURAL, LIMITED USE, RURAL, and SUBURBAN RESIDENTIAL to permit second dwellings.

4.2.4 The Regional District should review zoning provisions regarding Accessory Family Residential Use and, in particular, consider changes to allow the caregiver to reside in the accessory residence.

[12] These figures were derived from FVRD development approval files for Hatzic Valley. Efforts were made to exclude from these numbers instances where an old dwelling was demolished and replaced with a new one resulting in no net change to the total dwelling count.

4.3 Associated Rural Residential Uses

Accessory residential uses include a variety of uses associated with, but clearly ancillary to, a residential use. They are typically small-scale, low impact, commercial activities which occur either within the dwelling (a home occupation, for example) or in a separate structure on the same parcel (such as an artisan craft workshop).

It is the policy of the Regional Board that:

4.3.1 In keeping with the variety of rural lifestyles in the Plan area, provisions for a broad range of uses associated with rural land use shall be made wherever possible.

4.3.2 **Accessory boarding, bed and breakfasts,** and **home occupations** shall be permitted in the AGRICULTURAL, LIMITED USE, RURAL, and SUBURBAN RESIDENTIAL designations unless prohibited by a zoning bylaw and shall be referred to as **associated rural residential uses**.

4.3.3 Small scale enterprises including **artisan craft workshops**, hobby greenhouses, and **cottage industries** shall be permitted in the AGRICULTURAL, LIMITED USE, and RURAL designations unless prohibited by a zoning bylaw and shall be referred to in this Plan as **associated rural residential uses**.

4.4 Agricultural Uses

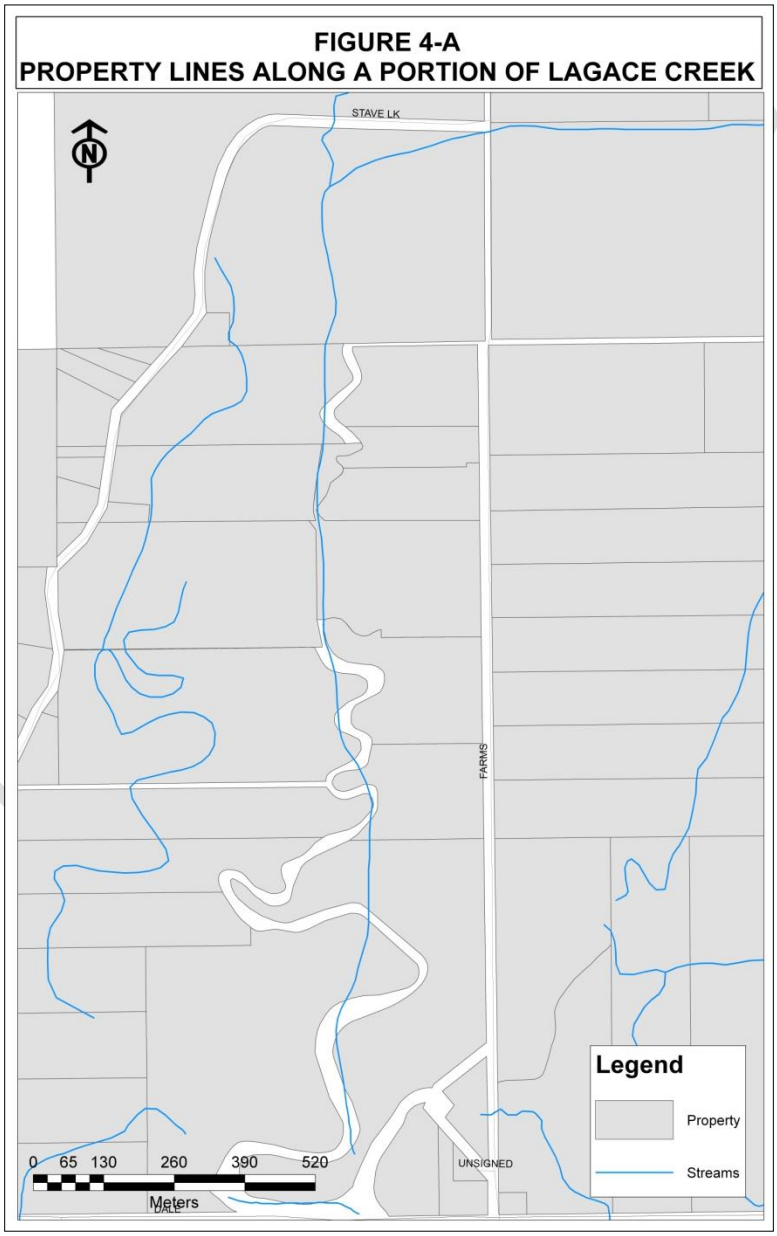
Approximately 2,235 hectares of land within the Plan area is in the Agricultural Land Reserve (ALR). This amounts to a little over one third of the entire Plan area and about 58% of the total area of private lands. One half of all private properties within the Plan are at least partly within the ALR. Clearly, agriculture and the Agricultural Land Reserve are vital in every way to Hatzic Valley. ALR lands are identified on *Map 1*. Lands designated AGRICULTURAL are shown on *Schedule 2 –Designations*.

In recent years, agricultural uses in Hatzic Valley have, in some locations, intensified with the transition to blueberry and nursery plant production. However, traditional farm uses in Hatzic Valley – forage and dairy – remain important as does Christmas tree production. Residential uses and hobby farms are common on smaller parcels in McConnell Creek.

Hatzic Valley is a part of the Fraser Valley agricultural region - one of the most productive places to farm in the world due to its soil conditions, long growing season, abundant water

resources, and proximity to urban areas and transportation. Not surprisingly, agricultural land in the Fraser Valley is both in demand and in short supply.[13]

Hatzic Valley has a number of advantages for farming. It has abundant, good quality water, large parcel sizes, lands available for farming and, a cohesive, well-defined community of agricultural lands generally free from encroachment by incompatible uses. Soil conditions vary, but Class 2 and 3 soils with water and terrain limitations are most common.[14]



Inadequate drainage and flooding are significant problems for agriculture on Hatzic Prairie. The Ministry of Agriculture estimates that about 212 hectares of agricultural land in Hatzic Valley is marginalized by flooding. Loss of productivity due to poor drainage and flooding is estimated to be between $832,000 and $2,230,000 per year.[15] Flooding is described in Section 8.0 of this Plan. Drainage challenges are related to the high water table of Hatzic Prairie; the low elevation and low gradient of streams; and, sedimentation in agricultural watercourses and drainages which reduces conveyance capacity.

The responsibility for maintenance of highway ditches lies with the Ministry of Transportation & Infrastructure. Farmers are responsible for maintaining on-farm ditches.

[13] Kim Sutherland, Regional Agrologist, Ministry of Agriculture & Lands. *Agriculture in Electoral Area F in the Context of the Fraser Valley*. Presentation to the Electoral Area "F" Advisory Planning Commission. Sept 24, 2009.

[14] Province of British Columbia, Ministry of Environment. *Land Capability for Agriculture, Langley-Vancouver Map Area, Dewdney*. 1985. Class 2 soils have minor limitations that require good ongoing management practices or slightly restrict the range of crops, or both. Class 3 soils have limitations that require moderately intensive management practices or moderately restrict the range of crops, or both.

[15] Ministry of Agriculture & Lands. *Economic Impact of Flooding on Hatzic Prairie and Economic Potential of the Area*. Draft. July, 2005.

In response to flooding and drainage problems, a portion of Lagace Creek was straightened in the 1940's to improve conveyance. However, property lines were not changed to respond to the new stream alignment and they continue to follow its former path and, in some locations, the former stream bed remains Crown land. As a result, a number of parcels in this area are divided by the stream and have portions that are inaccessible and likely unusable to the property owners. This situation is shown in Figure 4-A.

Rationalizing property boundaries in this area would support more efficient agricultural use of the land and may also provide opportunities to secure access and sites for flood reduction infrastructure (such as sediment traps) and other community benefits. On the other hand, the existing strips of Crown land that follow the former stream bed (shown in white in Figure 4-A) could, as they stand, provide opportunities for enhancing stream functions, managing sediment and providing community amenities that may be lost if property boundaries change. In any case, replotting schemes are complex, involve significant costs, and require broad landowner support. Fraser Valley Regional District currently has no plans to undertake one. This Plan only documents the issue and raises the potential of replotting for future consideration if circumstances warrant it.

The policies below complement those of the AGRICULTURAL designation in Section 5.1 of this Plan to support agriculture in Hatzic Valley and ensure its long-term viability.

It is the policy of the Regional Board that:

4.4.1 The Regional Board will work with the Agricultural Land Commission to provide for a broader range of agricultural opportunities and uses which:

- are supplementary and ancillary to farm use;
- support value-added activities that improve farm viability;
- are consistent with the environmental policies of this plan; and,
- will not jeopardize the long term productivity of farmland.

4.4.2 The Regional Board should consider the development of a plan or policy to guide the provision of seasonal farm labour accommodations.

4.4.3 The Regional Board should seek funding and partnerships with the Ministry of Agriculture and others for the development of an Agriculture Plan for Hatzic Valley to establish a guiding vision for local agriculture and a series of strategies that will ensure its long-term viability.

4.4.4 The Regional Board particularly encourages soil-based agricultural uses that emphasize sustainable farm practices, do not impact ground and surface water quality, and implement environmental farm plans.

4.4.5 The Regional Board supports the continued development of safe and efficient drainage control works following environmentally sound engineering practices.

4.4.6 The Regional District will liaise with the Ministry of Transportation & Infrastructure, the Ministry of Agriculture, Fisheries & Oceans Canada, and Hatzic Valley farmers regarding the maintenance of road-side ditches that impact agricultural drainage.

4.4.7 The Regional District will encourage partnership with the agricultural community, senior governments and private enterprise to promote the development of the agricultural sector in Hatzic Valley.

4.4.8 The Regional Board may consider the feasibility and desirability of a replotting scheme to rationalize property boundaries along Lagace Creek approximately between Stave Lake and Dale Roads, particularly if it is desired by affected landowners and if it would reduce flooding, manage sedimentation, improve the use of agricultural land, or provide community amenities.

4.5 Commercial Uses

Section 877 of the Local Government Act requires that official community plans identify the approximate location, amount and type of present and proposed commercial land uses. Existing commercial lands are identified in the LOCAL COMMERCIAL designation in Section 5 of this Plan. At present, the supply of commercially designated properties in the Plan area is considered adequate for meeting local demands and the Plan does not proactively identify new lands for commercial uses. However, new proposals may emerge which warrant new or expanded commercial designations. The Regional Board will consider new proposals as they arise and in accordance with the policies of this Plan.

It is the policy of the Regional Board that:

4.5.1 The Regional Board will consider proposals for expanding commercial zoning and community plan designations within Hatzic Valley as they emerge.

4.6 Industrial Uses

Section 877 of the Local Government Act requires that official community plans identify the approximate location, amount and type of present and proposed industrial land uses. There are currently no lands zoned for industrial uses in the Plan area and this Plan does not proactively identify lands for future industrial development. The services that are, in most cases, necessary to support industrial development are not present in Hatzic Valley. It is acknowledged that there are two aggregate quarries in the Plan area.

This Plan provides for the issuance of Temporary Industrial Permits (see Section 14) to authorize short term industrial uses not permitted by zoning. Moreover, the Regional Board will consider new proposals as they arise and in accordance with the policies of this Plan.

It is the policy of the Regional Board that:

4.6.1 The Regional Board will consider proposals to rezone or establish community plan designations for industrial uses as they emerge.

4.7 Community Care Facilities

Section 20 of the Community Care And Assisted Living Act states that a local government bylaw does not apply to licensed Community Care Facilities if the bylaw would:

- limit the number of persons in care who may be accepted or accommodated at the community care facility;
- limit the types of care that may be provided to persons in care at the community care facility; or
- apply to the community care facility only because:
  - it is not being used as a single family dwelling house, or
  - it operates as a community care facility, a charitable enterprise or a commercial venture.

4.8 Lawfully Non-Conforming Use & Siting

Legally established existing land uses which are not permitted uses in the zone within which they are located, are considered to be nonconforming under Section 911 of the Local Government Act. Most lawfully non-conforming uses are associated with development constructed before zoning bylaws were established. In many cases, the existing zone to establish conformity is not an acceptable option, although continuance of the use under certain restrictions may be acceptable. The siting and dimensions of buildings may also be lawfully non-conforming under the Local Government Act.

It is the policy of the Regional Board that:

4.8.1 Where the continuance of a lawfully non-conforming land use would not create a serious hazard or conflict with surrounding land uses - and where the applicant indicates a desire to negotiate a covenant with the Regional Board limiting future uses, buildings and structures to those legally established at present - the Board may rezone the property to reflect the actual use.

4.8.2 The Regional Board may consider the issuance of a development variance permit varying siting regulations to address so as to render the siting or dimensions of a building or structure conforming.

4.9 Transportation & Utility Corridors

In recognition that additional capacity in transportation and utility corridors and facilities will be required to serve future growth areas of the Lower Mainland - and that the construction of new transportation and utility corridors has major impacts on the land base, growth potential and economic well-being of the Region - in May, 2001, the Regional Board adopted the *Transportation and Utility Corridors of Regional Significance* Policy.

It is the policy of the Regional Board that:

4.9.1 Any proposed new transportation or utility corridor of regional significance will be regarded as a "Corridor Under Study". Regional District support for such proposals will be contingent upon submission of studies to demonstrate that:

a. the proposal meets the land use, environmental and air quality policies of the Regional Board as expressed in the Regional Growth Strategy, Fraser Valley Air Quality Plan, this Official Community Plan, and other Board policies;

b. the proposal minimizes the disruption to existing communities and settlement areas, the consumption of agricultural land, the impact on the natural environment, and provides for safe and unrestricted movement of agricultural vehicles and goods in agricultural areas;

c. the proposal does not restrict the development of adjacent land areas which are designated or identified for future growth and development, or where the proposal does impact such lands, adequate compensation is provided to the local government in consideration of long range impacts on financial plans, capital expenditure programs, and foregone taxation opportunities;

d. the proposal does not adversely affect the drainage or productivity of agricultural land;

e. the transportation and utility service demand projections are deemed credible by the Board; and,

f. the proposal represents a variety of benefits to communities in the region that are traversed by the proposal including providing access to service not previously available to areas of the region, and enjoys broad-based support from the affected communities.

4.9.2 Transportation and utility proposals of regional significance that satisfy the aforementioned criteria should be designated to make use of existing transportation and utility right-of-ways wherever possible.

4.9.3 Visual impacts associated with major utility corridors and infrastructure should be assessed and mitigated.

4.10 Use of Crown Lands

Regulating the use of federal land is beyond the jurisdiction of local governments. As well, the use and development of Provincial Crown lands by the Provincial Government, or an agent of the Provincial Government, is immune to local government regulations and policies. As a result, the designations and policies of this Plan may not apply, or may not be binding on, lands or resources owned and administered by federal and provincial governments.

Tenants or third party users of Provincial Crown land for non-governmental purposes are subject to local bylaws and regulations. The exception is mineral and aggregate extraction which is not considered to be a use of the land under Provincial legislation and is therefore not subject to prohibition in local zoning bylaws.

While local government regulations may not be binding on federal and provincial governments and national railways, the provisions of the Plan should be taken into account by those bodies as an expression of Regional Board objectives and a basis for co-operation between different levels of government. Should a government ministry, agency or other organization propose a development which is contrary to the policies of this Plan, then the Responsible Authorities are encouraged to make application for Plan amendment as outlined in this Plan. Not only would the application allow the Board to express its interest in the proposed development and provide for public input at a local level, but this procedure will enable the Regional Board to adjust policies for adjacent land over which it has jurisdiction and thereby securing integrated and compatible development throughout the Plan area.

It is the policy of the Regional Board that:

4.10.1 Provincial and federal governments should use Crown land in a manner that conforms to Regional District bylaws, policies and regulations.

4.10.2 Where a government ministry, agency or other organization proposes a land use which is contrary to the policies of this Plan, the Responsible Authorities are encouraged to make application for Plan amendment as outlined in this Plan.

4.10.3 Rail companies should use their lands in a manner that conforms to Regional District bylaws, policies and regulations.

5.0 DESIGNATIONS

Official Community Plan designations provide a policy framework for guiding land use and services in keeping with the Plan objectives and the requirements of the Local Government Act. Designation policies are implemented primarily though permits, zoning and other regulatory bylaws.

Hatzic Valley is divided into the following designations summarized below. Policies established in each of the Designations shall apply to land within that designation as shown on *Schedule 1 - Designations*.

AGRICULTURAL (A)	Land within the Agricultural Land Reserve or best suited for farming
CONSERVATION AREA (CA)	Existing or potential parks, stream channels or recreational reserves
FOREST (F)	Land within the working forest
INSTITUTIONAL (I)	Land used, or reserved, for public and public assembly uses
LIMITED USE (LU)	Land with significant geotechnical or flooding hazards, access limitations, and/or limitations to on-site servicing
LOCAL COMMERCIAL (LC)	Existing commercial lands
RESORT (RT)	Existing resort developments and lands suitable for recreational uses with on-site services
RURAL (R)	Land generally suitable for low density residential development with on-site services
SUBURBAN RESIDENTIAL (SR)	Lands relatively free of hazards potentially suitable for suburban development

The legally exact statements of Regional Board policy are contained in the four following sub-headings. On questions of interpretation, these should be consulted as the statement of Regional Board policy.

- **General Policies –** outline the local and regional development policies in a particular designation

- **Designation Policies -** state the type of land placed in a particular designation and the conditions for extending existing areas or creating new areas in the designation

- **Use Policies -** list the uses that may be permitted on land within a designation and, in some cases, state the standards under which a given permitted land use must be developed.

- **Subdivision Policies -** specify the minimum lot size permitted within a designation and other conditions of subdivision.

5.1 AGRICULTURAL (A)

About 58% of private land within the Plan area is in the Agricultural Land Reserve (ALR), including a significant number of large, intact agricultural parcels. Some agricultural parcels are also in the 1:200 year floodplain of the Fraser River, a contributing factor to the high quality soils found in the area. Plan policies aim to preserve farm land within the Official Community Plan area. Designating farm lands as AGRICULTURAL will ensure that only agricultural uses and uses associated with and complementary to agriculture are permitted.

Generally, land within the AGRICULTURAL designation is also within the ALR, but not in all cases. The Agricultural Land Commission Act, regulations thereto, and Orders of the Commission take precedence on matters of land use and subdivision in the ALR.

The Regional Board assists in the administration of ALR land by commenting on applications for subdivision, non-farm use, and exclusion of land from the ALR. The policies established in this Plan will provide guidance for future Regional Board comments on these applications.

It is the policy of the Regional Board that:

General Policies

5.1.1 Agricultural land shall be preserved by preventing the fragmentation of farm parcels, retaining large agricultural parcels, and avoiding the introduction of incompatible uses.

5.1.2 The agricultural economy and land base should be protected and enhanced by providing for a variety of uses that are supplementary and ancillary to a farm use which support farm incomes without jeopardizing the long term viability of farm land.

Designation Policies

5.1.3 This Plan designates land with some or all of the following characteristics as AGRICULTURAL:

- within the Agricultural Land Reserve;
- suitable for farming; and,
- within flood hazard area.

5.1.4 AGRICULTURAL areas may be extended or created through Plan amendment where additional areas suited to farm production are identified though an application process or pursuant to the Agricultural Land Commission Act.

5.1.5 Where land presently within the Agricultural Land Reserve is, pursuant to the Agricultural Land Commission Act, excluded from the Agricultural Land Reserve; exempted by the Agricultural Land Commission Act; or exempted by Regulations or an Order of the Commission; the provisions of the Official Community Plan shall be binding and the land shall remain in the AGRICULTURAL designation unless and until the land is re-designated by bylaw amendment.

Use Policies

5.1.6 AGRICULTURAL areas shall be used for only

- **agricultural**;
- **conservation**;
- **park and park reserve**;
- **recreation**;
- silviculture;
- **single family residential**;
- **accessory residential**; and,
- **associated rural residential** uses.

5.1.7 AGRICULTURAL areas in the Agricultural Land Reserve are subject to the provisions of the Agricultural Land Commission Act and the regulations and orders of the Agricultural Land Commission. The Act and the regulations generally prohibit or restrict non-farm use, unless otherwise permitted or exempted by the Commission.

5.1.8 Where a non-farm use is in place, and a non-farm use is approved by the Agricultural Land Commission, the Fraser Valley Regional District Board may consider rezoning to permit the non-farm use as approved by the Agricultural Land Commission. In these cases the land shall remain designated AGRICULTURAL.

5.1.9 In keeping with the variety of uses associated with agricultural lands, accessory farm uses shall be permitted provided that all uses of Agricultural Land Reserve lands are in accordance with the provisions of the Agricultural Land Commission Act, regulations thereto, and Orders of the Commission.

5.1.10 The Regional Board may consider site-specific zoning amendments to permit seasonal farm labour accommodations on agricultural parcels where all of the following conditions apply:

a. the land is within the Agricultural Land Reserve;

b. the parcel is classified as "Farm" under the British Columbia Assessment Act; and,

c. the seasonal farm labour accommodation use is incidental to and necessary for a farm operation on the same farm unit.

5.1.11 The removal of soil or placing of fill on land in AGRICULTURAL areas shall be undertaken only in accordance with the Agricultural Land Reserve Use, Subdivision and Procedure Regulation and, where applicable, FVRD Soil Removal and Deposit Bylaw No. 0729, 2006.

5.1.12 Pursuant to Section 21 of the Private Managed Forest Land Act, forest management activities shall be permitted on lands classified as private managed forest land.

5.1.13 Agri-tourism uses which are ancillary or supplementary to a farm use may be supported provided that parking and other servicing needs can be met on-site and the operation is compatible with surrounding agricultural uses.

5.1.14 Potential conflicts between intensive agricultural operations and other land uses should be minimized by establishing minimum separation distances between incompatible uses and by edge planning to avoid land use conflicts.

5.1.15 Preservation and enhancement of existing agricultural operations in the AGRICULTURAL designation shall have priority over newly proposed non-farm uses.

5.1.16 While the matter of intensive agricultural uses within the Agricultural Land Reserve is not within the jurisdiction of the Regional District, the objectives of the Regional Board concerning intensive agricultural uses within AGRICULTURAL areas are:

a. intensive agricultural uses should not occur on parcels with less than four (4) hectares of arable land;

b. intensive agricultural uses should be sited with consideration to adjoining properties, adjacent land uses and riparian areas; and,

c. intensive agricultural uses should be proportionate to the capability of the land and the receiving environment to sustain the use.

Subdivision Policies

5.1.17 Land in AGRICULTURAL areas within the Agricultural Land Reserve shall only be subdivided in accordance with the provisions of the Agriculture Land Commission Act, regulations thereto, and Orders of the Commission.

5.1.18 Land in AGRICULTURAL areas shall only be subdivided in accordance with the standards of the **Responsible Authorities**, except that the parcel size shall be:

a. not less than sixteen (16) hectares for lands within the Fraser River and Stave Lake floodplains or otherwise subject to flood hazards; and,

b. not less than four (4) hectares for lands outside the Fraser River and Stave Lake floodplains and not otherwise subject to flood hazards.

5.1.19 New parcels created by subdivision within the AGRICULTURAL areas shall be configured to maximize agricultural suitability and minimize potential conflicts between farm and non-farm uses.

5.2 CONSERVATION AREA (CA)

Description

The CONSERVATION AREA designation allows for the identification, protection and management of park lands, proposed parks, wilderness and environmentally sensitive areas; and, places for the enjoyment of outdoor recreational activities, community use, and environmental or heritage conservation. This designation may include existing and potential parks and open space, wildlife management areas, provincial and regional parks, community parks, and recreation reserves. It also includes portions of stream channels under Crown ownership; in these areas, maintaining access for sediment management and environmental stewardship is particularly important.

It is the policy of the Regional Board that:

General Policies

5.2.1 Areas of significant recreation or conservation potential should be reserved for future park development.

5.2.2 The acquisition and maintenance of recreational land that provides access to rivers and lakes will be pursued where economically feasible.

5.2.3 The CONSERVATION AREA designation is established to:

- identify designated and proposed local, regional or Provincial parks or protected areas;
- provide walking and cycling access to park and recreation areas and facilities for the enjoyment of the natural environment;
- conserve environmental assets including unique natural features, distinctive landscapes and areas of high recreational value; and,
- recognize environmental values and management requirements of Crown riparian and littoral areas.

Designation Policies

5.2.4 This Plan designates lands with some or all of the following characteristics as CONSERVATION AREA:

- areas owned or under long-term lease by a Responsible Authority for public recreation use of regional or local significance including regional parks, recreation reserves and areas with recreation potential;
- areas that may have geologic or flood hazards;
- areas of important wildlife or environmental value;
- land with significant recreation potential which may be suitable for future park use; and,
- riparian and littoral areas under Crown ownership.

5.2.5 CONSERVATION AREAS may be extended or created through Plan amendment provided that additional lands that meet the required designation are identified.

Use Policies

5.2.6 CONSERVATION AREAS shall be used only for:

- **conservation**;
- **park** and **park reserve**;
- **public**; and,
- **recreation uses**;

except for those lands within the Agricultural Land Reserve which may also be used for **agricultural** uses.

5.2.7 Notwithstanding Section 5.2.6, CONSERVATION AREAS may be used for:

a. channel maintenance for the purpose of community flood protection, including sand and gravel removal and necessary ancillary activities subject to any necessary approvals from the Regional District and the responsible authorities; and,

b. hazard land management uses, including works, facilities and activities to provide protection from and to manage flooding, snow avalanche, rock fall, landslide, and other natural hazards.

Subdivision Policies

5.2.8 Land in CONSERVATION AREAS shall only be subdivided under circumstances where subdivision is required in the interests of responsible park or environmental management.

5.3 FOREST (F)

Description

The FOREST designation policies in this Plan recognize that approximately 1,547 hectares of Crown land within the Plan area, and the watersheds above it, are part of the Province's "working forest". These lands are actively managed by the Ministry of Natural Resource Operations and forest licensees. A range of forestry uses and activities are expected to continue in this area. Forestry activities within the Provincial Forest, including logging, reforestation and stand tending, are regulated by the Provincial agencies, primarily under the Forest Act and the Forest & Range Practices Act.

FOREST lands include areas with steep slopes and streams located above settlement areas. Forestry activities in these areas may initiate or exacerbate hazards on Crown land which can impact private lands and infrastructure below. Special consideration should be given where forest uses may have an impact on settlement areas. In these situations, the Regional Board will recommend to the Provincial agencies having jurisdiction that geotechnical and hydrological studies and mitigation works be undertaken in association with any plans for forest use or management.

Public recreation on Crown forest lands is the responsibility of the Ministry of Tourism, Trade & Investment. Logging roads on Crown land are used heavily for recreation, including mountain biking and hiking. The Regional Board strongly supports the maintenance and protection of this recreation resource.

The policies of the FOREST designation reflect the interests of responsible forest management and recreation use. Further discussion and policies relating to the management of forest resources within the Plan area are provided in *Section 11 – Resource Stewardship*.

It is the policy of the Regional Board that:

General Policies

5.3.1 The Ministry of Forests, Mines & Lands should preserve the integrity of Provincial Forest boundaries in the long-term economic interests of the region and in recognition of the area's forest production.

5.3.2 Crown lease applications and development schemes involving land uses not compatible with forest development, public recreation, or conservation uses of FOREST lands will not be supported or encouraged by the Regional District.

Designation Policies

5.3.3 This Plan designates Crown lands identified by the Province to be within the Contributing Forest Land Base, and also lands classified as private managed forest land under the Private Managed Forest Land Act, as FOREST.

5.3.4 FOREST areas may be extended or created through plan amendments when new areas that meet the designation criteria are identified. FOREST areas may be reduced or

removed if land is removed from the Contributing Forest Land Base or the Private Managed Forest Land Act.

Use Policies

5.3.5 The use of FOREST land for forestry related activities is governed primarily by the Forest Act and the Forest & Range Practices Act.

5.3.6 FOREST areas shall be used only for:

- forestry activities including silviculture, logging, reforestation and stand tendering approved by the Ministry of Natural Resource Operations;
- **conservation use**;
- **park and park reserve**;
- **public use**; and,
- **recreation use**.

5.3.7 Pursuant to Section 21 of the Private Managed Forest Land Act, forest management activities, as defined in the Act, shall be permitted on lands classified as private managed forest land.

5.3.8 Sustainable green energy projects, which do not involve the use of incinerators or the burning of fossil fuels, may be permitted in the FOREST designation subject to rezoning, where applicable, and comprehensive review of transmission facilities, hydrological impacts and habitat impacts.

5.3.9 The Province should consult the Regional District respecting any plans or facilities for recreation use within the FOREST designation.

Subdivision Policies

5.3.10 Land within the FOREST designation shall be subdivided only when subdivision is required in the interests of responsible forest management, in which case no parcel smaller than thirty-five (35) hectares shall be created.

5.4 INSTITUTIONAL (I)

Description

The INSTITUTIONAL designation recognizes publicly-owned lands that have been identified or reserved for community facilities or infrastructure. It also includes private lands intended for use for churches, child care, health or educational facilities, and other assembly uses that serve the general public.

It is the policy of the Regional Board that:

General Policies

5.4.1 The Regional Board may consider the development of a community park in conjunction with a community facility, such as a community hall or fire hall, within the INSTITUTIONAL designation.

Designation Policies

5.4.2 This Plan designates public lands identified and reserved for community uses and private lands currently zoned for civic, educational, religious, fraternal, hospital or cultural facilities, as INSTITUTIONAL.

5.4.3 INSTITUTIONAL areas may be created or extended through amendment subject to:

a. established community need for expanded or improved facilities which serve the general public;

b. compatibility of the proposed use with existing and proposed land uses adjacent to and in the vicinity of the subject property;

c. certification that services such as water supply and sewage disposal can be provided on-site or through a community service;

d. physical capability of the subject property to accommodate development in an environmentally sustainable manner; and,

e. projected traffic generation and parking requirements.

Use Policies

5.4.4 Land within the INSTITUTIONAL designation shall be used for only:

- **accessory residential;**
- **assembly**;
- **conservation**;
- **institutional**;
- **park** and **park reserve**;
- **public** and **semi-public**;
- **low density commercial recreation**; and,
- **recreation uses**.

5.4.5 With the possible exception of a caretaker's residence, residential use shall not be permitted in the INSTITUTIONAL designation.

Subdivision Policies

5.4.6 Land in INSTITUTIONAL areas shall only be subdivided under circumstances where subdivision is required to facilitate the efficient and effective delivery of services to the general public.

5.5 LIMITED USE (LU)

Description

The LIMITED USE designation is intended to constrain development in areas with significant geological and flood hazards, limited road access, areas isolated from community services, zones of groundwater recharge and areas which are environmentally sensitive or otherwise best suited to low density rural uses. However, LIMITED USE lands may be re-designated in accordance with Plan policies if future studies show that an area can accommodate a broader range of uses without being affected by geological hazards or damaging environmentally sensitive areas, and where access and other requirements can be met.

Subdivision policies of the LIMITED USE designation accommodate the creation of new parcels eight (8) hectares in area or greater. In recognition of the difficulties of site development within this designation, subject to zoning amendment, the clustering of parcels may be permitted in the LIMITED USE designation provided that average density of the parent parcel being subdivided will not exceed one parcel per eight (8) hectares. Clustered subdivisions will normally take the form of bare land strata developments with the remainder lands becoming common property that is protected from further subdivision, development, or disturbance by way of a restrictive covenant in favour of the Fraser Valley Regional District.

It is the policy of the Regional Board that:

General Policies

5.5.1 LIMITED USE areas are established to minimize development in remote, inaccessible, hazardous or environmentally sensitive areas with limited or no access to community services and to maintain low density development on suitable development sites.

5.5.2 Development shall be controlled and uses may be restricted in areas of natural hazard potential and environmental sensitivity.

5.5.3 Environmentally sensitive areas shall be identified, preserved and buffered from development.

Designation Policies

5.5.4 The Plan map designates lands with some or all of the following characteristics as LIMITED USE:

- geological hazard;
- flooding hazard;
- environmental sensitivity;
- no community and development services;
- poor road access;
- best suited to low density rural uses and density.

5.5.5 LIMITED USE areas may be extended or created through Plan amendment.

5.5.6 LIMITED USE areas may be reduced and re-designated if future studies show that an area can safely accommodate a broader range of uses without environmental damage, unacceptable public risk, or excessive public expenditure on access or other public works.

Use Policies

5.5.7 LIMITED USE areas may be used only for:

- **agriculture**;
- **conservation**;
- film production facility;
- **low density commercial recreation**;
- **park** and **park reserve**;
- **public**;
- **single family residential**; and,
- **associated rural residential** uses.

5.5.8 Subject to rezoning, **low density commercial recreation uses** may be permitted in the LIMITED USE designation on parcels four (4) hectares in area or greater.

5.5.9 Rezoning applications to permit **low density commercial recreation** uses shall include an **environmental impact assessment** and, if deemed necessary by the Regional Board, an **engineering feasibility study** to ensure that the proposed use will not result in unacceptable public expenditures or service demands; unacceptable environmental or geotechnical impacts and risks; or, negatively affect surrounding properties.

Subdivision Policies

5.5.10 Land in LIMITED USE areas shall only be subdivided in accordance with the standards of the **responsible authorities**, except that the parcel size shall not be less than eight (8) hectares.

5.5.11 Notwithstanding Section 5.5.10 of this Plan, subject to zoning amendment **density averaging** may be permitted to facilitate the clustering of parcels away from hazard or environmentally sensitive areas provided that average density of the parent parcel being subdivided, excluding road and park dedications, will not exceed one parcel per eight (8) hectares, and provided that each lot is suitable for its intended use.

5.5.12 Where a clustered subdivision is proposed:

a. the subdivider shall be required to register a restrictive covenant in favour of the Regional District which prohibits any further subdivision of a remainder parcel in a

bare land strata development; or, in the case of a fee simple subdivision, the hazard or environmentally sensitive areas which the clustering of lots is intended to avoid.

b. the subdivider may be required to register a restrictive covenant in favour of the Regional District which prohibits the alteration of: any remainder parcel in a bare land strata development; or, in the case of a fee simple subdivision, the hazard or environmentally sensitive areas which the clustering of lots is intended to avoid; except:

   i. alterations or construction necessary to protect the residential parcels from geotechnical or other hazards;

   ii. the location of services; and,

   iii. trails.

5.5.13 The remainder parcel of a clustered bare land strata subdivision, or the covenanted areas of a fee simple clustered subdivision, should normally be continuous and not fragmented. However, in some circumstances, fragmentation may be desirable to avoid development in hazard areas or preserve identified environmental values.

5.5.14 Where possible, the remainder parcel of a clustered bare land strata subdivision, or the covenanted areas of a fee simple clustered subdivision, should:

a. border Crown land, park, or a covenanted area on an adjacent property; and,

b. include stream corridors, wetlands, sensitive or hazardous slopes and other areas of hazard or environmental value.

5.6 LOCAL COMMERCIAL (LC)

Description

The LOCAL COMMERCIAL designation accommodates commercial uses oriented towards meeting the day-to-day needs of Hatzic Valley residents and visitors. This designation is applied to lands utilized for existing commercial activities. It may be expanded by application.

It is the policy of the Regional Board that:

General Policies

5.6.1 Land designated LOCAL COMMERCIAL should accommodate the commercial needs of the local community.

5.6.2 Development proposals shall ensure that adequate on-site parking facilities and safe access/egress are provided.

5.6.3 LOCAL COMMERCIAL uses need to provide adequate on-site sewage disposal and safe water supply, as required by the Responsible Authorities.

5.6.4 Development proposals are encouraged to respect the historical and rural character of the area in selecting the proposed use, design and layout of new development.

Designation Policies

5.6.5 The Plan map designates lands with existing commercial uses as LOCAL COMMERCIAL.

5.6.6 LOCAL COMMERCIAL areas may be extended or created through Plan amendment where:

a. there is an need for additional commercial services to serve the local community;

b. on-site sewage disposal, water supply and site drainage facilities are adequate;

c. suitable access/egress exists or can be developed;

d. parking can be accommodated; and,

e. hazard mitigation and flood construction requirements can be met.

Use Policies

5.6.7 LOCAL COMMERCIAL areas shall be used for only:

- **accessory residential**;
- **associated rural residential**;
- **local commercial;** and,
- **public uses**.

5.6.8 All new LOCAL COMMERCIAL uses, other than residential uses, shall be subject to the following special conditions:

a. that suitable buffer area or setback distances are maintained around commercial developments;

b. that suitable facilities can be provided for safe public access from an arterial and collector road and parking areas;'

c. that services suitable for the intended use are provide; and,

d. that levels of development are compatible with the natural environment.

Subdivision Policies

5.6.9 Lands in LOCAL COMMERCIAL areas shall be subdivided only in accordance with the standards of the Responsible Authorities, except that the parcel size shall not be less than:

(a) two (2) hectares where on-site water and sewage disposal services are proposed; and,

(b) zero point five (0.5) hectares where there is an **approved community water system**.

5.6.10 Notwithstanding Section 5.6.9, consolidation of existing small lots which do not satisfy the parcel size requirements in the LOCAL COMMERCIAL designation is encouraged in order to provide space for on-site services and sufficient parking facilities in accordance with the requirements of the Responsible Authorities.

5.6.11 Subdivisions for residential lots are not permitted in the LOCAL COMMERCIAL areas.

5.7 RESORT (RT)

Description

The RESORT designation is intended to ensure that resort developments maintain public access to natural assets, mitigate impacts to the natural environment, and provide adequate water and sewer systems. It envisions self-contained and self-supporting developments on unitary resort properties with a variety of compatible uses and services.

It is the policy of the Regional Board that:

General Policies

5.7.1 Developments in the RESORT designation should be fiscally self-supporting in terms of the infrastructure and recreational facilities they provide.

5.7.2 The cluster of buildings and structures on RESORT properties will be encouraged so that environmental impacts may be limited and hazards avoided.

Designation Policies

5.7.3 This Plan designates existing resort uses as RESORT.

5.7.4 The RESORT designation may be extended or created through Plan amendment where additional lands are shown to meet the designation policies; where comprehensive, integrated plans, including environmental impact assessments, hazard assessments, and feasibility studies, are presented; where resort uses exist; or, where recreational development trends warrant such extension or creation.

5.7.5 New RESORT areas:

a. may have minor geological and flood hazards which can be mitigated on-site;

b. must have good transportation access;

c. must have suitable locations and conditions for on-site services or access to community services; and,

d. must have areas suited, because of their location, scenic landscape, natural environment, physical characteristics, or natural amenities, for RESORT uses.

Use Policies

5.7.6 RESORT areas may only be used for:

- **accessory residential**;
- commercial campground;
- **conservation**;
- **holiday park**;
- **low density commercial recreation**;
- **public**;

- outdoor recreation; and,
- accessory retail uses.

5.7.7 Development in RESORT areas must avoid or mitigate environmental impacts, maintain access to riparian foreshore areas and avoid alienation of public amenities.

Subdivision Policies

5.7.8 Land in RESORT areas shall only be subdivided in accordance with the standard of the Responsible Authorities, except that the parcel size shall not be less than eight (8) hectares.

5.8 RURAL (R)

Description

The primary purpose of the RURAL designation is to maintain the existing rural character of the Plan area and to provide for residential uses that are environmentally sustainable and compatible with existing development and levels of servicing. The RURAL designation exists on rural lots that have good road access but may have potential geotechnical hazards, servicing limitations, or other constraints.

Subdivision policies of the RURAL designation accommodate the creation of new parcels two hectares in area or greater. In recognition of the difficulties of site development within the Plan area, subject to zoning amendment, the clustering of parcels may be permitted in the RURAL designation provided that average density of the parent parcel being subdivided will not exceed one parcel per two hectares.

It is the policy of the Regional Board that:

General Policies

5.8.1 RURAL areas are established to accommodate a variety of rural lifestyles and maintain the low density rural character of the Plan area.

5.8.2 RURAL areas shall generally limit the demand for infrastructure through the provision of on-site services.

Designation Policies

5.8.3 The Plan map designates areas with some or all of the following characteristics as RURAL:

- outside the ALR and floodplain;
- predominantly rural in character;
- expected to be suitable for on-site servicing;
- good access to public roads;
- existing small acreage subdivisions within a rural or agricultural context.

5.8.4 Development on RURAL lands may be constrained by minor geological or flooding hazards. However, it is anticipated that safe building sites can be identified and protected through site-specific measures.

5.8.5 RURAL areas may be extended or created through Plan amendment where additional lands are shown to meet the designation policy criteria above and it can be shown that safe building sites exist.

Use Policies

5.8.6 RURAL areas may only be used for:

- **agricultural use** excluding intensive agriculture;

- **conservation use**;
- **park and park reserve**;
- **public use**;
- **single family residential**; and,
- **associated rural residential** use.

Subdivision Policies

5.8.7 Land in RURAL areas shall only be subdivided in accordance with the standards of the **responsible authorities**, except that the minimum parcel size shall not be less than two hectares.

5.8.8 Notwithstanding Section 5.8.7 of this Plan, subject to zoning amendment **density averaging** may be permitted to facilitate the clustering parcels to avoid hazardous or environmentally sensitive areas provided that average density of the parcel being subdivided, excluding road and park dedications, will not exceed one parcel per two hectares, and provided that each parcel is suitable for its intended use.

5.8.9 Where a clustered subdivision is proposed:

(a) the subdivider shall be required to register a restrictive covenant in favour of the Regional District which prohibits any further subdivision of a remainder parcel or common property in a bare land strata development; or, in the case of a fee simple subdivision, the sensitive areas which the clustering of lots is intended to avoid.

(b) the subdivider may be required to register a restrictive covenant in favour of the Regional District which prohibits the alteration of: any remainder parcel in a bare land strata development; or, in the case of a fee simple subdivision, the sensitive areas which the clustering of lots is intended to avoid; except:

i. alterations or construction necessary to protect the residential parcels from geotechnical or other hazards;

ii. the location of services; and,

iii. pedestrian trails.

5.8.10 The remainder parcel of a clustered bare land strata subdivision, or the covenanted areas of a fee simple clustered subdivision, should normally be continuous and not fragmented. However, in some circumstances, fragmentation may be desirable to avoid development in hazard areas or preserve identified environmental values.

5.8.11 The remainder parcel of a clustered bare land strata subdivision, or the covenanted area of a fee simple clustered subdivision should:

a. border Crown land, park, or a remaindered parcel or covenanted area on an adjacent property; and,

b. include stream corridors, wetlands, sensitive or hazardous slopes and other areas of hazard or environmental value.

5.8.12 The Regional Board or Subdivision Approving Officer may require, upon rezoning or subdivision of land within the RURAL designation, that advance street and conceptual lot layout plans be provided to demonstrate how the proposed lot layout would facilitate future subdivision.

5.9 SUBURBAN RESIDENTIAL (SR)

Description

The purpose of the SUBURBAN RESIDENTIAL designation is to provide for orderly growth of residential areas at suburban and country residential densities while protecting the environment and rural landscape aesthetics. Existing small-lot residential developments are also recognized in this designation.

The SUBURBAN RESIDENTIAL designation provides for a basic minimum parcel size of one (1) hectare with on-site water and sewage disposal. The purpose of establishing this minimum is to protect the tax base of the area from premature or haphazard development which could result in the need for emergency public servicing schemes and other such expenditures. However, with adequate forward planning - including a servicing plan to connect to an approved community water system and to provide storm drainage facilities and other services and amenities upon subdivision - the minimum lot size may be reduced to zero point five (0.5) hectares subject to approval of the Responsible Authority for on-site sewage disposal.

Policies supporting cluster development are provided in recognition of localized constraints in some SUBURBAN RESIDENTIAL areas and the desire for efficient and environmentally responsible use of land.

It is the policy of the Regional Board that:

General Policies

5.9.1 In the design and layout of new developments in SUBURBAN RESIDENTIAL AREAS special consideration should be given to the following:

a. the character, scale and layout of existing adjacent residential areas;

b. updating and improving servicing facilities of existing areas;

c. the traffic flow on existing residential streets and pedestrian circulation;

d. conservation of areas of natural or cultural significance; and,

e. orderly growth of residential communities.

Designation Policies

5.9.2 The plan map designates lands with some or all of the following features as SUBURBAN RESIDENTIAL:

a. already zoned for suburban residential densities or subdivided into small parcels;

b. above the floodplain and generally free from geologic and flood hazards;

c. easily accessible by public roads;

d. not within the Agricultural Land Reserve; and,

e. anticipated to be suitable for on-site sewage disposal at the planned density.

5.9.3 SUBURBAN RESIDENTIAL areas may only be extended or created through plan amendment provided:

a. comprehensive, integrated plans are presented which demonstrate that additional lands that meet the designation policies are identified;

b. development trends warrant such an extension or creation;

c. the creation or extension does not contravene the Official Community Plan objectives and policies.

Use Policies

5.9.4 SUBURBAN RESIDENTIAL areas may only be used for:

- **public**;
- **residential**; and,
- **associated rural residential uses**.

Subdivision Policies

5.9.5 Land in SUBURBAN RESIDENTIAL areas shall only be subdivided in accordance with the standards of the **Responsible Authorities** except that the minimum parcel size shall not be less than:

a. one (1) hectare; or,

b. zero point five (0.5) hectares provided that the proposed development is to be serviced by an **approved community water system**.

5.9.6 Where land in SUBURBAN RESIDENTIAL areas is proposed to be developed on the basis of on-site sewage disposal, land shall only be subdivided in accordance with the standards of the **Responsible Authorities** and where:

a. provision has been made for a "back-up" tile field on each lot; and

b. an engineering study and related documentation has demonstrated that the proposed development is suitable for long term on-site sewage disposal and that no danger exists for ground water pollution which could lead to environmental or human health problems.

5.9.7 Notwithstanding Section 5.9.5 of this Plan, subject to zoning amendment **density averaging** may be permitted to facilitate clustering of parcels to avoid hazards or environmentally sensitive areas provided that average density does not exceed:

a. one parcel per hectare; or,

b. one parcel per zero point five (0.5) hectares where an **approved community water system** is provided.

5.9.8 Where a clustered subdivision is proposed:

a. the subdivider shall be required to register a restrictive covenant in favour of the Regional District which prohibits any further subdivision of a remainder parcel or common property in a bare land strata development; or, in the case of a fee simple subdivision, the sensitive areas which the clustering of lots is intended to avoid.

b. the subdivider may be required to register a restrictive covenant in favour of the Regional District which prohibits the alteration of the remainder parcel or common property in a bare land strata development; or, in the case of a fee simple subdivision, sensitive areas which the clustering of lots is intended to avoid; except:

   i. alterations or construction necessary to protect the residential parcels from geotechnical or other hazards;

   ii. the location of services; and,

   iii. pedestrian trails.

5.9.9 The remainder parcel of a clustered bare land strata subdivision, or the covenanted areas of a fee simple clustered subdivision, should normally be continuous and not fragmented. However, in some circumstances, fragmentation may be desirable to avoid development in hazard areas or preserve identified environmental values.

5.9.10 The remainder parcel of a clustered bare land strata subdivision, or the covenanted areas of a fee simple clustered subdivision should:

a. border Crown land, park or covenanted area on an adjacent property; and,

b. include stream corridors, wetlands, sensitive or hazardous slopes and other areas of hazard or environmental value.

5.9.11 The Regional Board or the Subdivision Approving Officer may require, upon rezoning or subdivision of land within the SUBURBAN RESIDENTIAL designation, that advance street and conceptual lot layout plans be provided to demonstrate how the proposed lot layout would facilitate future subdivision or subdivision of adjacent lands.

5.10 COMMUNITY WATERSHED PROTECTION AREA

Description

Protection of groundwater, drinking water sources and supplies, and particularly community water systems, is of paramount importance to the Hatzic Valley community.

The Hatzic Prairie Water Supply and Distribution System currently provides potable water to about 240 persons who live on Hatzic Prairie or attend Durieu Elementary School. The number of people dependent on the system will likely increase over time.

The system draws water from two wells on the Durieu Elementary School property on Seux Road. These wells take water from a potentially unconfined aquifer that lies within 15 metres of the ground surface.[16] Unconfined, shallow aquifers are susceptible to contamination from surface sources and require measures to protect them.

Recharge and drawdown areas for the wells are not well documented. The low content of total dissolved solids in the well water is indicative of recharge from a nearby groundwater source.[17] Recharge from precipitation takes place mostly in upland areas to the east.[18]

The Community Watershed Protection Area is an overlay designation intended to:

- draw attention to the need for special management of groundwater recharge and drawdown areas for the Hatzic Prairie Water System; and,
- supplement the General and Use Policies within individual designations to minimize any potential land use impacts on community water source and to protect groundwater quality.

The boundary of the Community Watershed Protection Area may be adjusted as more complete information is developed about the groundwater movements, recharge locations and well drawdown areas. In the future, the Regional Board may wish to replace, or complement, it with a development permit area or regulation to provide a higher level of protection. Additional information and policies related to the protection of water supplies and groundwater may be found in Sections 6.2 and 10.1 of this Plan.

It is the policy of the Regional Board that:

General Policies

5.10.1 The Community Watershed Protection Area is established to provide special management of groundwater supply, recharge and drawdown areas for the Hatzic Prairie Water System and to minimize potential for land use impacts to its water source.

5.10.2 The introduction of anything into a domestic water system, well recharge zone or an area adjacent to the drinking water source that results in a health hazard is prohibited under the Drinking Water Protection Act.

[16] Pacific Hydrology Consultants. *Evaluation of the Durieu Elementary School well at 11565 Seux Road in Mission*. October 30, 2007.

[17] Urban Systems. *Hatzic Prairie Water System Detailed Design Preliminary Report*. December 3, 2007.

[18] Pacific Hydrology Consultants, 2007.

5.10.3 Development shall be controlled and uses may be restricted in the groundwater supply, recharge and well draw down areas of the Hatzic Prairie Water System.

Designation Policies

5.10.4 This Plan designates groundwater supply, groundwater recharge and well drawdown areas for the Hatzic Prairie Water System as Community Watershed Protection Area.

5.10.5 The Community Watershed Protection Area may be reduced or extended if future studies provide more complete information about groundwater movements, recharge locations and well drawdown areas.

5.10.6 The Community Watershed Protection Area may be replaced or supplemented in the future by the establishment of a development permit area or regulatory bylaw if the Regional Board deems that a higher level of protection for the groundwater source is appropriate.

Use Policies

5.10.7 The Regional Board will not support land uses and activities in the Community Watershed Protection Area which increase risk of negative impacts to groundwater quality or quantity.

5.10.8 The Regional Board will not support land uses or activities which:

- involve significant excavations that expose groundwater;
- reduce the ability of soils to filter contaminants; or,
- increase the susceptibility of groundwater to activities on the land surface.

5.10.9 The Regional Board will not support **intensive agriculture** uses within the Community Watershed Protection Area in locations outside of the Agricultural Land Reserve.

5.10.10 Except where required for agricultural uses, the application of pesticides should be avoided within the Community Watershed Protection Area. If the use of pesticides cannot be avoided, it should be done with the utmost caution.

5.10.11 The application of nutrients and conditioners to soils should be carefully managed within the Community Watershed Protection Area to ensure no contamination of ground and surface water occurs.

5.10.12 The Regional Board will apply the precautionary principle when considering changes in land use requiring zoning or community plan amendments and which involve both risk of serious or irreversible harm to the water source for the Hatzic Prairie Water System and significant scientific uncertainties.

5.10.13 Channel maintenance and gravel removal for the purpose of community flood protection are permitted in stream and river channels within the Community Watershed Protection Area subject to any necessary approvals from the Regional District and the **responsible authorities**.

6.0 INFRASTRUCTURE & SERVICES

Official community plans must include statements and map designations respecting the approximate location and phasing of any major road, sewer and water systems and the approximate location and type of present and proposed public facilities including schools, parks and waste treatment and disposal facilities.

6.1 Roads & Transportation

The following classes of roads are recognized in the Plan area:

COLLECTOR is a street carrying vehicles between major traffic generating areas or between such areas and the primary and secondary highways. Sylvester, Stave Lake and Dale Roads are collector roads within the Plan area.

LOCAL is a street primarily designed for and providing access with little or no provision for through traffic. Direct access is allowed to all abutting properties. The maximum length of a local street is normally 450 metres, though longer Local Roads exist. Seux Road is an example of a Local Road in the Plan area.

There are no Arterial Roads or Controlled Access Highways within the Plan area.

The road network and road classifications in the Plan area are shown on *Map 5 - Transportation Network*.

Roadway & Right-of-Way Widths

Road standards in Hatzic Valley are under the jurisdiction of the Ministry of Transportation & Infrastructure. FVRD subdivision and development bylaws may also be referenced as a guide. Standards for new roads must be established in the context of local site conditions and engineering requirements. However, the following classifications may be viewed as general guidelines for right-of-way (ROW) and roadway widths in the Plan area.

TABLE 6-1
GUIDELINES FOR ROADWAYS WITH CURBS

Classification	Minimum Right-of-Way Width	Minimum Roadway Width
Arterial	30 m	10 m
Collector	25 m	10 m
Local	20 m	8 m
Cul-de-sac	18 m	15 m radius

Notes:

- Standards for roadway and right-of-way widths may vary with local conditions, engineering requirements, and requirements for underground services. Also, it is the policy of the Ministry of Transportation that any roadway designated as a "significant network element" have a minimum pavement width of fourteen meters, measured curb to curb.
- In hillside locations, and wherever necessary, the minimum road right-of-way width will be increased to contain cut and fill slopes at stable angles of repose.

TABLE 6-2 GUIDELINES FOR ROADWAYS WITHOUT CURBS		
Classification	**Minimum Right-of-Way Width**	**Minimum Roadway Width**
Arterial	30 m	10 m
Collector	25 m	10 m
Local	20 m	8 m
Cul-de-sac	20 m	15 m radius

Notes:
- In hillside locations, and wherever possible, the minimum road right-of-way width will be increased to contain cut and fill slopes at stable angles of repose.

Non-standard road ROWs and undeveloped road ROWs exist in the Plan area.

Access

Under the provisions of the Land Title Act and the applicable land use and subdivision control bylaws of the FVRD, each new parcel must be provided with adequate legal access and vehicle parking. In the case of high traffic generating uses, the policies of the Plan recognize the need for more than one legal access, especially for emergency vehicles.

Transit

There is presently no public transit service within the Plan area. The cost of serving low density rural areas with transit is usually prohibitive and service is not anticipated in the foreseeable future. However, commuter service linking the rural settlements along the Highway 7 corridor with transit nodes in Mission should be explored for the future.

It is the policy of the Regional Board that:

6.1.1 The Regional District will liaise with the Ministry of Transportation & Infrastructure regarding any road issues.

6.1.2 Land uses in the Plan area shall be provided with adequate and safe access for all traffic including emergency vehicles. Existing, new and expanded commercial and residential developments shall be provided with legal access commensurate with the use proposed, subject to the approval of the Ministry of Transportation & Infrastructure.

6.1.3 Each new parcel of land shall have frontage on, and reasonable and practical access to, a public road.

6.1.4 Access for residential uses on side roads should be constructed in accordance with the Ministry of Transportation & Infrastructure standards outlined in *Location, Design and Construction of Residential Driveways on Side Roads Outside Municipalities*. Provisions regarding the installation of appropriately sized culverts and other waterway crossings are particularly important in Hatzic Valley to avoid flooding and drainage problems.

6.1.5 Landowners are encouraged to:

a. maintain culverts and other waterway crossings to preserve their capacity to pass high flows; and

b. upgrade substandard culverts so that they can pass 1:200 year storm flows.

6.1.6 The Regional Board will support property owners in acquiring legal access to their properties where it does not presently exist.

6.1.7 When securing land for widening existing road rights-of-way, the Ministry of Transportation & Infrastructure is encouraged to negotiate purchase with property owners.

6.1.8 New roads within the Plan area should:

a. provide for extension and connection to existing or proposed roadways adjacent to or beyond the subdivision;

b. provide alternate route choices where possible;

c. be aligned to minimize stream crossings and avoid environmentally sensitive areas; and,

d. minimize impacts to agriculture operations and avoid fragmenting agricultural lands.

6.1.9 Where applicable, road allowances required to facilitate future subdivision at higher densities in the long term should be dedicated as a part of the subdivision process.

6.1.10 The Regional Board may require that development proposals include a traffic impact analysis report prepared by a qualified professional.

6.1.11 Where possible, upgrades to collector roads within the Plan area should include road shoulders which provide suitable and safe paths for pedestrian, equestrian and cycling uses. The Regional District will liaise with the Ministry of Transportation & Infrastructure about the dedication of such routes within Hatzic Valley.

6.1.12 While likely not feasible in the short term, the provision of basic commuter transit service along the Lougheed Highway corridor to connect rural areas with transit nodes in the District of Mission should be considered for the future.

6.1.13 Undeveloped road rights-of-way within the Plan area should be preserved as potential routes for pedestrian, cycle and equestrian use unless deemed by the Regional Board to be unsuited for this use.

6.2 Drinking Water

Most residents of Hatzic Valley obtain drinking water from individual, on-site groundwater wells or sandpoints, though a significant number utilize surface sources. Generally speaking, residents enjoy good quality water and are satisfied with their supplies.[19] Where there is dissatisfaction with water supplies, mineral concentrations was the most cited reason. More detailed information about ground and surface water conditions and known water quality issues is provided in Section 10.0 of this Plan.

A number of Provincial acts are relevant to on-site, individual water supplies. The use and allocation of surface water is regulated under the Water Act. The Ground Water Protection Regulation (BC Reg 299/2004) establishes construction standards applicable to individual, on-site water wells. The Drinking Water Protection Act prohibits the introduction of anything into a domestic water system, well recharge zone or an area adjacent to the drinking water source that results in a health hazard.[20]

In 2008, Fraser Valley Regional District developed the Hatzic Prairie Water Supply and Distribution System to provide water to portions of Hatzic Prairie, particularly to areas of small-lot development formerly served by substandard surface water supplies. The system consists of two groundwater wells, booster pumps, secondary treatment, and water mains. The well has a pit-less adapter and is flood-proofed. The system is expected to be upgraded in 2011 to include a water reservoir and hydrants. This upgrade will provide storage for firefighting flows, enhance system reliability, and enable properties along Dale Road that are currently served by an inadequate private surface water system to connect.

The Hatzic Prairie Water Supply and Distribution System supplies water for potable use, domestic irrigation and potential fire fighting to a maximum of 230 lots - the Sheltered Cove, Mountain View and Riverside subdivisions plus the rural properties which front the water main - plus Durieu Elementary School. Expansion of the system outside of the ultimate service area identified in the *Hatzic Prairie Water System Detailed Design Preliminary Report* by Urban Systems (2007) is greatly constrained by the capacity of the system, the capacity of the aquifer, topographic limits to system pressure, cost, and also land use planning objectives. The Hatzic Prairie Water Supply and Distribution System service area (as of January, 2011) is shown on *Map 6 –Service Areas*. No other systems are planned.

The *Electoral Area Water Conservation Program* sets out a long-term plan for coordinated and comprehensive water conservation efforts. The policies below provide guidance to the Regional Board respecting any proposed future expansion to the Hatzic Prairie Water Supply and Distribution System and also consideration of water supplies in development approvals. Policies also advocate for well and source protection.

[19] Sixty-five percent of respondents to the 2009 Community Planning Survey reported satisfaction with water supplies.

[20] At the time of writing (May, 2010), the Province of BC is undertaking consultation on "Water Act Modernization" which is anticipated to result in significant changes, potentially including groundwater licensing and regulation.

It is the policy of the Regional Board that:

6.2.1 The Regional District may consider expansion of the Hatzic Prairie Water Supply and Distribution System under the following conditions:

a. the costs of extending the service boundary are financed exclusively by the new area to be serviced and the cost is sustainable;

b. the ability to service unconnected parcels within the original service area is not negatively affected;

c. the capacity of the water system to supply the added demand, along with any improvement necessary, is determined by a qualified professional engineer;

d. there will be no negative impacts to the water supply source;

e. expansion of the system is consistent with the land use objectives and policies of this plan;

f. expansion of the system will not negatively impact farm uses within the Agricultural Land Reserve; and,

g. expansion of the service area is unlikely to result in subsequent demands or expectations for service in locations where development at serviced densities is not desirable.

6.2.2 The Regional District should develop a source protection plan for the Hatzic Valley, and particularly the Hatzic Prairie Water System well.

6.2.3 The Regional District will pursue the identification of watersheds which supply the Hatzic Prairie Water System as Community Watersheds under the Government Actions Regulation of the Forest And Range Practices Act to:

a. conserve the quality, quantity and timing of water flow; and,

b. to prevent cumulative hydrological effects that would have a material adverse effect on the water.

6.2.4 The protection of water supplies will be a consideration in all zoning and community plan amendments and in subdivision referrals.

6.2.5 When subdivision is proposed which would create parcels less than eight hectares in area, the Responsible Authority should require the developer to provide a report by a professional engineer which confirms the ability of each water supply to provide a suitable quantity of potable water which meets Canadian drinking water standards. The report should include:

a. accurate location sketch of the well or intake (and supply line where applicable);

b. well log provided by well driller that is prepared in accordance with accepted standards, or a sketch of the surface water intake;

c. pump test and/or quantity test results;

d. recovery test results;

e. water quality test results from the laboratory;

f. certification that the water supply is capable of meeting the quantity requirements year-round and that the water meets the Guidelines for Canadian Drinking Water Quality; and,

g. in the case of groundwater sources, identify the type of aquifer from which the well will draw water and any implications for drinking water quality and quantity as well as the sustainability of the supply

6.2.6 Applications for zoning and community plan amendments to facilitate new development may be required to include a feasibility report by a qualified professional engineer. The report should:

a. provide reasonable rationale and assurances respecting the feasibility and long-term suitability of the proposed water supply;

b. assess the compatibility of the proposed water supply with other on-site services (such as a sewage disposal field) or nearby services on adjacent lands;

c. address the cumulative impacts the proposed water supply may have on the source and determine whether the proposed supply will adversely affect existing water supplies drawing from the same source; and,

d. in the case of groundwater sources, identify the type of aquifer from which the well will draw water and any implications of the aquifer type for drinking water quality and quantity as well as the sustainability of the supply.

6.2.7 Individual, on-site water supplies which rely solely on treatment systems to produce potable water that meets the Guidelines for Canadian Drinking Water Quality are strongly discouraged and should be avoided for new subdivision and development.

6.2.8 Arsenic concentrations in water from wells drilled into bedrock in Hatzic Valley have been problematic. Where possible, developers and landowners should avoid the use of wells drilled into bedrock for potable water supplies.

6.2.9 Present users of surface water for domestic purposes are encouraged to consider whether the security of their water supply would be improved by converting to a groundwater source or, where one is available, to an approved community water supply system.

6.2.10 All owners of water supplies are strongly encouraged to implement source control measures to prevent contamination of water sources and supply systems.

6.2.11 In accordance with the Ground Water Protection Regulation, landowners are strongly encouraged to:

a. promptly deactivate or close unused wells to prevent contamination of the aquifer; and,

b. flood-proof wells within floodplain locations.

6.3 Sewage Disposal

In Hatzic Valley, sewage is disposed of into the ground via on-site disposal fields. The Fraser Health Authority and the Ministry of Environment have established requirements for the construction and operation of disposal systems and should be consulted for current requirements. Health Authority standards, which apply to small residential systems, generally take account of the depth of native soil, water table elevation, slope of the land, and soil percolations rates.

Soil and groundwater conditions vary throughout the Plan area. In some locations, ground-based sewage disposal may be limited by hydro-geological conditions, and particularly by a high water table. It is anticipated that conventional septic disposal is constrained by the seasonally high water table and low soil permeability on Hatzic Prairie, especially within existing small-lot residential subdivisions which have the added challenge of limited space for on-site systems.

Replacement of failed or under-performing fields in these areas may be complex or costly. Where conventional septic fields are not possible, the policies of this Plan support under certain conditions the use under of innovative on-site disposal systems, including package treatment plants, which meet Provincial requirements.

It is not anticipated that the Regional District will develop a public sewer utility in the Official Community Plan area within the life of this Plan. Moreover, the policies of this Plan are intended to ensure that no public sewer system will be required over the long term. The subdivision standards and development densities in tie Plan are designed on the basis of on-site disposal.

The availability of suitable areas for on-site sewage disposal will be a central consideration in development approvals, the layout and design of new subdivisions, and in the siting of development within existing parcels. This Plan requires that alternate sewage disposal fields be identified and that engineering studies be undertaken at the time of subdivision or zoning amendment to ensure that the proposed development will be viable with on-site sewage disposal in the long term.

It is the policy of the Regional Board that:

6.3.1 It is not anticipated that the Regional District will develop a public sanitary sewer utility within the life of this Plan.

6.3.2 Where it is not possible to develop a conventional septic field to serve development of a use permitted in the zoning bylaw on an existing lot, other innovative on-site disposal systems including package treatment plants that meet the requirements and regulations governing sewage disposal may be accepted by the Fraser Health Authority or the Ministry of Environment.

6.3.3 The use of “Type 3” individual-on-site package sewage treatment plants in new parcels to be created by subdivision and in new developments requiring rezoning is discouraged.

6.3.4 The Regional District will participate in dialogue with provincial agencies, professional associations and others regarding the use of environmentally progressive sewage disposal systems.

6.3.5 The consolidation of small lots will be encouraged to provide for adequate long-term sewage disposal and may be imposed as a condition of development approvals where necessary for the health and safety of residents or the protection of the environment.

6.3.6 The method, cost, long-term performance, and environmental impact of proposed methods of sewage disposal will be central considerations in zoning and community plan approvals and subdivision referrals.

6.3.7 All new developments shall provide on-site sewage disposal that meets the requirements of the Public Health Act or the Environmental Management Act, as applicable.

6.3.8 Where on-site sewage disposal is proposed, new development shall be required to provide secure back up sewage disposal field locations.

6.3.9 Holding tanks for sewage shall not be supported.

6.3.10 Applications for zoning and community plan amendments to facilitate new development may be required to include a report by a qualified professional engineer to demonstrate the feasibility of sewage disposal. The report must certify that the proposed system will not result in environmental contamination or risk to human health and address:

a. the authorities having jurisdiction and their relationship to the approvals required for the servicing of the site;

b. the provincial regulations and criteria on which compliance with the regulations will be determined;

c. the adequacy of the system for the proposed development and long-term performance of the system;

d. the inter-relationship of all systems proposed for the site, including the layout of the proposed systems and the setbacks and protection zones that will influence the siting of the various components; and,

e. where appropriate, hydro-geotechnical and geotechnical parameters of the site, including:

   i. seasonal water table elevations with respect to performance of the in-ground disposal systems;

   ii. the property of the soils which underlie the site;

   iii. the transmissivity of the soils; and,

   iv. the suitability and stability of underlying soils to accept the proposed hydraulic loading.

6.3.11 All sewage disposal systems require maintenance and stewardship. Land owners are encouraged to conduct regular inspection and maintenance of disposal systems to avoid environmental contamination. Where systems are inadequate, land owners are encouraged to upgrade them to meet current Provincial standards.

6.4 Solid Waste Management

All waste management strategies and initiatives in the FVRD are governed by and implemented through the *FVRD Solid Waste Management Plan*.

Residents and business of Hatzic Valley are responsible for their own refuse collection. Many make arrangements with a private firm for residential pick-up or haul their waste to a transfer station. The Regional District operates the Sylvester Road Transfer Station at 10033 Sylvester Road, Dewdney, BC.[21] Recycling facilities are available at the transfer station. Waste deposited at the Sylvester Road facility is taken to the Mission Sanitary Landfill. Under the provisions of District of Mission Refuse Collection and Disposal Bylaw 1387-1984, residents of Hatzic Valley can also take their waste directly to the Mission Sanitary Landfill.

Illegal dumping of residential garbage, construction waste, stolen vehicles and other materials has been a problem in Hatzic Valley (and all other electoral areas). Dumping presents an environmental hazard and degrades the aesthetic and recreational experience of the area. FVRD has created an illegal dumping hotline (1-800-655-3867 or 1-800-655-DUMP) to receive and track reports of illegal dumping and dump sites. Reported information is logged and referred to the appropriate agency or organization for clean-up. The Hotline supports public outreach and tracks dumping activities and patterns over time to assist with prevention efforts.

This Official Community Plan contains policies to ensure reasonable access to disposal facilities, public input into any proposed facilities and to combat illegal dumping. These policies support the *FVRD Solid Waste Management Plan* which should be consulted for detailed guidance respecting waste management, composting, recycling and waste reduction.

It is the policy of the Regional Board that:

6.4.1 Reasonable access to recycling, composting and disposal facilities should be ensured.

6.4.2 The public shall be consulted on any proposed facilities.

6.4.3 Wastes should be reduced, recycled and reused to the greatest extent possible.

6.4.4 Improved public awareness of solid waste issues and programs, including the proper disposal of materials, will be promoted through education programs.

6.4.5 The Regional District will support citizen efforts to clean up dumped material and monitor for illegal dumping.

6.4.6 The Regional District will work with Provincial ministries, Royal Canadian Mounted Police, Insurance Corporation of BC, and other appropriate organizations to combat the dumping of stolen vehicles and solid waste.

[21] In 2007, 98 tonnes of waste was disposed and 34 tonnes recycled at the Sylvester Road Transfer Station. Forty-seven tonnes of waste was disposed and 20 tonnes recycled at the Harrison Mills Transfer Station.

6.5 Utilities & Communication Services

Residential electricity and telephone service are broadly available within the Plan area. Natural gas and cable television services may be available to portions of the Plan area; contact the utility company directly to determine service areas.

As of January, 2011, cellular phone and high speed internet services are only available to portions of Hatzic Valley, generally the northerly parts. Cellular phone service is important for the safety and convenience of those living or working in Hatzic Valley.
High speed internet access is vital to the social, economic and environmental health of the community and is highly desired by residents. Like most rural areas, the dispersed settlement pattern in Hatzic Valley presents inherent challenges for social, educational and economic interactions. Residents have limited transportation options, little in the way of public space, and few commercial services or cultural amenities. Internet access reduces these barriers and provides access to diverse communities, markets and educational opportunities. What is more, the internet will undoubtedly be a part of any strategy for rural sustainability, including efforts to reduce local greenhouse gas emissions as required under Provincial law.

It is the policy of the Regional Board that:

6.5.1 The Regional Board will advocate for the provision of high speed internet services and reliable cellular phone services to all of Hatzic Valley.

6.6 Fire Protection, Police & E911 Services

Structural Fire Protection

All private lands within the Plan area are within the North Fraser and Harrison Mills Fire Protection Local Service Area (see *Map 6 –Service Areas*). The area is served by volunteer fire fighters from North Fraser Fire Hall #3 located at 11980 Sylvester Road (Electoral Area "F"), North Fraser Fire Hall #2 located in Lake Errock (Electoral Area "C") and North Fraser Fire Hall #1 on Nicomen Island (Electoral Area "G"). Wildfires on undeveloped lands outside the fire protection service area are the responsibility of the Provincial Forest Service.

E911 Services

The Plan area receives ambulance, police and fire services through E-911 operations. Police services are provided by the Royal Canadian Mounted Police from the Mission Detachment. Ambulances are also dispatched from Mission. Response times for emergency services are consistent with rural areas.

Emergency Management

The Regional District is responsible for emergency planning and management within the Plan area. This involves coordinating responses to emergencies such as natural disasters and providing emergency social services to affected people. A dedicated group of local volunteers, coordinated by the FVRD, provide initial emergency response and social services

It is the policy of the Regional Board that:

6.6.1 The Regional Board encourages Neighbourhood Watch and Block Watch programs within the community.

6.6.2 The Regional Board should provide support to volunteer fire departments.

6.6.3 The quick response time and efficient service residents receive should be maintained.

6.6.4 Where feasible, new major developments should be serviced with fire hydrants for fire protection. Fire hydrants shall have the approved thread.

6.6.5 The Regional District will liaise with the Province regarding wildfire protection services.

6.7 School & Library Services

Schools

Hatzic Valley lies within Mission School District #75. There is one elementary school in the Plan area, Durieu Elementary at 11620 Seux Road. However, it will be closed in September, 2011. Elementary students in the plan area will relocated to Hatzic Elementary School at 8465 Draper Street, Mission, BC. There is also an elementary school southeast of the Plan area in Dewdney (Dewdney Elementary, 37151 Hawkins-Pickle Road) that also serves the Hatzic Valley community. Secondary students attend schools located in the District of Mission. School District #75 presently provides bus service to most of the Plan area. Home schooling support is available through the School District. The location of Durieu Elementary is shown on *Map 4 – Cultural Resources*.

In accordance with Division 10.1 of the Local Government Act and School District No. 75 School Site Acquisition Charge Bylaw 5-2008 (or as updated) the Regional District collects school site acquisition charges at the time of subdivision on behalf of the School District. The rate is determined by the School District.

Library

While there is no library within the Plan area, residents are served by Fraser Valley Regional Library branch in Mission at 33247 Second Avenue. Canadian National Institute for the Blind provides a shut-in library service for the visually impaired.

It is the policy of the Regional Board that:

6.7.1 The Regional Board will continue to consult with the School Board concerning developments in the Plan area which may impact school enrolment or the provision of school services.

6.7.2 The Regional District will continue to collect school site acquisition charges on behalf of Mission School District #75.

6.7.3 Library service should be maintained for those who are physically unable to make use of the local Branch facilities.

7.0 RECREATIONAL & CULTURAL RESOURCES

7.1 Regional Parks

Cascade Falls Regional Park is located at the east end of Ridgeview Road in the McConnell Creek area. The main feature of this 43 hectare park is a series of waterfalls on Cascade Creek. The Park includes parking facilities, picnic tables, trails, pit toilets, and a viewing platform. An unconnected portion of the park land adjacent to Stave Lake is inaccessible. It is currently undeveloped. A trail linking the two portions of the park would enhance opportunities for public use and enjoyment.

The *FVRD Regional Parks Plan* guides the development of regional parks and also identifies potential new parks and sites of interest. No potential parks are identified in Hatzic Valley, but Davis Lake is recognized as a site of potential interest requiring further study.

Cascade Falls Regional Park and other sites of interest are shown on *Schedule 3 – Parks*.

7.2 Community Parks & Recreational Resources

The need for community parks in the Plan area is moderated by the wealth of outdoor recreation opportunities in the rural landscape. What's more, it is a challenge to cost-effectively provide community park services to areas with small, dispersed populations. Accordingly, no community park facilities currently exist in Hatzic Valley. Nevertheless, the Regional Board may consider proposals for community parks that utilize existing facilities, involve partnerships, and engage residents in park development and maintenance. A playfield is available at Durieu Elementary School (shown on *Map 4 – Cultural Resources*) and Hatzic Valley residents may utilize public recreation facilities in the District of Mission on a 'fee for use' basis.

Sites of public access to Hatzic Lake and Hatzic Slough – which were secured by the Province as either road dedication or park when the Sheltered Cove (Sward Road), Mountain View and Riverside subdivisions were created in between 1959 and 1963 – may present opportunities for affordable community parks.[22] Section 303 of the Local Government Act entitles the Regional District to land dedicated to the public for the purpose of a park by a subdivision plan deposited in the Land Title Office. The acquisition of road allowances would have to be negotiated with the Ministry of Transportation & Infrastructure. The Regional Board may also acquire land for parks, or cash in-lieu of land for the purpose of future parkland acquisition, through the subdivision approval process.

Crown land adjacent to community areas is commonly used by residents for a range of activities, including hiking, nature appreciation, and gathering of forest foods such as mushrooms. Trails and recreational use areas on Crown land should be formally identified so that community interests can be addressed during the planning of resource activities.

[22] Two road dedications extending south from Sward Road provide public access to Hatzic Lake within the Sheltered Cove development. Presumably, these were established under (what is currently) Part 7 of the Land Title Act which sets out provisions for the maintenance of public access to water bodies at the time of subdivision. Lands adjacent to Hatzic Slough were dedicated for public park purposes, presumably under provision of park land section of the Local Government Act, when the Riverside and Mountain View subdivisions were created. See NWD Plans 20533 (Sheltered Cove), 23219 (Riverside) and 25535 (Mountain View).

A growing number of people use local roads for walking, cycling and related activities. The lack of adequate road shoulders and designated cycling lanes, combined with increased traffic, can make non-vehicular road users uncomfortable and potentially unsafe. Ideally, a network of pedestrian/cycle/equestrian routes should be identified and developed over time. Routes to community meeting spaces, school and commercial services would be a priority. Undeveloped road rights-of-way within the Plan, shown on Schedule 3, provide excellent opportunities for the development of a trail network. Park dedication or land acquisition may be necessary to connect trail segments.

The policies below: 1) assist the Board in considering park proposals and dedication of park land through subdivision; and, 2) advocate for the identification and formalization of existing recreational uses of Crown lands and roadways.

It is the policy of the Regional Board that:

7.2.1 Community park proposals involving the following may be considered by the Regional Board:

a. partnerships for funding and ongoing maintenance;

b. lands with unique natural features, distinctive landscape and outdoor recreation potential;

c. facilities for outdoor activities for youth; and,

d. existing community facilities and sites.

7.2.2 The Regional District may explore opportunities to develop community parks in partnership with School District #75 and community groups.

7.2.3 A network of roadside and off-road routes for pedestrian, cycle and equestrian use should be identified and developed over time with a priority on routes to community meeting spaces, school and commercial services. Residents and farmers should be consulted about any trail development so that potential conflicts and problems can be identified and addressed.

7.2.4 New subdivisions requiring the dedication of park land under Section 941 of the Local Government Act shall provide park land in an amount not less than five (5) percent of the land being subdivided or an equivalent value.

7.2.5 Priorities for the acquisition of park land are:

- lands or corridors that connect the isolated parts of Cascade Falls Regional Park or that increase the park area;
- lands or corridors necessary for the development of a local trail network; and,
- lands that provide access to water bodies with recreational values.

7.2.6 Notwithstanding Section 7.2.4, the Regional Board may consider accepting an area of land less than five (5) percent of the land being subdivided where improvements acceptable to the Regional Board have been made to provide for park facilities.

7.2.7 Where a developer wishes to dedicate an amount of park land in excess of five (5) percent of the land proposed for subdivision, the Board may consider a minor reduction in the minimum parcel size for subdivision, subject to the approval of the Responsible Authority, provided that the excess does not include lands that would otherwise be conserved through other means.

7.2.8 Notwithstanding Section 7.2.4, the Regional Board may elect to require cash-in-lieu of park land dedication pursuant to Section 941 of the Local Government Act.

7.2.9 Landscaping of any community park or trail should, as much as possible, involve the use of native plant species.

7.2.10 Trails and recreational use areas on Crown land should be formally identified so that community interests can be addressed during the planning of resource activities.

7.3 First Nations Cultural Resources

Hatzic Valley is within the traditional territory of the Stó:lō people, and particularly the Leq'á:mel First Nation and Kwantlen First Nation. The *Stó:lō Heritage Policy Manual* identifies a variety of First Nations heritage resources that are relevant to land use planning:

- Sxwôxwiyám Sites are evidence of the transformation, witnessed by Stó:lō ancestors, in which the world changed from a more chaotic, less fixed, state to a more orderly and circumscribed place where things are "right".[23] This transformation is evident in the landscape in places such as the nearby Hatzic Rock which figures in oral histories describing the transformations.
- Xá:Xa Sites are spiritually potent "taboo" places in the landscape, including questing places, sites associated with spiritual beings, spirited places and locations where cultural items are stored.
- Traditional Activities Sites are locations where cultural activities are, or were, carried out, including spiritual activities, food and medicine collection, resource extraction, settlement areas, travel and others.
- Material Culture Objects and Sites provide evidence of past activity.
- Ancestral Human Remains
- locations with Halkomelem place names

There are documented archaeological sites (or material culture sites) within the Plan area. Pre-contact cultural material was recorded at a location at the north end of Hatzic Lake.[24] In the *Stó:lō Coast Salish Historical Atlas*, this site is identified as a pre-contact village that housed 150 or more people.[25] Unfortunately, the archaeological material has been significantly damaged by

[23] Brian Thom. *Sxwoxwiyam Seyt te Xwelmexw (Central Coast Salish Transformation Stories): Connecting Humans and Non-humans through Kinship and Place*. September, 1997.

[24] Borden Number DhRn-6

[25] Keith Thor Carlson. The Numbers Game: Interpreting Historical Stó:lō Demographics. *A Stó:lō Coast Salish Historical Atlas*, Keith Thor Carlson, ed. Douglas & McIntyre: Vancouver, 2001.

development. In addition, there are a number of documented sites within the Stave Lake floodplain that are only accessible when the reservoir is drawn down.[26] These sites are probably associated with seasonal resource gathering and processing locations.[27]

Early township plans identify trails through the area presumed to be used by First Nations during the early settlement period to access the Steelhead upland and Stave River and also the north end of Hatzic Valley and beyond. Similar paths are indicated as "extrapolated travel routes" in the *Stó:lō Coast Salish Historical Atlas*.[28] These trails could be considered traditional activities sites. The *Atlas* also identifies a location in the upper Scorey Creek watershed as having a Halkomelem place name, Xelxe:yles, which means "writing on bluff".[29]

It is not known to FVRD whether other types of Stó:lō heritage resources may exist in the Plan area. Certainly, there is potential for undocumented archaeological sites and other heritage resources. Dialogue with First Nations is necessary to gain better understanding of the cultural resources that may be present.

Archaeological sites damaged by development, such as those at Hatzic Lake and Stave Lake, are not rare in British Columbia. Damage usually results from a lack of knowledge about archaeological sites and the legislation that protects them. Heritage sites and objects are protected under the Heritage Conservation Act which is administered by the Archaeology Branch of the Ministry of Tourism, Trade & Investment. Through this Act, the Province has primary responsibility for protecting and managing archaeology resources. The Stó:lō First Nations also have a central role. The policies of Stó:lō Nation respecting archaeological resources are laid out in the *Stó:lō Heritage Policy Manual*.

The Archaeology Branch and Stó:lō Nation will be able to provide landowners who have archaeological resources on their property with advice on how to proceed with development in a way that will avoid or minimize damage to archaeological and heritage resources. That advice may include a recommendation to engage a professional archaeologist to conduct an archaeological impact assessment. The Archaeology Branch should also be notified if an archaeological site is found on one's property. Landowners should be aware that it is an offence under the Heritage Conservation Act to remove heritage objects from archaeological sites.

It is the policy of the Regional Board that:

7.3.1 The Regional District will respect Stó:lō heritage sites and objects.

7.3.2 The Regional District should consider known and potential heritage and archaeological resources during land use planning processes.

7.3.3 The Regional District will welcome opportunities for dialogue and sharing knowledge of heritage.

[26] Border Numbers DhRn 9, DhRn-10, DhRn-11, DhRn-19, DhRn-31, DhRn-32

[27] Carlson, 2001.

[28] David M. Schaepe. Stó:lō Communications and Transportation Routes c. 1850. *A Stó:lō Coast Salish Historical Atlas*, Keith Thor Carlson, ed.. Douglas & McIntyre: Vancouver, 2001.

[29] Albert (Sonny) McHalsie. Halq'emeylem Place Names in Stó:lō Territory. *A Stó:lō Coast Salish Historical Atlas*, Keith Thor Carlson, ed.. Douglas & McIntyre: Vancouver, 2001.

7.3.4 The Regional District will liaise with Stó:lō First Nations and the Archaeology Branch to incorporate archaeological values into development review procedures.

7.3.5 Proposals for significant developments in areas of known or potential archaeological value should be made known to Stó:lō Nation and referred to the Archaeology Branch of the Ministry of Tourism, Trade & Investment for consideration under the Heritage Conservation Act.

7.3.6 The Regional Board may require an archaeological impact assessment for zoning and community plan amendment applications related to developments in areas of known or potential archaeological value.

7.3.7 As opportunities arise, the Regional District will liaise with Stó:lō First Nations regarding external funding opportunities to improve archaeological predictive mapping.

7.3.8 Any discovery of archaeological artefacts should be reported to the Archaeology Branch of the Ministry of Tourism, Trade & Investment, Stó:lō Nation and Leq'á:mel First Nation or others as appropriate.

7.3.9 Property owners proposing development in the area of a known or potential archaeological site should contact the Archaeology Branch of the Ministry of Tourism, Trade & Investment and Stó:lō Nation for advice and guidance on how to proceed in a way that will avoid or minimize damage to the archaeological site.

7.4 Rural Landscape Aesthetics

The 2009 *Community Planning Survey* indicates that maintenance of the rural landscape is important to the Hatzic Valley community.[30] The policies of this Plan attempt to maintain the rural landscape in a variety of ways. Perhaps most importantly, the density levels established herein are generally rural. The policies in this section suggest basic ways landowners can develop property in a way that maintains or improves landscape aesthetics. They also identify a few locations of significance to the local community.

It is the policy of the Regional Board that:

7.4.1 In order to preserve and enhance rural landscape aesthetics, landowners are encouraged to:

a. design buildings and structures that reflect the culture, history, and environment of the surrounding community;

b. utilize trees and plantings to define home sites;

[30] For more information about the 2009 *Community Planning Survey*, please see Section 1.4 of this Plan.

c. integrate utility building and structures into the surrounding landscape by planting buffers, preferably of native plant species, to reduce visual impacts; and,

d. restore riparian zones, preferably with the planting of appropriate native species;

7.4.2 The Regional Board recognizes the value to the local community of the following heritage and cultural resources:

- the 'big stump' located at the intersection of Sylvester Road and Farms Road which is a prominent local landmark;
- large bigleaf maple and fir trees near the intersection of Dale Road and Stave Lake Road;
- the rock outcropping on the east side of Stave Lake Road; and,
- stands of mature hemlock on Durieu Ridge.

It is noted that these resources are subject to natural processes of change and, in some cases, occur on private lands. They are not static.

8.0 HAZARD & RISK MANAGEMENT

The Local Government Act requires that official community plans contain statements and map designations respecting restrictions on the use of land that is subject to hazardous conditions.

Lands within Hatzic Valley are subject to a variety of hazards, including geological and mountain stream hazards associated with the slopes at the north of the Plan area; flooding from the Fraser River and Stave Lake; seismic slope instability and soil liquefaction caused by earthquakes; and, wild fires.

8.1 Geologic & Stream Hazards

Hatzic Valley has a long history of damaging landslides, floods and debris events. The topographic, geologic and meteorological circumstances of the valley result in natural instabilities and flood hazards. The valley contains steep slopes comprised of thick, unconsolidated colluvial soils that are readily erodible, particularly if exposed. Intense rain and rain-on-snow events trigger instabilities in these soils and generate damaging debris flows and landslides. Debris transported to low-gradient streams in the valley bottom accumulates and increases flooding and other problems.

Naturally occurring hazards have been significantly exacerbated by changes to the landscape made by humans. Forestry activities in the upper watersheds, particularly road building, have resulted in an increase in frequency and magnitude of landslides, debris events and sediment delivery to the valley bottom.[31] Landscape changes to facilitate farming of the valley bottom included widespread filling, channelizing, relocating, and berming of streams. These alterations had the effect, likely unintended, of reducing overall stream density and storage capacity; increasing and confining deposition and stream bed aggradation; and, increasing bank erosion.

Geologic and stream hazards in Hatzic Valley are complex and locations may be subject to multiple hazards. Accordingly, Fraser Valley Regional District commissioned Qcd Geotechnics to provide overview-level hazard mapping. This report, *Overview Geotechnical Hazard Assessment Report – Electoral Area F (Hatzic Valley), Fraser Valley Regional District*, provides an excellent synopsis and is the source for much of the general description that follows.[32]

[31] A variety of sources make connections between forestry activities and geohazards in Hatzic Valley. In a Ministry of Environment memo dated March 15, 1983, a Senior Hydrological Engineer in the Water Management Branch found that, "timber harvesting activities [in the Cascade Creek watershed]... have accelerated geomorphological processes in a sensitive, dynamic watershed, increasing the amount of bed load transported to the lower reaches and thus the frequency of flooding." Associated Engineering (1992) determined that, "the condition of the watershed (steep slopes) and the landslides, it appears that logging has significantly increased the production of sediment which has resulted in aggradation of the Pattison/Lagace Creeks." Denny Maynard & Associates (1995) states that, "there is little doubt that logging and low-quality road building have contributed to the recurrent, natural instability of the Pattison Creek headwalls." A 1997 report by the Chilliwack Forest District (*Hatzic Lake Watershed SBFEP Risk Assessment*) found that, "modifications caused by clear-cutting and road-building probably further destabilized the gullied slopes leading to a number of major landslides which have caused extensive sedimentation into the Hatzic Prairie lowland." Thurber Engineering (2004) observed that, "large debris flow and flood events on Carratt Creek appear to be correlated with landslides and wash outs on old forest roads and clear cuts at the head of the valley." According to BGC Engineering (2004), "most studies agree that forestry activities have likely increased the likelihood of landsliding and some studies have called for road deactivation. It was found that the increased sediment yield in streams can in part be attributed to logging-related landslides and that streambed aggradation has led to flooding problems in Lagace Creek." Qcd Geotechnics (2008) comments that, "in 2003, large debris flows originated in abandoned forest operational areas on Durieu Ridge." Additional sources could be cited.

[32] Qcd Geotechnics. *Final Overview Hazard Assessment Report – Electoral Area F (Hatzic Valley), Fraser Valley Regional District*. October 22, 2008. Those seeking a more thorough understanding should also consult: Associated Engineering. *Hatzic Prairie*

Steep mountain slopes on the east and west side of Hatzic Valley, and the streams that drain them, give rise to a variety of hazards including landslides, debris flows, debris floods, rock fall and flooding. Many of these are triggered by rain and rain-on-snow events in the fall and winter. The risk that an intense rain storm will trigger debris flows or landslides increases if the storm occurs at a time when soils have already been saturated from prior rain or snow melt. Put another way, if a major storm occurs at time when antecedent rainfall amounts are high, the risk of landslides increases. While slides have initiated in forested areas, many originate near forestry roads that have not been decommissioned or in clear cut areas.[33] Watershed management and restoration, including deactivation of old logging roads, would help to reduce risk of geohazards originating on mountain slopes and reduce risk on alluvial fans.

Alluvial fans form where streams issue from mountain slopes in Hatzic Valley. Locations on alluvial fans may be subject to flooding, stream avulsion, and debris flow/floods. Alluvial fans have been formed by streams on both sides of valley. A notable and particularly active fan complex exists on the east side where the Field, Carratt, Eng, McNab and Saporano Creek fans coalesce. Fraser Valley Regional District maintains a setback dyke on the north side of Cascade Creek (also an active system) to protect lands behind the dyke from flooding. Yet, in most cases costs associated with community flood and debris flow mitigation structures are prohibitive.[34] Careful management of development is required to limit the consequences of hazard events on alluvial fans.

Landslide areas in the Pattison Creek basin contribute large volumes of material to Lagace Creek and Hatzic Slough - the main stem that drains the watershed to Hatzic Lake. Deposition of this material in stream channels on the valley bottom increases erosion, flood and avulsion risks. Moreover, if not removed, it leads to stream bed aggradation and ultimately raises the bed of Lagace Creek / Hatzic Slough above those of tributary streams thus impeding drainage and causing widespread flooding of Hatzic Prairie. A responsible program of ongoing management of sediment in this system is required to reduce flooding and erosion; decrease risk of avulsion; and, minimize negative environmental impacts associated with sediment removal. There is longstanding community support for, and involvement in, channel maintenance works in Hatzic Valley.

Efforts to assess and manage geohazards in Hatzic Valley should take uncertainties associated with climate change into account. It is clear that the number of days per year with heavy precipitation has increased significantly over the past 50 years.[35] And, while there is considerable ambiguity about the implications of climate change for the future, models consistently project an increase in winter precipitation and a decrease in summer precipitation by 2050. For the Greater Vancouver area, winter precipitation is projected to increase by 10 to 30%.[36] What is more, the frequency of rainstorms large enough to initiate slope failures, and

Drainage Study. August, 1992. Denny Maynard & Associates. *Terrain Classification, Terrain Stability and Sediment Potential of the Durieu Ridge Map Area*. December, 1995. BGC Engineering. *Preliminary Debris Flow Hazard Assessment of Field, Carratt, Eng, McNab, and Dale Creeks, Hatzic Valley*. February 16, 2004.

[33] BGC Engineering, 2004.

[34] For example, see Thurber Engineering. *Hatzic Valley Debris Flow Containment Structures*. June 9, 2005.

[35] Pike, Spittlehouse, Bennett, Egginton, Tschaplinski, Murdock & Werner. Climate Change and Watershed Hydrology: Part 1 – Recent and Projected Changes in British Columbia. *Streamline*, v. 11(2). Spring, 2008.

[36] Taylor, E & Langlois, D. *Climate Change and the Greater Vancouver Regional District: Information to Assist the GVRD in Developing Appropriate Climate Change Adaptation Strategies for Long-Term Utility Planning*. Ottawa: Government of Canada. June 22, 2000. Also, Taylor, E & Langlois, D. *Climate Change and the Lower Fraser Valley*. Ottawa: Government of Canada. July 27, 2000.

thus the number of slope failures, is projected to increase.[37] In Howe Sound, for example, this corresponds to a projected 28% increase in debris flow occurrence.[38] On the other hand, it is important to keep in mind that changes in landslide frequency and magnitude as a consequence of climate change are speculative. Furthermore, possible increases in landslides due to climate change pale in comparison with changes in landslide activity caused by poor logging and forest road building practices.[39]

Policies regarding management of risk and hazards as they relate to forestry activities are provided in Section 11.1. Implications of flooding for agriculture are discussed in Section 4.4. FVRD's Floodplain Management Bylaw establishes flood construction elevations and setbacks that apply to streams outside of alluvial fan areas. Areas of potential or significant hazard, as well as locations of documented past events, identified in the Qcd Geotechnics report are shown on *Map 7 - Geologic & Stream Hazards* and included in Development Permit Area 1-F. The policies below complement DPA 1-F and the floodplain management bylaw to provide direction for hazard and risk management, land use planning, and the approval of development subject to geohazards.

It is the policy of the Regional Board that:

8.1.1 Reducing exposure to risk and minimizing the consequences of hazard events will be central concerns in land use planning decisions.

8.1.2 The Ministry of Environment *Flood Hazard Area Land Use Management Guidelines* should be considered by the Regional Board when developing land use policy and regulation for alluvial fan and flood-prone areas.[40]

8.1.3 The following principles should be applied to development approvals on lands subject to geologic and mountain stream hazards:

a. As a priority, development should be sited to avoid hazards. Where it is impossible or impractical to avoid a hazard, mitigation measures may be considered.

b. Proposed developments within the 200 year floodplain of a natural watercourse should be flood-proofed to a 1:200 year standard.

c. Where construction would be on land that is, or is likely to be, subject to hazards, a Building Inspector may require site-specific geotechnical or hydrological engineering reports prepared by a professional engineer or geoscientist to certify that the land may be used safely for the use intended.

[37] M. Miles & Associates LTD. *Effects of Climate Change on the Frequency of Slope Instabilities in the Georgia Basin, BC – Phase 1*. September, 2001. Pike, Spittlehouse, Bennett, Egginton, Tschaplinski, Murdock & Werner. Climate Change and Watershed Hydrology: Part 2 – Hydrologic Implications for British Columbia. *Streamline*, v. 11(2). Spring, 2008.

[38] Jakob, Matthias & Lambert, Steven. Climate Change Effects on Landslides along the Southwest Coast of British Columbia. *Geomorphology*, v. 107(3-4). June, 2009.

[39] Jakob, 2009. For a discussion of increased landslide frequency associated with forest practices, see Forest Practices Board. *Managing Landslide Risk from Forest Practices in British Columbia*. July, 2005.

[40] Ministry of Environment. *Flood Hazard Area Land Use Management Guidelines*. May, 2004. Or as updated.

d. The precautionary principle should be applied to development approvals in instances where there is both risk of serious or irreversible harm and significant scientific uncertainties.

8.1.4 Acceptable hazard thresholds for development approvals should be those set out in *Hazard Acceptability Thresholds for Development Approvals by Local Government*.[41]

8.1.5 Geotechnical studies submitted in support of development approvals should meet the requirements outlined in *Assistance to Developers and Building Permit Applicants Undertaking Geotechnical Studies* and, as applicable, *Guidelines for Legislated Landslide Assessments for Proposed Residential Development in British Columbia*.[42]

8.1.6 In circumstances where land is subject to geological hazards, the Regional Board may give special consideration to offset the constraints caused by geotechnical problems. These special considerations may include altering siting and subdivision policies through a Development Permit or Development Variance Permit in accordance with the results of a geotechnical study. These considerations may allow greater flexibility within a safe building area.

8.1.7 Property owners are advised that the following activities may exacerbate hazards and contribute to slope failure and should generally be avoided:

- placing fill, organic wastes, and debris along or below the crest of slopes;
- excavation on steep slopes or at the base of slopes;
- discharge of surface or ground water on or below the crest of slopes; and,
- cutting trees on or below the crests of slopes;

8.1.8 Sediment traps and clean-out basins should be established in the Pattison Creek–Lagace Creek–Hatzic Slough main stem to provide routine management of sediment and to reduce associated hazards. To this end, the Regional District should pursue funding and support from senior governments for capital and engineering costs associated with developing sediment traps. In addition, the Regional District should consider partnerships to reduce management costs and assist with debris trap maintenance and disposition of excavated material.

8.1.9 The Regional Board may consider accepting ownership and maintenance (via a service area) of hazard mitigation works that:

a. are designed by, and constructed under the supervision of, a qualified professional engineer, to standards acceptable to the Regional Board;

b. meet the requirements of applicable provincial and federal legislation;

[41] Regional District of Fraser Cheam. *Hazard Acceptability Thresholds for Development Approvals by Local Government*. November, 1993.

[42] Fraser Valley Regional District. *Assistance to Developers and Building Permit Applicants Undertaking Geotechnical Studies*. Association of Professional Engineers and Geoscientists of British Columbia. *Legislated Landslide Assessments for Proposed Residential Development in British Columbia*. May, 2008 (or as updated).

c. benefit a significant area;

d. are environmentally, economically and socially sustainable over the long term; and,

e. involve a predictable maintenance and cost profile.

8.1.10 The Regional District and the Hatzic Valley community support responsible efforts to maintain the conveyance capacity of stream channels within the Plan area.

8.1.11 As opportunities arise, stream channels should be returned to Crown ownership to facilitate environment management, particularly any hazard mitigation works that may be required in the future.

8.1.12 As opportunities arise, the Regional District should pursue funding for:

a. actions to mitigate debris flow hazards for streams on the eastern slopes of Hatzic Valley; and,

b. measures to stabilize landslide areas in the upper watershed of Pattison Creek.

8.1.13 The Regional District should consider the possibility of increases in the frequency of landslides and debris flows due to climate change when making decisions respecting land use and hazard policies.

8.1.14 Senior governments should implement a regional hydroclimactic threshold advance warning system to alert residents when conditions are present which significantly elevate the risk of debris flow initiation.

8.2 Major Floodplains & Flood Protection Infrastructure

In addition to many alluvial fan and mountain stream floodplains, portions of the Plan area are within the floodplains of Stave Lake and the Fraser River. Major floodplains and associated flood protection infrastructure are shown on *Map 2* and are subject to flood construction elevations and setbacks set out in FVRD's floodplain management bylaw.

Stave Lake Floodplain

The construction of the Stave Falls hydroelectric dam, completed in 1912 (with continued development to 1925), raised the level of Stave Lake by some 20 metres and continues to control the fluctuating reservoir level today. BC Hydro and the Ministry of Environment have defined the maximum controlled lake level, plus freeboard, as 83.3 metres geodetic. Lands adjacent to the lake at the north end of the Plan area are within the Stave Lake floodplain.

Fraser River Floodplain

The southern part of Hatzic Valley known as Hatzic Prairie is largely within the floodplain of the Fraser River. The floodplain covers about one third of the overall Plan area and extends to an elevation of about nine and a half metres geodetic.

A large (1:200 year) Fraser River flood could inundate these lands with water up to seven metres deep in low lying areas. In the last 120 years, Hatzic Prairie has been flooded by the Fraser several times. The first recorded major Fraser River flood was in 1882. After this flood, the trestle of the CPR tracks over Hatzic Slough was replaced with an embankment and flood boxes. However, the tracks proved insufficient to protect against river floods. In 1894, the embankment was wiped out by the largest Fraser River flood on record and the Prairie was again inundated. The 1882 and 1894 floods occurred prior to substantial development of the land and damage was minimal. The 1948 flood, while smaller than that of 1894, was the most destructive due to the extent of settlement on the Prairie.

Dewdney Dyke System

The Dewdney Dyke was substantially constructed by the Fraser Valley Dyking Board after the 1948 flood. It was later upgraded under the Fraser River Flood Control Program to meet the 1969 1:200 year design flood profile; further improvements occurred in 2007. The dyke now consists of a 12 kilometre standard dyke extending from Dyke Road (Mission) to Bell Road (EA "G") in the east, a floodbox at Hawkins Pickle Road and a pump station/floodbox at Hatzic Slough. It is owned and administered by the Dewdney Area Improvement District.

New hydraulic modelling of the lower Fraser River indicates that the 1:200 year flood profile is higher than originally estimated in 1969.[43] A "design" flood would overtop the Dewdney dyke in various locations.[44] Upgrades are again necessary in order to maintain protection against a 1:200 year design flood.

Moreover, a 2003 study of the Hatzic Pump Station by Golder Associates LTD concluded, "the hydraulic capacity of the pump station... is insufficient to drain Hatzic Slough during significant storm events. This results in widespread flooding and extended periods of high water in the slough and upstream, with detrimental effects on agriculture and other land uses."[45] Golder recommended upgrades to significantly increase pumping capacity. The Improvement District is currently investigating cost-effective upgrades.

While the probability of a major flood event remains consistent, the risk associated with an event increases as development increases in floodplain areas. Impacts of a flood include: damage to property, infrastructure and crops; contamination of wells and groundwater; and, widespread negative economic effects.

The consequences to Hatzic Valley of a major Fraser River flood would be great. Though the area has a relatively small population, the value of land and improvements within the floodplain is significant. In 2009, there were 224 Hatzic Valley properties entirely or partly in the Fraser River floodplain with over $23 million of improvements.[46] Gross farm receipts in Hatzic Valley are about $30 million annually.[47]

[43] Northwest Hydraulic Consultants. *Lower Fraser River Hydraulic Mode*l. December, 2006.

[44] Water Management Consultants. *Guidance on Emergency Response Levels*. June 17, 2009.

[45] Golder Associates LTD. *Hatzic Pump Station Upgrade Strategic Plan*. July 16, 2003.

[46] These figures are derived from data from BC Assessment and Fraser Valley Regional District. The total value of land and improvements is over $64 million.

[47] Statistics Canada. *2006 Census of Agriculture, Farm Data and Farm Operator Data*. 2006. The statistic is *Gross Farm Receipts* for all of FVRD Electoral Area F in 2005.

Although the dyke is ably administered by the Dewdney Area Improvement District, knowledge of the dyke is vital to the performance of Regional District responsibilities. Accordingly, the policies below are intended to:

- clarify the roles for the Regional District with respect to Fraser River flood hazards and infrastructure to be:
  - the management of development in the floodplain;
  - emergency management including preparedness and response; and,
  - advocacy and support for citizens;
- provide guidance for the management of development within the Fraser River floodplain;
- assist with emergency management, especially in the production of information necessary for effective emergency preparedness decision-making during emergencies; and,
- advocate for the interests of Hatzic Valley citizens and Dewdney Area Improvement District, particularly in matters that transcend jurisdictional boundaries.

It is the policy of the Regional Board that:

Management of Development

8.2.1 Minimizing exposure to flood risk and consequences of Fraser River flood events will be central concerns in land use planning decisions.

8.2.2 The Regional District will utilize floodplain management and zoning bylaws, official community plan policies and covenants to limit development within the floodplain and minimize exposure to risk.

8.2.3 The 1:200 year design flood will continue to be the basis for flood proofing measures.

8.2.4 The Regional District will continue to rely on dykes and associated flood protection infrastructure combined with secondary (on-site) flood-proofing measures including the implementation of flood construction levels, siting, and floodplain setbacks to minimize exposure to flood hazards.

8.2.5 The Ministry of Environment *Flood Hazard Area Land Use Management Guidelines*[48] will be considered by the Regional Board developing policies, bylaws and regulations for the Fraser River floodplain within the Plan area.

8.2.6 Floodplain management bylaws should reflect the most current Fraser River flood profile modelling.

Emergency Management

8.2.7 The Regional District should work with the Dewdney Area Improvement District on an ongoing basis to review and confirm flood level triggers for emergency response actions and communication protocols for reporting water levels and dyke conditions.

[48] Ministry of Environment. *Flood Hazard Area Land Use Management Guidelines*. May, 2004 (or as updated).

8.2.8 As opportunities arise, the Regional District will seek external funding to undertake a comprehensive quantitative flood risk assessment of the Fraser River floodplain within and adjacent to the Plan area to:

a. better understand flood scenarios, paths and profiles; economic loss and various flood stages; the duration of inundation; and,

b. inform and guide the responsible authorities in the major investment in dyke upgrades that are required.

Advocacy

8.2.9 The Dewdney Dyke should be upgraded based on the 1:200 design event described in the *Water Surface Profile* by Northwest Hydraulic Consultants (March, 2008) or more recent information as available.

8.2.10 Significant upgrades to flood protection works require major contributions from provincial and federal governments. Normally, senior governments should pay costs of capital improvements and the local community should pay costs for ongoing operation and maintenance.

8.2.11 The Hatzic Pump Station and floodboxes should be upgraded by the responsible authorities to improve pumping capacity. The Regional District should assist efforts to upgrade the Hatzic Pump Station by supporting the Dewdney Area Improvement District in making grant applications and liaising with government agencies and funding bodies.

8.3 Earthquake Hazards

Seismic slope stability and soil liquefaction hazards may require specific consideration in development approvals. The 2006 BC Building Code requires that the design of some buildings, notably buildings for assembly and institutional uses and buildings in excess of 600 m^2 in building area or exceeding three stories in height, address earthquake liquefaction hazards.

Ministerial Order M297 (December, 2009) amended Building Code provisions related to seismic slope stability. "With the new changes: 1) the consideration of potential for slope instability and its consequences at a building site becomes an explicit requirement in designs of structures and their foundations; and, 2) the seismic hazard probability level to be used in the consideration, particularly in assessment of seismic slope stability, is a 2%-in-50 year probability of exceedance."[49]

In ideal circumstances, government agencies commission geotechnical investigations to produce data or maps showing ground susceptibilities to seismic shaking and soil liquefaction. There are no such maps currently available for the Plan area. In some cases, specialized and expensive geotechnical drilling, ground water investigations and geotechnical analyses may be required to

[49] Province of British Columbia, Building and Safety Policy Branch. *BC Building Code Amendments Related to Seismic Slope Stability and Technical Guidance* (Bulletin No. B10-01). January 18, 2010.

evaluate soil liquefaction potentials for valley floor building sites and to a lesser degree for seismically induced landslides.

"Portions of the Cascade creek-Carratt Creek and the Pattison Creek-Hatzic Prairie Lowlands may be susceptible to seismic liquefaction. Durieu Upland ravine crests, ravine slopes and ravine foot slopes may be susceptible to seismic slope instability."[50] However, areas of liquefiable soils and seismic slope stability hazards must be defined by detailed geotechnical investigation. Furthermore, the risk to the area's flood protection infrastructure associated with earthquake activity must be assessed.

It is the policy of the Regional Board that:

8.3.1 Investigation and design of buildings on liquefiable sites should utilize, to the extent applicable, the best practices outlined in the Greater Vancouver Liquefaction Task Force Report, *Geotechnical Design Guidelines for Buildings on Liquefiable Sites in Accordance with NBC 2005 for Greater Vancouver Region* (May 8, 2007).

8.3.2 Geotechnical analytical techniques for evaluating seismic slope stability should follow any best practices developed or endorsed by the Association of Professional Engineers and Geoscientists of British Columbia.

8.3.3 Senior governments are encouraged to commission geotechnical investigations to produce data or maps of the Plan area showing ground susceptibilities to seismic shaking and soil liquefaction to assist with development approvals.

8.4 Interface Fire Hazards

The Wildland-Urban Interface is, "the area where structures and other human developments meet or intermingle with undeveloped wildland," or in more general terms, where houses or commercial development and fairly dense forest vegetation are both present.[51]

Wildland-Urban Interface zones are at particular risk of wildfire. Fire is a natural part of forest ecology, but occurrences in interface zones, as well as the consequences, are greatly increased by proximity to human activities. The consequences of interface fires can be great, including the loss of homes, business and even lives.

The Ministry of Natural Resource Operations Coastal Fire Centre has developed Wildland / Urban Interface Fire Hazard maps. Forest adjacent to private lands in the Plan area have received a high hazard rating. Interface Fire Hazards are mapped in *Map 8 - Interface Fire Hazards*. The risk of wildfires will increase if climate change results in reduced summer precipitation.

Suppression of structural fires within the North Fraser and Harrison Mills Fire Protection Local Service Area is the responsibility of the North Fraser Volunteer Fire Department. Suppression of

[50] Qcd Geotechnics, 2007.

[51] Susan Stewart, Volker Radeloff & Roger Hammer. Characteristics and Location of the Wildland-Urban Interface in the United States. Accessed April 28, 2010 at http://silvis.forest.wisc.edu/Publications/PDFs/Stewart_etal_2003.pdf

wildfire on Crown land is the responsibility of the Ministry of Natural Resource Operations Wildfire Management Branch.

Structure fires are usually ignited by spot-fires from burning brands, which can be wind-carried many kilometres from a wildfire. If caught quickly, small spot-fires can sometimes be extinguished with a pail of soapy water. However, the ability to protect structures from significant wildfires in rural areas is often limited by the availability of water. At least 10,000 gallons is typically desirable to protect each house after residents are evacuated.

It is the policy of the Regional Board that:

8.4.1 New subdivision development within areas of high wildfire hazard should be designed and constructed to minimize risk of interface fire hazards to people and property. Where warranted, the Regional Board may consider the establishment of a development permit area for this purpose.

8.4.2 Owners of land subject to wild fire hazard are encouraged to consider strategies to reduce the risk of damage from wildfire and to increase the ability to fight wildfire on the property, including:

a. building in accordance with the *BC Firesmart Homeowners Manual* which recommends the use of non-combustible materials and other building and fuel management techniques;[52]

b. utilizing fire resistant native plants in landscaping; and, apply "fire smart", "fire-scaping" and fuel management strategies;

c. installing a well, pump, low-flow-resistance piping, and full-flow yard hydrant system delivering at least 20 gallons per minute per house for sprinklers;

d. installing well pumps in an approved way that allows safe and convenient connection to a portable electrical generator to supply the pump in the event of power outage;

e. utilizing rain storage tanks or other means for producing or storing water for fire-fighting on-site;

f. providing barrels or other means of quickly filling buckets and adding dish soap for extinguishment of small spot fires; and

g. ensuring access to ponds, creeks, pools and other sources of water supply for fire protection.

8.4.3 Residents of Hatzic Valley, and visitors to it, should diligently observe Open Fire Bans initiated by the Province and practice of "fire smart" behaviour to reduce the risk of wildfire initiation.

[52] Ministry of Forests & Range, BC Forest Service. *The Homeowners Firesmart Manual, BC Edition*.

9.0 HABITAT

Hatzic Valley residents feel fortunate to live in a beautiful, productive and diverse environment that accommodates human activities and habitats for a variety of other species. The following sections provide a brief overview of the riparian and upland habitats of the Plan area, identify species of note, and outline policies for supporting biodiversity. Fish presence, wetlands, plant/wildlife observations, and other habitat information are shown at an overview level on *Map 9 – Habitat*.

9.1 Riparian Habitats

The sloughs, streams, remnant channels and wetlands of the Plan area provide habitat - often very good habitat - for a variety of species. Fish species include rainbow and cutthroat trout, stickleback, sculpin, lampreys, coho salmon, chum salmon and white sturgeon.[53] Salmon are keystone species and are central to the slough ecology; they directly support populations of key species such as eagle and heron and indirectly support many other species by providing nutrients to the system.

A variety of amphibians, including, Oregon spotted frog, Pacific tree frogs, rough-skinned newts, northwestern salamanders, tailed frogs, and others are expected to occur in lowland areas of Hatzic Valley. A Red-legged frog was documented in a tributary to Lagace Creek (near Seux Road) in 2006. The Red-legged frog and the Oregon spotted frog are listed as either *special concern* and *endangered* respectively by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

Otter, muskrat, cougars, bobcats, and beaver are other mammals utilizing riparian habitat within the Plan area. Pacific watershrew is a small mammal that inhabits riparian zones of mature Western red cedar and Western hemlock, with dense vegetation and woody debris. They are a very rare species that have been placed on the provincial Red List of extirpated, endangered or threatened species and have been designated threatened under the federal Species At Risk Act (SARA). There are documented occurrences of Pacific watershrew in Hatzic Prairie, and predictive mapping developed by the South Coast Conservation Program indicates that Pacific watershrew may be present in other lowland riparian zones of the Plan area.[54]

Hatzic Valley sloughs provide winter habitat for trumpeter swans and great blue heron. A provincially-significant great blue heron rookery exists on the east side of Hatzic Lake (just outside of the Plan area). The coastal great blue heron is on the provincial Blue List of vulnerable species and is considered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) to be Vulnerable. It is protected by federal legislation under the Migratory Bird Convention Act and Provincially under the Wildlife Act, as are bald eagles.

Bald eagles are expected to utilize the Plan area for feeding and potentially for wintering and nesting. Important bald eagle habitat includes: tall trees and snags, usually near water, that may be used as nesting sites as well as perching sites for resting, looking for food, and preening;

[53] Lakahahmen First Nation. *Environmental Youth Team Report*. 2001

[54] *South Coast Conservation Program Atlas*. Accessed at http://www.shim.bc.ca/atlases/sar/main.cfm on February 19, 2008.

feeding sites, both along riparian edges and agricultural fields; and stands of mature conifers on forested slopes that serve as night roosts.[55]

Oregon forestsnails are large land snails found primarily in the Fraser Valley. They occupy older mixed-wood and deciduous lowland forests, typically dominated by bigleaf maple, at elevations below 360 m. The Oregon forestsnail, designated *endangered* under SARA and red-listed by the Province, has been observed in Hatzic Prairie.

The Dun Skipper, "a dull-coloured butterfly with fast, erratic flight," is Provincially blue-listed and designated *threatened* under the SARA.[56] It may also be found within the Plan area in places with permanent springs or spring floods which maintain food plants.[57]

The red-listed northern water-meal and blue-listed Ussurian water-milfoil have been reported in Hatzic Slough. Rough bedstraw has been found on the east side of the valley.[58]

9.2 Upland Habitats

The mountain slopes on the east and west sides of the valley are heavily forested, generally steep, and have bedrock outcroppings. Forests are dominated by western hemlock, amabilis fir, and to a lesser extent western red cedar, and yellow cedar. Mountain hemlock is found in higher elevations. Douglas fir is a rare natural occurrence, but is found in areas that have been logged and replanted. Dominant shrub species include Alaskan blueberry and red huckleberry. High rainfall and mild temperatures predominate. Upper elevations fall within the Mountain Hemlock Zone which is characterized by heavy snowfall and a short growing season.

Choices for Our Future, the Regional Growth Strategy for the Fraser Valley Regional District, identifies the north shore slopes as Habitat Reservoir.[59] "Habitat Reservoirs are large tracts of natural or semi natural habitat that contain self-sustaining vegetation and wildlife populations. Reservoirs provide a population base that can help to sustain and add genetic diversity to plant and animal communities living in habitat fragments throughout urban or agricultural areas."[60]

Upland forests of the Plan area, to an elevation of about 450 metres, provide winter range on which ungulates, primarily black-tailed deer, from surrounding areas depend.[61] Other mammal species noted within the upland habitats of the area include black bear, cougar, lynx, coyote, red fox (now extremely rare), cottontail rabbit, snowshoe hare, and red and flying squirrels.[62]

[55] Demarchi, M.W., Bentley, M.D., 2005. *Best Management Practices for Raptor Conservation during Urban and Rural Land Development in British Columbia*. LGL Limited Environmental Research Associates, prepared for BC Ministry of Environment. March 31, 2005.

[56] Ministry of Environment, Lands & Parks. *Rare Butterflies of Southeast Vancouver Island and the Gulf Islands*. March, 1999. BC Environment. *Status of Five Butterflies and Skippers in British Columbia*. March, 2000.

[57] *South Coast Conservation Program Atlas*. Accessed at http://www.shim.bc.ca/atlases/sar/main.cfm on February 19, 2008.

[58] British Columbia Conservation Data Centre, 2005

[59] Fraser Valley Regional District. *Choices for Our Future: Regional Growth Strategy for the Fraser Valley Regional District*. 2004.

[60] Quadra Planning Consultants. *Environment and Ecological Working Paper, Part II: Potential Impacts of Growth on Environmental and Ecological Health in the FVRD*. February, 1999.

[61] Canada Lands Inventory. *Soil Capability for Ungulates*. 1971.

[62] Fisheries and Oceans Canada. *Nicomen Slough Watershed Overview (DRAFT)*. Unpublished.

9.3 Avoiding & Mitigating Impacts

The riparian and upland habitats of the Plan area are productive and biologically diverse. They are highly valued and stewarded by residents. Still, these habitats are subject to a variety of pressures and influences which could degrade them over time. Upland habitats are subject to impacts primarily from forestry and other resource activities. Impacts to riparian zones are from more diverse sources.

In 1997, Fisheries & Oceans Canada classified many streams of the lower Fraser Valley as *lost*, *endangered*, *threatened* or *wild* depending on factors such as amount of riparian vegetation, impermeable watershed area, water diversion, forestry activity, and urban development.[63] Eight streams in Hatzic Valley were classified as *endangered* and five *threatened*. Primary factors for these ratings include:

- significant loss of riparian vegetation along more than 50% of the fish-frequented length of the stream;
- channelization and dyking over 50% of the fish-frequented length;
- extensive logging and obvious forestry-related impacts; or,
- significant water quality problems.

While far from a definitive statement on any one stream, these classifications may indicate area-wide trends in stream health.

The productivity and diversity of riparian habitats may be affected by surrounding agricultural and rural residential land uses. Nutrients from sewage disposal systems and agricultural applications results in elevated nitrates and bacteria concentrations in surface waters. For example, prolonged dry weather in the summer allows accumulation of livestock fecal material on the land surface. Rainfall events after dry weather flush the accumulated fecal matter into watercourses. As a result, minor storm events in late summer and early autumn have resulted in documented contamination of surface water in Hatzic Valley.[64]

Increased flood flows have resulted in aggradation, erosion, and excessive sediment loading of local stream channels, degrading fish habitat throughout the system. Activities, such as the logging of hill side slopes, excavation and dyking of stream channels, channel encroachment, gravel removal, and removal of riparian vegetation are accelerating natural stream erosion and processes.

Anadromous fish populations in the watershed upstream of the Hatzic Pump Station are limited by the pump station. Out-migration of salmonid smolts from the Hatzic watershed often coincides with periods of higher water in the Fraser River when the floodgates are closed and drainage from the watershed relies on pumping. When the pumps are operating, fish must travel through them to get to the Fraser River. The propeller-style pumps at the Hatzic Station kill or damage fish as they pass through. A 1999 study commissioned by Fisheries & Oceans Canada

[63] Fisheries & Oceans Canada. *Wild, Threatened, Endangered and Lost Streams of the Lower Fraser Valley, Summary Report*. 1997.

[64] Jamie Ross. *Influence of Climate and Land Use on Nutrient and Bacterial Dynamics in Surface Waters of the Lower Fraser Valley, British Columbia*. UBC PhD Thesis. December, 2006.

concluded that, "of all the pump / fish migration conflicts that exist in the lower mainland, the one that exists at the Hatzic pumping station is likely the most pressing of all."[65]

Official Community Plans may include policies related to the preservation, protection, restoration and enhancement of the natural environment, its ecosystems, and its biological diversity.[66] However, the jurisdiction for environmental management falls on a variety of government agencies. The responsibility for stewardship is even broader. It extends in great part to individuals who live, work and play in Hatzic Valley.

Accordingly, this Plan approaches the avoidance and mitigation of environmental impacts in a variety of ways. Planned land uses and densities are shaped by environmental constraints. Riparian Areas Development Permit Area 2-F will protect fish and fish habitat and benefit amphibians, waterfowl, eagles and other species that rely on riparian habitat. Groundwater and stormwater are addressed in Section 10. Policies related to watershed protection, specifically from forestry-related impacts, are contained in *Section 11 – Resource Stewardship*. The policies below focus on the recognition and preservation of species-at-risk and biological diversity within the Plan area; cooperation and dialogue between responsible authorities; and, support for the efforts of community stewardship groups.

It is the policy of the Regional Board that:

9.3.1 New development should comply with the *Environmental Best Management Practices for Urban and Rural Development in British Columbia.*[67]

9.3.2 Applications for zoning and community plan amendments to facilitate new developments may be required to include an assessment report prepared by a qualified environmental consultant to:

a. generally identify species and habitats present;

b. assess development-related impacts;

c. identify appropriate best practices; and,

d. provide strategies to avoid, mitigate or minimize impacts to species and habitats.

9.3.3 Activities that generate loud noise, vibrations or other disturbances that may negatively affect the Hatzic heron colony should be avoided between mid-February and early August if possible.

9.3.4 If negative impacts to the Hatzic heron colony from human activities are documented, the Regional Board may consider whether formal protection measures should be enacted.

9.3.5 Wildlife trees or snags regularly used by herons or bald eagles as nesting, roosting, perching, and feeding sites should be left standing whenever it is safe to do so.

[65] Alan R Thomson & Associates. *Study of Flood Proofing Barriers in Lower Mainland Fish Bearing Streams*. May, 1999.

[66] Local Government Act (1996, c. 323), Section 878(d).

[67] Ministry of Water, Air & Land Protection. *Environmental Best Management Practices for the Development of Urban and Rural Land in British Columbia*. June, 2004 (or as updated).

9.3.6 Land owners are recommended to:

a. retain as much of the natural vegetation cover as possible when clearing land for housing or other forms of development.

b. where possible, avoid land clearing between April 1 and July 30 to avoid conflicts with activities of nesting birds, their nests, eggs and trees; and,

c. use native plant species for landscaping.

9.3.7 The Regional District encourages the stewardship initiatives of responsible community groups and will support them as resources permit, primarily through in-kind contributions.

9.3.8 The Responsible Authorities are encouraged to consider the upgrade of the Hatzic Pump Station to improve fish passage as a priority action for habitat restoration.

9.3.9 The Responsible Authorities are encouraged to address the lack of data about the habitat and species of the sloughs and wetlands of Hatzic Valley by undertaking biophysical inventories and identifying enhancement opportunities and priorities.

9.3.10 The Regional District should continue to interact with other government agencies, community groups and others to enhance the liveability of the area in cooperation with the natural environment.

9.3.11 As opportunities arise, stream channels should be returned to Crown ownership to facilitate environment management.

10.0 GROUND & SURFACE WATER

10.1 Groundwater

Groundwater is vital to both human and environmental health. In Hatzic Valley, groundwater is particularly critical as the majority of households rely on it for drinking water. There is a strong connection between human health and groundwater quality in the Plan area. What is more, stream water quality is often dependent on a supply of clean and cold groundwater. For example, Durieu, Belcharton, Oru and Seux Creeks are mostly fed by groundwater discharge.[68] Accordingly, groundwater also has a great effect on surface water quality and quantity and on overall environmental health.

Though localized issues exist, Hatzic Valley has abundant sources of high quality groundwater that are highly valued by local residents. The protection of drinking water was identified in the 2009 *Community Planning Survey* as the most important matter to address in the this Plan.[69] Hatzic Valley residents have expressed specific concerns about potential groundwater impacts from resource extraction, agriculture, sewage disposal, and other sources. Yet, perhaps most concerning to residents is the incomplete knowledge of local groundwater characteristics and the potential that inadequate knowledge could result in decisions that inadvertently degrade groundwater. This fear is compounded by uncertainties associated with climate change.

Aquifers of the Plan Area

The Plan area is situated over three distinct aquifers, as shown on *Map 10 - Aquifers*.

Cascade Aquifer

The Cascade Aquifer is an unconfined, three square kilometre sand and gravel aquifer at the north end of the Plan area. It is assumed to be recharged primarily from the Cascade-Carratt Creek drainage basins. Lands above the aquifer are mostly utilized for large-lot rural residential uses and, to a lesser extent, agricultural activities. Thirty percent of land above the aquifer is within the Agricultural Land Reserve. It has been suggested that groundwater in this area flows towards Stave Lake, rather than south to the Fraser River, but the direction of movement is unconfirmed.[70]

Under the Ministry of Environment's BC Aquifer Classification System[71], the Cascade Aquifer is considered to be a moderately developed, highly vulnerable aquifer (Class IIA).[72] Aquifers with high vulnerability have little natural protection against contaminants introduced at the

[68] Piteau Associates. *Review Comments Relating to Groundwater Supplies and Hydrogeological Impacts,* 1994, in Magwood (2004).

[69] Fraser Valley Regional District. *Electoral Area "F" Community Survey Results*. June, 2009.

[70] Simone Magwood. *Groundwater and Surface Water Management and Drinking Water Issues in the Hatzic Valley*. M.Sc. Thesis (UBC). April, 2004.

[71] Province of British Columbia, Ministry of Water, Land and Air Protection. *Guide to Using the BC Aquifer Classification Maps for the Protection and Management of Groundwater*. 2002.

[72] Province of British Columbia, Ministry of Environment. *Aquifer Classification Database*. https://a100.gov.bc.ca/pub/wells/public/common/aquifer_report.jsp. Accessed November, 2009.

ground surface and are therefore susceptible to contamination from land uses. The productivity of the aquifer is rated as moderate and demand is low.[73]

In 2009, there were 23 documented wells drawing from the Cascade aquifer and 16 known points of diversion from streams that recharge it. Well depths range from 12 to 38 metres, though most are less than 20 metres deep. The actual number of wells and surface water supplies is likely greater. There are 60 properties – typically large rural parcels - wholly or partly on top of the aquifer. About 30% of the land above the aquifer is within the Agricultural Land Reserve.

McConnell Aquifer

The McConnell Aquifer is a confined, largely sand and gravel aquifer that is roughly bordered in the north by the Cascade-Carratt alluvial fan, in the south by the moraine feature above Durieu Road and to the west and east by the valley sides. The aquifer sits on top of a confining layer of clay and silt that is up to 100 metres thick in places.[74] Several small, localized perched aquifers have been identified on the western edge of the valley. They consist of sandy lenses in the clay unit and are evidenced on the land surface by abundant ponds.[75]

Stave Lake and the streams draining the east side of the valley have been identified as likely recharge areas, but the source and location of groundwater recharge zones and the direction of groundwater flows have not been confirmed.[76] Similarities in the chemical properties of groundwater in the McConnell and Hatzic Prairie Aquifers indicate that the McConnell Aquifer supplies Hatzic Prairie.[77] The aquifers appear to be interconnected.[78] Yet, it has been suggested that there is a groundwater divide in the valley and that portions of the McConnell Aquifer flow north to Stave Lake.[79]

There are 296 private land parcels wholly or partly above the McConnell Aquifer (in 2009). These lands are mostly put to large-lot rural residential uses and many parcels remain partly forested.[80] The mean parcel area on the aquifer is 5.8 hectares. About 18% of all properties are one hectare in area or less; only 7% are 0.5 hectares or less. About three quarters of the lands are within the Agriculture Land Reserve, but agricultural uses generally remain at fairly low densities.

In 2009, there were 115 documented wells drawing from the McConnell Aquifer and 71 known points of diversion from streams that recharge it. The actual number of wells and surface water supplies is likely greater. Well depths range from 1.5 to 110 metres, though most are between 38 and 58 metres deep and the mean depth is 36.5 metres. The McConnell Aquifer is known to

[73] Province of British Columbia. *Aquifer Classification Database*.

[74] Province of British Columbia. *Fraser Valley Groundwater Monitoring Program – Final Report*. October, 1995.

[75] Piteau Associates. *Review Comments Relating to Groundwater Supplies and Hydrogeological Impacts,* 1994, in Magwood (2004).

[76] Magwood, 2004.

[77] Magwood, 2004.

[78] Berardinucci, Julia F.. *Local Groundwater Management for British Columbia: Linking Data to Protection Practices*. MSc Thesis (UBC), March 1997.

[79] Pacific Hydrology Consultants. *Hydrogeological Impact Evaluation Concerning the Relocation of the Quarry at 13361 Stave Lake Road in Mission, BC (update),* 2003, in Magwood (2004).

[80] 2004 orthophotos indicate a substantial forest cover. Magwood (2004) estimated forest cover at almost 74%.

produce artesian wells in the Durieu Road area that require special management during well construction. The top of the aquifer is estimated at 35 to 50 metres below the ground surface.[81]

Under the Ministry of Environment's BC Aquifer Classification System[82], the McConnell Aquifer is considered to be a lightly developed, low vulnerability aquifer (Class IIIC).[83] The McConnell Aquifer receives a low vulnerability rating because it is confined above by clays which are expected to reduce susceptibility to contaminants originating at the ground surface.[84] However, activities that introduce contaminants to a recharge area of a confined aquifer in a rural setting can render that aquifer as likely to become contaminated as an unconfined aquifer in a densely populated area.[85] For a confined aquifer, the rate of water flow and the location of land use relative to recharge areas have a significant influence on contamination potential. The productivity of the aquifer is rated as moderate and demand is low.[86]

Hatzic Prairie Aquifer

The Hatzic Prairie Aquifer is shallow and unconfined. It is comprised of Fraser River Sediments and Salish Sediments.[87] It is roughly bounded by Durieu Creek at the north end, Hatzic Lake at the south and the mountain slopes to the east and west. Flow from the McConnell Aquifer is a likely recharge source for the Hatzic Prairie Aquifer, as are the many streams that drain the slopes to the east and west. However, the source and location of groundwater recharge zones and the direction of groundwater flows have not been confirmed.

There are 314 properties wholly or partly above the Hatzic Prairie Aquifer (in 2009). The mean size of properties on the aquifer is 4.9 hectares. About 45% of all properties are one hectare in area or less; 40% are 0.5 hectares or less. Almost all of the land above the aquifer is within the Agricultural Land Reserve and the primary land uses are agricultural. Relatively little forest cover remains.

In 2009, there were 32 documented wells drawing from the Hatzic Prairie Aquifer and 66 known points of diversion from streams that recharge it. Well depths range from 1.8 to 23 metres, though most are between 7.5 and 15 metres deep. The mean depth is 23.5 metres. The actual number of wells and surface water supplies is likely greater. Many water sources in Hatzic Prairie may be unreported due to their age. Hatzic Prairie residents utilize surface sources more commonly than their neighbours due to iron concentrations in the groundwater.

The Ministry of Environment has assessed the Hatzic Prairie Aquifer as lightly developed and highly vulnerable to contamination from surface sources because of its unconfined nature and shallow water table (Class IIIA).[88] The depth to the water table is generally less than 10 metres from the ground surface.[89]

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[81] Magwood, 2004.

[82] Province of British Columbia, Ministry of Water, Land and Air Protection. *Guide to Using the BC Aquifer Classification Maps for the Protection and Management of Groundwater*. 2002.

[83] Province of British Columbia, Ministry of Environment. *Aquifer Classification Database*. https://a100.gov.bc.ca/pub/wells/public/common/aquifer_report.jsp. Accessed November, 2009.

[84] Province of British Columbia. *Fraser Valley Groundwater Monitoring Program – Final Report*. October, 1995.

[85] Berardinucci, 1997.

[86] Province of British Columbia. *Aquifer Classification Database*.

[87] Province of British Columbia. *Fraser Valley Groundwater Monitoring Program – Final Report*. October, 1995.

[88] Province of British Columbia, Ministry of Environment. *Aquifer Classification Database*. https://a100.gov.bc.ca/pub/wells/public/common/aquifer_report.jsp. Accessed November, 2009.

[89] Province of British Columbia. *Fraser Valley Groundwater Monitoring Program – Final Report*. October, 1995.

The characteristics of the three main aquifers within the Plan area are summarized in Table 10-1.

TABLE 10-1
Aquifer Characteristics (2009)

	Cascade	McConnell	Hatzic Prairie
Characteristics			
Aquifer Number	889	25	14
Aquifer Area	3.038 km^2	13.09 km^2	9.84 km^2
Vulnerability	High	Low	High
Productivity	Moderate	Moderate	Moderate
Demand	Low	Low	Low
Aquifer Classification	IIA	IIIC	IIIA
Watershed Area Draining to Aquifer (approx)	2600 ha	3100 ha	3700 ha
Depth to Water (top of aquifer) from Ground Surface	12-20 m	35-50 m	< 10 m
Water Supplies			
Wells (known)	23	115	32
Mean Depth of Wells	19.5 m	36.5 m	23.5 m
Range of Well Depths	12 – 38 m	1.5 – 110 m	1.8 – 23 m
Points of Diversion (known)	16	71	66
Land Use			
No. Private Parcels wholly or partly on the Aquifer	60	296	314
Mean Parcel Size	7.3 ha	5.8 ha	4.9 ha
No. Parcels 1.0 ha or less	5 (8%)	53 (18%)	141 (45%)
No. Parcels 0.5 ha or less	2 (3%)	22 (7%)	125 (40%)
% within ALR	30%	75%	99%

Groundwater Quality

Groundwater quality in Hatzic Valley is generally very good and, on the whole, residents appear to be satisfied with their on-site water supplies.[90] Residents' knowledge of their water supplies is a valuable source of information for community planning. Yet, local water users may base perceptions of water quality on mineral content and aesthetic indicators alone and are unlikely to be aware of less obvious, but potentially more harmful, forms of contamination such as nitrates unless regular testing is done.[91] The 2009 Community Planning Survey suggests that many residents do not routinely have their water tested.[92]

Much of the science-based information we have about groundwater quality in Hatzic Valley comes from the 2004 study by Simone Magwood. The following sections rely heavily on her valuable work. The Magwood study confirmed that overall groundwater quality is good and that groundwater has not been highly impacted by human activity. However, it did reveal isolated instances of contamination in groundwater wells and aesthetic concerns related to mineral concentrations.

[90] Fraser Valley Regional District. *Electoral Area "F" Community Survey Results*. June, 2009. Only 3% of respondents were dissatisfied with their water supply. Where concerns were noted, most related to aesthetic problems with mineral concentrations.

[91] Magwood, 2004.

[92] Fraser Valley Regional District. *Electoral Area "F" Community Survey Results*. June, 2009. 40% of respondents had not had their water tested 'recently'.

Nitrates and Coliforms

Magwood's study identified isolated incidences of elevated nitrates in two very shallow wells in the Plan area.[93] Total Coliforms higher than the national drinking water standards were found in one well on the Hatzic Prairie Aquifer and one on the McConnell Aquifer. In both cases, the wells were very shallow (less than 12 metres) and located in areas with livestock close by.[94] The presence of Total Coliforms does not necessarily indicate recent water contamination by fecal waste, but, like nitrates, they often result from land use-related contamination (i.e. agricultural run-off).

Elevated nitrate levels indicate that the groundwater is being influenced by activities at the land surface. Nitrate is usually introduced into groundwater through leaching of chemical fertilizers, leaching of animal manure, or pollution from sewage disposal systems.[95] Nitrate is considered relatively non-toxic. Still, a high nitrate concentration in drinking water is a health concern because it can harm infants by reducing the ability of blood to transport oxygen.[96]

Water with elevated nitrates and coliforms can be treated, but problems may be prevented by avoiding contaminants around wells, avoiding reliance on shallow wells, locating wells appropriately, and protecting the well head area.

Arsenic

Concentrations of arsenic exceeding the Canadian Drinking Water Quality Guidelines have been found in a small number of wells drilled into bedrock on the lower slopes of Durieu Ridge.[97] Arsenic in groundwater is caused by processes of weathering of arsenic-bearing minerals and ores in bedrock. Arsenic in drinking water can have serious short and long-term health effects. Chronic exposure in drinking water can lead to skin cancer, and cancers of the lung, liver and bladder.[98]

Iron and Manganese

Iron has been a well known issue for wells in the Hatzic Prairie Aquifer. Recent research has determined that all three aquifers in the Plan area are prone to high iron and manganese levels. In 2004, Magwood found wells throughout the Valley that yielded samples exceeding the aesthetic objectives of the Canadian Drinking Water Quality guidelines for iron and manganese.[99] Iron and manganese levels are generally related to the soils through which water flows and not to human influences. While not generally a health hazard, water with high concentrations of iron or manganese may cause staining; give water an unpleasant appearance and taste; collect and block pipes or fixtures; and, increase the growth of unwanted bacteria.[100]

Low pH

[93] Magwood, 2004.

[94] Magwood, 2004. 75 wells were tested in this study.

[95] Province of British Columbia. *Water Stewardship Information Series, Nitrate in Groundwater*. February, 2007.

[96] Province of British Columbia. *Water Stewardship Information Series, Nitrate in Groundwater*. February, 2007.

[97] Fraser Valley Regional District. Subdivision Files. Accessed November, 2009.

[98] Fraser Health Authority. *Health Information on Arsenic*. June, 2006.

[99] Magwood, 2004. Of 75 wells tested in this study, 8 exceeded Canadian Drinking Water Quality Guidelines for iron and 10 exceeded the guidelines for manganese. Exceedances were found in each aquifer.

[100] Province of British Columbia. *Water Stewardship Information Series, Iron and Manganese in Groundwater*. September, 2007.

Approximately 60% of samples taken by Magwood in 2004 had pH below the Canadian Drinking Water Quality Guideline of pH 6.5. The low pH is likely due to the granitic bedrock found in the area.[101] Mildly acidic water is not a health concern, but it can corrode metal pipes and leach minerals from soils leading to higher concentrations of metals in water.

Sodium

Exceptionally deep wells in the Plan area may draw from a deep, regional saline aquifer which underlies local aquifers.[102] Magwood (2004) identified two wells with sodium concentrations above the Canadian Drinking Water Quality Guidelines. Two others had elevated sodium levels.[103] The source of sodium is likely naturally occurring brackish water in this deep regional aquifer. Sodium is not considered harmful at normal levels of intake, but increased intake in drinking water may be problematic for people required to follow a low sodium diet.[104]

Groundwater Quantity

Though localized problems may exist from time to time, groundwater quantity doesn't appear to be a problem at current levels of development. However, groundwater characteristics are not well known and there is currently no mechanism to ensure that the resource is not over exploited. Moreover, uncertainties associated with climate change and hydrological affects of resource uses are a source of concern in the community. FVRD supports water conservation measures through the *Electoral Areas Water Conservation Program*.

Risks to Groundwater

Agricultural Activities

Agricultural activities in Hatzic Valley have traditionally been less intensive than elsewhere in the Fraser Valley and, to date, there is no evidence of widespread impacts to groundwater. Instances of nitrate contamination in groundwater supplies have been minor and isolated. On the other hand, evidence of surface water contamination from agricultural operations exists. A 2006 doctoral thesis by Jamie Ross found a strong positive correlation between the amount of area under agriculture and surface water quality impairment in Hatzic Valley. [105] He found that sites in close proximity to livestock operations consistently produced the highest nutrient and bacterial concentrations in streams.

It is anticipated that agricultural uses will intensify in the coming years as the supply of available farm land in the Region diminishes.[106] In other parts of the Fraser Valley, agricultural activities have resulted in an increase in bacterial, nutrient, and pesticide levels and possibly sterol levels,

[101] Magwood, 2004.

[102] Province of British Columbia. *Fraser Valley Groundwater Monitoring Program – Final Report*. October, 1995.

[103] Magwood, 2004.

[104] Province of British Columbia. *Water Stewardship Information Series, Sodium in Groundwater.* February, 2007.

[105] Jamie Ross. *Influence of Climate and Land Use on Nutrient and Bacterial Dynamics in Surface Waters of the Lower Fraser Valley, British Columbia*. PhD Thesis (UBC). December, 2006. This thesis involved an intensive surface water sampling program to assess nutrient and bacterial dynamics in Hatzic Valley and three other agricultural watersheds in the Fraser Valley.

[106] Kim Sutherland (BC Ministry of Agriculture and Lands). *Agriculture in Electoral Area "F" in the Context of the Fraser Valley*. Presentation to the Electoral Area "F" Advisory Planning Commission. September 24, 2009.

particularly in shallow wells.[107] Generally, the Fraser Valley is experiencing an increasing supply of nutrients - nitrogen, phosphorus, and potassium found in animal manure, fertilizer and feed - due to intensive animal husbandry and the switch to lower nitrogen uptake crops such as forage. As agricultural uses intensify, best management practices will become particularly important to minimize risk of groundwater contamination.

Sewage Disposal

In the Plan area, sewage is infiltrated into the ground by dispersal fields. Where development has been planned or has been limited by the Agricultural Land Reserve, the density of sewage disposal fields is expected to be within sustainable limits and the risk of groundwater contamination is low. Where unplanned development with on-site services approaches urban densities, the risk of groundwater contamination is significantly increased. Areas of Hatzic Prairie with small lot development and on-site sewage disposal fields are of concern. The localized but high density of disposal fields combined with high water table and the age of the disposal systems make these systems likely sources of contaminants to groundwater.

Resource Extraction

Hatzic Valley residents have repeatedly expressed concerns that forestry activities and aggregate extraction could negatively impact groundwater. The effects of aggregate quarries on groundwater are not well documented, but a review of source water protection issues in the Ontario aggregate industry identified the following potential issues:

- removal of material reduces the amount of filtering material above a groundwater source;
- exposing the water table, allowing for easier introduction/migration of surface pollutants;
- potential loss of water quantity
- risk of importation of contaminated or deleterious fill to rehabilitate closed sites;
- activities within an existing extraction site which may introduce potential risk to source water.[108]

Local residents are also concerned that blasting at quarries may result in alterations of groundwater chemistry, changes in groundwater flows, and increased turbidity.[109] These concerns are shared by other rural communities in the Region. Potential impacts of forestry activities on groundwater have also been a concern for residents. There is no data for Hatzic Valley to support a conclusion that forestry is affecting groundwater. However, some studies have found that the water table can be expected to rise following forest harvesting and, in some places, elevated levels persisted for years. [110] In wet, steep watersheds, shallow groundwater flow is likely to increase following clear cut logging and potentially result in increased runoff and decreased slope stability.

Section 11 of this Plan provides more detailed discussion and policies related to resource uses.

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[107] Environment Canada. *Nutrients, Metals, Bacteria and Organic Compounds in the Lower Fraser Valley, British Columbia*. March, 2004.

[108] Province of Ontario, Ministry of Natural Resources. *Applied Research on Source Water Protection Issues in the Aggregate Industry Phase 1 Findings*. November, 2006.

[109] Berardinucci, 1997.

[110] Brian Smerdon, Todd Redding and Jos Beckers. An Overview of the Effects of Forest Management on Groundwater Hydrology. *BC Journal of Ecosystems and Management*, 10(1), 2009.

Other Risks

Other potential risks to groundwater in Hatzic Valley include hydrocarbon contamination from underground tanks, contamination from surface water due to flooding, and lower seasonal water tables due to reduced summer precipitation associated with climate change.

In much of Hatzic Valley, groundwater quality is exceptional and will increase in value as other aquifers in the Lower Fraser Valley face the growing problem of contamination.[111] Accordingly, Plan policies are aimed at protecting groundwater. They focus on education and awareness of groundwater within the Plan area, resource stewardship by property owners, and consideration of groundwater impacts in development approval processes.

It is the policy of the Regional Board that:

10.1.1 The potential for negative impacts to groundwater and soil from ground-based disposal of sewage will be a primary consideration in land use planning.

10.1.2 Activities or developments that may result in potentially significant inputs to groundwater or significant groundwater withdraws, or which could otherwise have negative effects on the groundwater system, will require hydrological assessment to identify and mitigate impacts.

10.1.3 A comprehensive groundwater protection plan should be developed for the aquifers of Hatzic Valley. The plan should provide for concurrent management of Hatzic Prairie aquifers

10.1.4 The Responsible Authorities are encouraged to systematically map, test and monitor groundwater in the Plan area to acquire a more comprehensive knowledge of Hatzic Valley aquifers. Data collection should initially focus on identifying recharge areas for the McConnell Aquifer.

10.1.5 The Regional District will participate in the efforts of senior governments, community groups and industry representatives to collect data and develop strategies to protect groundwater for the long term.

10.1.6 The Regional Board will encourage responsible stewardship of the groundwater resources, including:

a. agricultural practices that minimize the potential for groundwater impacts; and,

b. efforts to educate Hatzic Valley residents and landowners about the groundwater resource.

10.1.7 The Regional District will support the conservation of groundwater as outlined in the Electoral Area Water Conservation Program.

[111] Berardinucci, 1997.

10.1.8 All property owners utilizing a groundwater-based potable water supply, and especially those with wells less than twelve metres deep, are recommended to have drinking water tested regularly. Unused wells should be promptly deactivated or closed in accordance with the *Groundwater Protection Regulation* of the Water Act.

10.1.9 The Regional District will work in partnership with provincial authorities and the Hatzic Valley farming community to identify agricultural practices that minimize potential for groundwater contamination while supporting viable farm operations.

10.2 Stormwater

Stormwater is created when land alterations change the pre-existing water balance. When vegetation and soils are replaced with roads and buildings, less rainfall infiltrates into the ground, less is taken up by vegetation, and more becomes surface runoff.[112] Rural development, particularly the construction of impervious surfaces and land clearing, may increase stormwater flows and negatively impact streams, groundwater reservoirs and down-slope properties.

Even relatively low levels of impervious cover can produce significant and often irreversible impacts on streams and aquatic resources.[113] Stormwater begins to have a negative impact on streams when the amount of impervious surface in a watershed equals as little as ten percent of the watershed area.[114] Parcel size is also an important indicator. Most residential developments of densities greater than one parcel per hectare will exceed 10% impervious area and alter drainage regimes.[115]

As a result, best management practices are needed at densities greater than one parcel per hectare, and where impervious cover may exceed 10% of the watershed area, to avoid:

- damage to aquatic environments;
- public expense for unplanned infrastructure; and,
- possible flood damage associated with increased runoff.

The policies below outline expectations for stormwater management in new developments and encourage landowners to develop and manage existing properties with stormwater in mind. Together with the other policies of this Plan, they respond to the need for stormwater management in Hatzic Valley.

It is the policy of the Regional Board that:

10.2.1 Post-development stormwater flows should maintain natural flow patterns and water quality of receiving waters.

[112] Ministry of Land, Water & Air Protection. *Stormwater Planning: A Guidebook for British Columbia*. May, 2002.

[113] Center for Watershed Protection. *Site Planning for Urban Stream Protection*. 1995.

[114] This is a generally accepted threshold. For a British Columbia source, see: Ministry of Land, Water & Air Protection. *Stormwater Planning: A Guidebook for British Columbia*. May, 2002. A Washington State example is: Derek Booth. *Forest Cover, Impervious-Surface Area, and the Mitigation of Urbanization Impacts in King County, Washington*. September, 2000.

[115] Ministry of Land, Water & Air Protection. *Stormwater Planning: A Guidebook for British Columbia*. May, 2002.

10.2.2 Foundation, roof drainage and other surface drainage should be disposed of on-site, returned to ground, and not be connected to collector systems for roads. The use of bio-swales, ponds, French drains, rain barrels, and other means of detaining and infiltrating stormwater on-site are encouraged.

10.2.3 Applications for zoning and community plan amendments to facilitate new developments at densities of one parcel per hectare or greater, or for commercial developments, mobile home parks, campgrounds and similar developments, should include a stormwater management plan prepared by a professional engineer to:

a. ensure post-development storm water flow volumes will not exceed pre-development flow volumes in receiving waters;

b. maintain, to the extent possible, predevelopment flow patterns and velocities;

c. provide conveyance routes for major storms;

d. demonstrate the use of best practices;

e. certify that water quality of receiving surface and ground waters will not be negatively affected by stormwater surface run-off during and post development; and,

f. certify, where applicable, that there will be no negative effect on neighbouring properties.

10.2.4 Stormwater management plans should design for:

a. rainfall capture for minor storms (a 10 year return period rainstorm);

b. runoff control for major storms (a 100 year return period rainstorm); and,

c. where appropriate, flood risk management for extreme events and peak flow conveyance.

10.2.5 Where appropriate, mountain side subdivisions and large commercial developments should be placed within a development permit area to ensure that best management practices for stormwater are identified and implemented.

10.2.6 Owners of non-agricultural mountain side properties are encouraged to retain at least 65% of the forest cover or native vegetation on their property to reduce stormwater runoff and maintain hydrological processes.

10.2.7 Where possible, landowners are encouraged to limit impervious surfaces - which include buildings, pavement and any surface through which water cannot pass - to 10% of the total property area. The use of aggregate, porous pavement, pavers, and similar materials is encouraged for driveways, patios and other surfaces that are often constructed of impervious materials.

11.0 RESOURCE STEWARDSHIP

11.1 Forestry

The forested slopes bordering Hatzic Valley (excluding private lands on the lower sections) are a part of the Fraser Timber Supply Area and within the Douglas Provincial Forest. They are designated as ”working forest” by the Province and are subject to a range of forestry activities; residents should expect forestry uses in these mountain watersheds to continue.

Forestry has been culturally and economically important to Hatzic Valley communities since their inception. Today, forestry provides rural communities with recreational access to Crown lands, local job opportunities, and general economic and social benefits. The continued presence of forestry in Hatzic Valley will support the rural character and lifestyle as well as outdoor recreation opportunities greatly valued by residents. In fact, many of the values identified in the Plan are shared with landscape and stand-level forestry strategies and objectives established in the Forest and Range Practices Act.

On the other hand, forestry and other activities in upper watersheds influence geologic, stream and fire hazards; water quality and quantity; landscape aesthetics; ecological integrity; and the general quality of life for rural residents. Problems with landslides, sedimentation transport, and debris flows/floods have been particularly acute in the Hatzic Valley and will limit forestry activities.

Watersheds Draining to Stave Lake

According to a 1983 study by the Province of BC, the geomorphology of the Cascade Creek watershed is such that even under natural forested conditions and with normal storm flow events, relatively large amounts of bed load and suspended sediment are transported to the low gradient reaches where deposition occurs.[116] However, human activities in the watershed - logging, road building, and transmission line construction - have increased the rate of erosion, debris movement and the frequency of flooding. Consequently, the associated risk to people and properties on alluvial fans is also increased. A report by the Ministry of Environment states that timber harvesting activities have accelerated geomorphological processes in a sensitive, dynamic [Cascade Creek] watershed, increasing the amount of bed load transported to the lower reaches and thus the frequency of flooding.[117] Flooding, avulsion, debris flow and debris flood events, exacerbated by logging, have necessitated the construction of a protective dike on Cascade, protective berms on Carratt Creek and significant public expenditures on ongoing channel maintenance to reduce risks to people and property.

[116] Province of British Columbia, Ministry of Environment. *Dewdney-Alouette Regional District Cascade- Carratt Creek Flood Control Outline Report*. March, 1983.

[117] Province of British Columbia, Ministry of Environment. *Memorandum Re: Cascade Creek near Mission Logging Impact*. March 25, 1983.

Watersheds Draining to Hatzic Lake

There is a long history of landslides, debris flows and flooding in basins draining to Hatzic Prairie in which forestry is a contributing factor.[118] The most recent major event occurred in 2003 when intense rainfall triggered simultaneous debris flows in Carratt, Field, Eng, McNab and Dale Creeks. Lesser events occurred in Saporano Creek, Cascade Creek and Pattison Creek. These events are documented by BGC Engineering and Thurber Engineering.[119] BGC concluded that, past logging and road building practices have likely increased the magnitude of observed debris flows and may also be responsible for an elevated frequency.[120]

Costs to public agencies to recover from the 2003 event alone were near $3.0 million. This figure doesn't include damages incurred by landowners, economic losses, and other costs. Cumulative recovery costs over the long term are unknown, but are certainly very high.[121]

Geological and meteorological conditions in Hatzic Valley – steep slopes with thick erodible colluvial soils and high rainfall and rain-on-snow events - present problems of natural slope instabilities and debris movement. However, forestry activities on crown and private lands within Hatzic Valley have significantly contributed to slope instabilities, sediment transport and debris movements that risk resident's safety and property and cause major public and private expenditures to assess, reduce and recover from hazard events.[122] As a result, plans to log within the area have repeatedly met with resistance from many residents. In addition to concerns with slope instabilities, residents fear that forestry activities may impact surface and ground water and harm drinking water supplies.

The Forest and Range Practices Act (FRPA), which took effect in 2004, contains objectives aimed at avoiding negative impacts to watersheds. Its predecessor, the 1995 Forest Practices Code, reduced the frequency of post-harvesting landslides in British Columbia.[123] It is hoped that FRPA will further reduce forestry-related landslides and flooding in Hatzic Valley.

FRPA's reliance on private sector professionals and its emphasis on due diligence will make communication between forest licensees, professionals, the Ministry and the community particularly important for determining the public interest, risks and hazard acceptability thresholds in Hatzic Valley. Forest licensees and provincial ministries have engaged in productive dialogue with residents. This dialogue should continue as new forestry activities are contemplated and resources are made available for higher level plans and remediation works.

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[118] Province of BC, Ministry of Environment. *Flooding and Landslide Events, Southern British Columbia, 1808-2006*. This report, and other sources, indicates that significant floods, landslides or debris events occurred in the following years: 1935, 1936, 1940, 1951, 1961, 1980, 1984, 1990, 2003, 2004, and 2006.

[119] Thurber Engineering LTD. *Emergency Response to Oct 16-18 Landslide and Flood Events near Cultus Lake and in Hatzic Valley*. October 31, 2003. *Emergency Response to Oct 16-18 Debris Flood at 35900 Dale Road, Hatzic Valley*. November 7, 2003. *November 20 Helicopter Investigation of Recent Flood Activity in Hatzic Valley*. November 25, 2003.

[120] BGC Engineering LTD. *Preliminary Debris Flow Hazard Assessment of Field, Carratt, Eng, McNab and Dale Creeks, Hatzic Valley*. February 16, 2004. The footnote below references the BGC Engineering report.

[121] For example, costs to the Province for responding to a 1984 event in multiple streams were in excess of $181,000 (Septer, 2006); about $660,000 was spent by the Province on channel restoration following flood/debris event in 1990; in 2001, more than $70,000 was spent by FVRD managing sediment in Lagace Creek.

[122] For example, see: Thurber Engineering. *Pattison Creek Risk Assessment*. November, 1990. Associated Engineering. *Hatzic Prairie Drainage Study*. August, 1992. Denny Maynary & Associates. Terrain *Classification, Terrain Stability, and Sedimentation Potential of Durieu Ridge Map Area*. December, 1995. BGC Engineering, 2004. Qcd Geotechnics. *Overview Geotechnical Hazard Assessment Report – Electoral Area F (Hatzic Valley), Fraser Valley Regional District*. October 22, 2008.

[123] Forest Practices Board. *Managing Landslide Risk from Forest Practices in British Columbia*. July, 2005.

The policies in this section will:

- assist the Regional Board in responding to Forest Stewardship Plan and other forestry referrals;
- support forestry activities that are compatible with down-slope and downstream rural land uses;
- guide the use of land that may be subject to hazardous conditions or that is environmentally sensitive; and,
- foster the preservation, protection, restoration and enhancement of the natural environment.

They may also assist forest licensees, professionals, and Provincial ministries in managing forestry activities; and, interpreting due diligence and matters of public interest within the local context.

It is the policy of the Regional Board that:

11.1.1 Forest licensees are encouraged to refer forest stewardship plans and site-level plans to the Regional District for comments respecting potential consequences or effects on private land, Regional Parks, and existing community areas.

11.1.2 The Regional Board requests to be consulted respecting the deactivation of major forestry roads that are relied upon for recreational purposes.

11.1.3 The Regional District will develop, in consultation with the appropriate provincial ministries, a crown-community interface policy to guide forestry operations in areas upslope and upstream of settlement areas and reduce the need for site-specific comments on individual forestry referrals.

11.1.4 Planning for forestry activities should be coordinated with recreation uses, visual quality and community values.

11.1.5 The Regional Board recommends that, where forestry activities are proposed upstream or upslope of settled areas, forest licensees:

a. hold community meetings to present forest stewardship plans and site-level plans to residents and receive community input;
b. directly consult the owners of property in the vicinity of proposed forestry activities during the development of forest stewardship plans and also through operational phases to coordinate activities; and,
c. obtain reputable third-party certification of sustainable forest practices.

11.1.6 Forestry activities upslope and upstream of settled areas should be reviewed by a professional engineer or geoscientist to demonstrate that no increase in risk to human safety, private property, or water supplies will result.

11.1.7 In accordance with the recommendations of the report, *Preliminary Debris Flow Hazard Assessment of Field, Carratt, Eng, McNab and Dale Creeks, Hatzic Valley* by BGC Engineering, the Regional Board will recommend that the following are implemented before new forestry activities occur on Durieu Ridge:

a. a detailed study of debris flow hazards and risk is completed and hazard mitigation infrastructure is developed;

b. a Level 1 Watershed Study or equivalent is completed and reviewed by an expert on forestry-related landslide and debris flow;

c. a detailed forest road stability assessment is conducted in which all forest roads in the upper watersheds are visited by qualified personnel and prescriptions are made to deactivate those road portions that pose the highest risk for failure and those roads are deactivated;

d. a Coastal Watershed Assessment Procedure or equivalent is conducted and peer reviewed for the watershed supplying the Hatzic Prairie Water Supply; and,

e. forestry plans are scrutinized by slope stability experts.

11.1.8 The Regional Board will recommend that any new forestry activities in the Cascade and Carratt Creek watersheds be preceded by a comprehensive watershed assessment which considers cumulative impacts on sediment transport, flooding, and peak flows, directly considers impacts to residents, and broadly addresses risk to development and infrastructure on the fan.

11.1.9 The Regional District will advocate for the development of a Strategic Land and Resource Plan for Hatzic Valley to address long-standing land use conflicts relating to geotechnical and hydrological issues on the crown/community interface lands. The Regional District will assist the Responsible Authorities in developing such a plan.

11.1.10 The Regional District will liaise with the Province regarding forestry uses, invasive plant management, forest health issues, and resource uses.

11.2 Aggregates & Minerals

Mining and processing of aggregate materials in Hatzic Valley have been a source of intense and sustained conflict. Many residents are particularly concerned with noise, dust, blasting, vibration, truck traffic, impacts to ground and surface water supplies, aesthetic impacts, health impacts, loss of rural lifestyle, and loss of property value associated with quarry operations. There are various causes of these problems, including:

- inability or unwillingness to adequately mitigate off-site impacts;
- inadequate enforcement;
- insufficient regulatory tools;
- not enough local involvement in approval processes;
- absence of planning for suitable locations for aggregate extraction; and,
- lack of infrastructure, particularly roads, suitable to support industrial uses in rural areas.

As a consequence, existing operations have generated a great deal of conflict and community opposition. These conflicts will persist if significant changes are not made in the regulation of aggregate extraction, the enforcement of regulations and the approval process for extraction sites. Moreover, existing operations must be more successfully integrated into the community.

Achieving this change will require cooperation and coordination between local and provincial authorities, the aggregate industry and the community. Provincial legislation surrounding aggregate operations divides jurisdiction between Provincial and local authorities, though the primary authority rests with the Province of BC through the Ministry of Natural Resource Operations and the Mines Act. The extraction of aggregates may not be prohibited by local governments without the approval of the Minister of Mines. However, aggregate extraction is subject to local government powers to regulate removal and deposit of soil provided in Section 723 of the Local Government Act.[124] Moreover, primary and secondary processing of aggregates is a use of land subject to regulation and prohibition under zoning controls.

It is recognized that aggregates are essential for the infrastructure and economy of our Region, not only for supporting new development but for maintaining existing infrastructure. Demand for aggregates in the Fraser Valley Regional District appears to be increasing and is projected to double over the next 20-25 years.

Furthermore, there is proportionate demand for aggregates in Metro Vancouver where supplies are limited or are unavailable. A large proportion, perhaps two-thirds, of aggregate produced in the FVRD is transported to markets in Metro Vancouver or adjacent jurisdictions. As a result, the benefits of aggregate production in Hatzic Valley are dispersed throughout the Lower Mainland while the negative impacts of extraction and processing are focused primarily at the local level.

Given that:

- the experience of living alongside aggregate operations is similar in all Electoral Areas;
- aggregate is a commodity of regional, even provincial importance; and,
- jurisdiction for the regulation of aggregate extraction and processing is divided between local and provincial authorities;

solutions may need to be found at the regional level rather than within individual community plans. There is a compelling need for regional planning for aggregates, impact mitigation strategies, and improvements to permitting processes. At the time of writing of this Plan, FVRD was engaged in the Aggregate Pilot Project – an initiative of the Ministry of Energy, Mines & Petroleum Resources – to do this. The outcomes of the Aggregate Pilot Project, if any, are uncertain at present. Until such time as there is a regional-level initiative to address problems with aggregate operations, the policies of this plan will guide the Regional Board in matters related to aggregate in Hatzic Valley. If the Aggregate Pilot Project, or some other broader initiative, is implemented the policies below may require amendment.

[124] Local Governments can prohibit extraction through Soil Removal & Deposit Bylaws (SRDBs). However, a SRDB that prohibits the removal of soil in any location requires the approval of the Minister of Energy, Mines and Petroleum Resources.

The policies in this section are intended to:

- guide the Regional Board in its decisions respecting aggregate operations;
- assist the Regional Board in responding to Mines Permit and other referrals regarding aggregate operations;
- guide the use of land that may be subject to hazardous conditions or that is environmentally sensitive; and,
- foster the preservation, protection, restoration and enhancement of the natural environment and community.

It is the policy of the Regional Board that:

11.2.1 The Regional District will work with the Responsible Authorities and stakeholders to develop a strategy for aggregate or mineral extraction and processing in the electoral areas of the FVRD.

11.2.2 The Regional Board will not support new aggregate operations until:

- existing operations are more successfully integrated into the community;
- means to adequately mitigate off-site impacts are developed;
- regulatory and enforcement abilities are improved;
- the approval of aggregate extraction sites occurs within a planned framework; and,
- adequate infrastructure, particularly roads, suitable to support industrial uses exists.

11.2.3 The Regional Board will not support land-based industrial extraction of gravel from land in the Agricultural Land Reserve in Hatzic Valley.

11.2.4 A permit under FVRD's Electoral Area Soil Removal and Deposit Bylaw shall be required prior to the removal or deposit of sand, gravel, rock, and other substances of which land is composed, from any new mine or quarry, including bulk sample site except as exempted by the bylaw. A permit must also be obtained for existing mine operations. Notwithstanding Section 11.2.3 and 11.2.4, the Regional Board will issue a Soil Permit where an application meets the requirements of the Soil Removal and Deposit Bylaw and any other applicable bylaws of the Regional District.

11.2.5 Aggregate operations should aggressively seek to mitigate off-site impacts and employ the best available methods including but not limited to screening, noise deflection berms, enclosure of processing equipment, wash bays for trucks, dust suppression systems, and blasting noise/vibration suppression.

11.2.6 The ability to effectively mitigate off-site impacts will be a major consideration in Regional Board decisions respecting zoning and community plan amendments related to aggregate and mineral uses.

11.2.7 The Regional District should develop policies and standards to assist mine proponents and operators, as well as the Responsible Authorities, in determining appropriate standards and means for the mitigation of off-site impacts.

11.2.8 All mining activities should maintain a "no disturbance" riparian buffer from all streams, watercourses and wetlands to protect water quality, hydrological functions and riparian habitat.

11.2.9 The Regional Board recommends that all aggregate mining or quarrying proposals, including bulk samples and expansion of existing operations, be supported by professional assessment and mitigation of:

a. cumulative environmental impacts;

b. cumulative hydro-geological impacts including effect on ground and surface water quality and quantity, wells, and water movements;

c. geotechnical and hydrological impacts;

d. cultural (archaeological) impacts if appropriate;

e. cumulative road maintenance, road safety and traffic impacts; and,

f. community impacts including noise, dust, blasting and vibration.

11.2.10 The Regional Board recommends that mining proposals and associated technical information be presented to residents at a public meeting prior to the issuance of any permit or approval under the Mines Act.

11.2.11 The development, management and reclamation of aggregate extraction sites should follow the best practices outlined in the *Environmental Objectives and Best Management Practices for Aggregate Extraction* and *Aggregate Operators Best Management Practices Handbook for British Columbia*.[125]

11.2.12 All sand, gravel and other sites used for commercial or industrial extraction of aggregate minerals should have a plan, approved by the Chief Inspector of Mines, for the safe operation, abandonment, recontouring and reclamation of the site. Progressive reclamation is strongly encouraged. Where necessary, there should be consultation between the Ministry of Natural Resource Operations, the proponent, and the Regional District to ensure there is no conflict between land use bylaws and the approved reclamation program.

11.2.13 The Regional District should amend its soil removal bylaw to enable the collection of production-based fees from aggregate producers. The fees should be used to fund mitigation of negative off-site impacts associated with the aggregate industry; regulation, administration and enforcement related to the aggregate industry; and, long-term planning for aggregate uses.

[125] Ministry of Water, Air & Land Protection. *Environmental Objectives and Best Management Practices for Aggregate Extractio*n. 2002 (or as updated). Ministry of Energy & Mines. *Aggregate Operators Best Management Practices for British Columbia*. April, 2002 (or as updated).

12.0 GREENHOUSE GAS EMISSIONS

13.0 DEVELOPMENT PERMIT AREAS

The following areas are hereby designated as development permit areas:

13.1 Geologic & Stream Hazard Development Permit Area 1-F

Category of Designation

"Geologic and Stream Hazard Development Permit Area No 1-F" is designated pursuant to Section 919.1(1)(b) of the Local Government Act for the protection of development from hazardous conditions.

Area of Application

Development Permit Area 1-F encompasses the lands identified on *Schedule 4 - Development Permit Area 1-F*.

Justification

Hatzic Valley extends from Stave Lake to Hatzic Lake. It is confined by steep mountain slopes on the east and west sides. Landslides have occurred on these steep slopes and destructive debris flows and debris floods have initiated in the upper watershed and run out on the lowlands. Mountain creeks and the Fraser River have flooded portions of the north and south lowlands. Ongoing transfer of sediment from upland locations to lowland stream channels has caused significant increase in flooding and drainage problems.

Hazards to private lands from debris and alluvial fans, landslides, rock fall, debris landslides, and flooding are identified at an overview level in the October 22, 2009 report by Qcd Geotechnics titled, *Final Overview Geotechnical Hazard Assessment Report – Electoral Area F (Hatzic Valley), Fraser Valley Regional District*. Some debris fans on the east side of Hatzic Valley are assessed and mapped by BGC Engineering in the report, *Preliminary Debris Flood Hazard Assessment of Field, Carratt, Eng, McNab and Dale Creeks, Hatzic Valley* (2004).

These reports, and a number of other relevant geotechnical studies, are on file at Fraser Valley Regional District. Overview hazard mapping from the Qcd study is presented in *Map 7 – Geologic & Stream Hazards*.

Lands subject to known or potential hazards are included in Development Permit 1-F (DPA 1-F). This development permit area is established to protect development in areas known to be, or expected to be, subject to geotechnical or stream hazards.

DPA 1-F sets out guidelines for the management of development in potentially hazardous areas, including requirements for site-specific geotechnical studies prior to the issuance of a development permit or building permit pursuant to Section 920(11) of the Local Government Act.

Site-specific geotechnical studies are expected to independently verify types of hazard, hazard magnitudes, and hazard probabilities based on field evidence and appropriate analyses. Safe building sites within the Development Permit Area may also be identified through site-specific geotechnical study.

Potential Hazards

The following conditions exist, or are expected to exist, within the development permit area:

- debris flood/flow and alluvial fan hazards;
- rock fall, debris landslide and other landslide hazards; and,
- stream flooding, erosion and avulsion hazards.

Objectives

The objectives of Development Permit Area 1-F are to:

- direct development away from hazardous areas;
- allow for land use suitable under hazardous conditions, in accordance with geotechnical studies;
- ensure adequate professional evaluation of geological hazards and mitigation works;

so as to minimize the potential for damage to properties and the risk to life.

Activities requiring a permit

13.1.1 A development permit must be obtained prior to:

a. subdivision of land;

b. alteration of land; and,

c. construction of, addition to, or alteration of a building or structure;

within the development permit area.

Exemptions

13.1.2 Notwithstanding Section 13.1.1, a development permit may not be required for:

a. construction of, addition to or alteration of, a single family residential building, accessory building or structure where:

i. the potential risk of any geotechnical hazard which may affect the site, as determined by a qualified professional geotechnical engineer in a certified site-specific geotechnical report, is within the levels deemed acceptable in the

Regional Board policy *Hazard Acceptability Thresholds for Development Permit Approvals by Local Government*[126]; **and**,

ii. where mitigation measures including, but not limited to, siting requirements, are not required either by the Regional Board policy *Hazard Acceptability Thresholds for Development Approvals by Local Governments* or by a qualified professional geotechnical engineer in a certified, site-specific geotechnical report; **and**,

iii. the type of construction, addition, or alteration does not affect or relate to matters of health, safety, or the protection of property from damage; **and**,

iv. the development proposal complies in all respects with the policies of this Development Permit area, the zoning regulations, and all other bylaws of the Regional District.

b. forestry activities on Crown land undertaken under an approved Forest Stewardship Plan approved by the Ministry of Natural Resource Operations in accordance with the Forest & Range Practices Act.

Guidelines

In order to achieve the objectives of Development Permit Area 1-F, the following guidelines shall apply to the issuance of development permits:

13.1.3 Where possible, development should be sited to avoid hazards. Where it is impossible or impractical to avoid a hazard, mitigative measures may be considered.

13.1.4 A development permit may vary or supplement a bylaw under Division 7 or 11 of the Local Government Act provided that the variance or supplement is in accordance with the objectives and guidelines of Development Permit Area 1-F.

Site specific geotechnical reports

13.1.5 A site-specific geotechnical study may be required pursuant to Section 920(11) of the Local Government Act.

13.1.6 Development permits shall be in accordance with the recommendations of site-specific geotechnical studies.

13.1.7 Geotechnical studies submitted in support of development permit applications shall meet the requirements outlined in *Assistance to Developers and Building Permit Applicants Undertaking Geotechnical Studies*[127] (or Regional Board policy as it exists at the time), and, as applicable, the *Guidelines for Legislated Landslide Assessments for Proposed Residential Development in British Columbia*[128].

[126] Regional District of Fraser Cheam. *Hazard Acceptability Thresholds for Development Approvals by Local Government*. November, 1993.

[127] Fraser Valley Regional District. *Assistance to Developers and Building Permit Applicants Undertaking Geotechnical Studies*.

[128] Association of Professional Engineers and Geoscientists of British Columbia. *Legislated Landslide Assessments for Proposed Residential Development in British Columbia*, May, 2008.

13.1.8 The Regional Board may refuse to issue a development permit where the hazard frequency, as determined by a qualified professional engineer, exceeds the acceptability threshold for the proposed development stipulated in *Hazard Acceptability Thresholds for Development Approvals by Local Government* or Regional Board policy as it exists at the time.[129]

13.1.9 Proposed development on an alluvial fan or in a debris flood/flow hazard area may require a site-specific geotechnical report by a qualified professional engineer with training and experience in river and high energy creek engineering.

13.1.10 Development involving alteration of land that may negatively impact slope stability, sediment processes, or hydrologic processes may require a site-specific geotechnical report by a qualified professional engineer with appropriate training and experience in slope stability, river engineering, or hydrogeology.

Riparian Area Regulation

13.1.11 Where the proposed development requires a riparian assessment pursuant to Development Permit Area 2-F, the site-specific geotechnical study shall be co-ordinated with the riparian assessment in order to provide a comprehensive development permit application.

Slope Hazards – Preventative Actions

13.1.12 Both during and after development and land alteration activities, property owners should consider and, as appropriate, implement the following general slope hazard prevention strategies:

- avoid building on or near the crest or the base of a steep slope:
- refrain from placing fill (including lawn clippings, brush cuttings or trash) along or below the crest of a steep slope;
- do not excavate the base of a steep slope;
- avoid discharge of surface water or significant quantities of ground water on or below the crest of a steep slope; and,
- retain trees and ground cover on or below the crest of a steep slope.

Floodproofing

13.1.13 Proposed developments susceptible to flooding from the Fraser River, streams, lakes, or other bodies of water shall be flood-proofed in accordance with the flood construction level and floodplain setbacks established by the *Fraser Valley Regional District Flood Hazard Management Bylaw No. 681, 2005* or the recommendations of a qualified professional engineer with expertise in river hydraulics.

[129] Peter Cave. *Hazard Acceptability Thresholds for Development Approvals by Local Government*. 1992.

13.1.14 A development permit may include conditions or restrictions respecting the uses and densities permitted in the zoning bylaw, the sequence and timing of construction, areas to remain free of development, vegetation or trees to be planted or retained, natural drainage to be maintained or enhanced, or other matters as specified in Sections 920 (7)(a), (b), (c), (d) and (e) of the Local Government Act.

Permit Security

13.1.15 The Regional District may require the applicant to provide security in the form of cash or an unconditional, irrevocable and automatically renewing letter of credit in cases where:

a. security for the performance of conditions respecting landscaping is necessary;

b. the Regional District considers that damage to the natural environment could result as a consequence of a contravention of a condition in a development permit;

c. the Regional District considers that unsafe conditions could result as a consequence of a contravention of a condition in a development permit; and,

d. the permit holder is required to retain, restore or replace native vegetation.

13.1.16 The amount of the security shall be sufficient to cover the cost of any work that may be undertaken by the Regional District to address unsatisfied permit conditions; or, to correct deficient landscaping conditions, an unsafe condition, or damage to the natural environment; that could reasonably be expected to result from the contravention of the permit.

Offence

13.1.17 Failure to:

a. obtain a development permit where one is duly required; or,

b. develop land strictly in accordance with a development permit issued;

are offences under the Local Government Act and are contrary to the bylaws, regulations or policies of the Regional District. Upon summary conviction, penalties for offences may be up to $10,000.

13.1.18 Employees, officers and agents of the Regional District may enter, at all reasonable times, a property to inspect and determine whether the requirements of Development Permit Area 1-F and the terms and conditions of a development permit are being met.

13.2 Riparian Areas Development Permit Area 2-F

Category of Designation

"Riparian Areas Development Permit Area 2-F" is designated pursuant to Section 919.1(1)(a) of the Local Government Act for the protection of the natural environment, its ecosystems and biological diversity.

Area of Application

Development Permit Area 2-F consists of all those parcels of land:

a. within the area of this Official Community Plan; and,

b. entirely or partially within a Riparian Assessment Area, which is:
   i. for a stream, the 30 metre strip on both sides of the stream, measured from the high water mark;
   ii. for a ravine less than 60 metres wide, a strip on both sides of the stream measured from the high water mark to a point that is 30 metres beyond the top of the ravine bank; and,
   iii. for a ravine 60 metres wide or greater, a strip on both sides of the stream measured from the high water mark to a point that is 10 metres beyond the top of the ravine bank.

For convenience, mapped streams are generally shown on *Schedule 5 – Development Permit Area 2-F*. Note that Riparian Areas Development Permit Area 2-F includes the Riparian Assessment Areas associated with all streams within the Plan area, whether mapped or unmapped, including but not limited to the streams shown on *Schedule 5*.

Justification

Hatzic Valley contains streams and riparian areas that directly or indirectly provide natural features, functions and conditions that support fish life processes. The Fish Protection Act and the Riparian Areas Regulation require local governments to protect these streams and riparian areas when exercising powers with respect to residential, commercial and industrial development. In the opinion of the Regional Board, this development permit area provides a level of protection that is comparable to the Fish Protection Act and the Riparian Areas Regulation.

Objectives

The objective of Development Permit Area 2-F is to protect the natural environment, its ecosystems and biological diversity. More specifically, this DPA will protect streams and riparian habitat primarily through the involvement of qualified environmental professionals and

the identification of Streamside Protection and Enhancement Areas (SPEAs) that should remain free of development, including the disturbance of soils and vegetation.

Activities Requiring a Permit

13.2.1 A development permit must be obtained prior to:

a. the subdivision of land;

b. residential, commercial, institutional or industrial development including:

i. the alteration of land;

ii. the disturbance of soil or vegetation; or,

iii. construction of or addition to a building or structure;

within a riparian assessment area.

Exemptions

13.2.2 Notwithstanding Section 13.2.1, a development permit is not required for the following:

a. development that does not involve residential, commercial, institutional or industrial uses;

b. residential, commercial, institutional and industrial development that is demonstrated to be outside of a Riparian Assessment Area;

c. residential, commercial, institutional and industrial development within a riparian assessment area where the development is separated from the stream by a dedicated and developed public road right-of-way;

d. renovations or repair of a permanent structure on an existing foundation to an extent which does not alter or increase the building footprint area;

e. minor additions to an existing building or structure, such as an increase in floor area up to 25% of the existing footprint, provided that the addition is located on the side or part of the building or structure most distant from the stream;

f. development in accordance with a registered covenant or approved development permit that pertains directly and explicitly to riparian habitat protection, which:

i. is registered in favour of the Fraser Valley Regional District and/or Provincial or Federal interests; and

ii. establishes a riparian buffer.

g. routine maintenance of existing landscaping or lawn and garden areas;

h. removal of trees determined by a Certified Arborist or Registered Professional Forester (who is qualified to do tree risk assessment) to represent an imminent risk to safety of life and buildings;

i. forestry activities on Crown land undertaken under an approved Forest Stewardship Plan approved by the Ministry of Natural Resource Operations in accordance with the Forest & Range Practices Act;

j. riparian habitat enhancement or restoration works under the guidance of Provincial and Federal agencies;

k. installation of seasonal play or recreational equipment on existing yard/lawn areas, such as sandboxes or swing sets;

l. paths for personal use by the parcel owners, provided they do not exceed

approximately 1.0 metre in width; are constructed of pervious natural materials with no concrete, asphalt, pavers or treated wood; do not involve structural stairs; require no removal of streamside vegetation; and do not impair stream bank stability;

m. local and regional park facilities;

n. emergency actions necessary to prevent, control or reduce immediate and substantial threats to life or property during flood, debris flood/flow, erosion, landslide, avalanche, stream avulsion and other geohazards events;

o. repair, maintenance and improvement of flood protection infrastructure and all related ancillary or accessory works, regulated and approved by Federal or Provincial agencies;

p. the development of an approved community water or sanitary sewer system that is not ancillary to a residential, commercial or industrial development;

q. Federal and Provincial regulated utilities, including railways, transmission lines or a pipelines;

r. public road or highway works;

s. repair or replacement of an existing driveway, culvert or bridge; and,

t. the construction of a single storey, detached residential accessory building or structure which is not intended to be used for any "residential occupancy" and which has a floor area not exceeding 20 square metres (215 square feet) and where:

   i. the building or structure is located as far from the stream as possible and in the location on the parcel that minimizes impacts to riparian habitat; and,

   ii. it is not possible to construct the building, structure or deck outside the riparian assessment area.

[Byl # 1265, 2014]

13.2.3 Where there is uncertainty regarding the location of development in relation to a Riparian Assessment Area or the nature of stream, the Regional District may require:

a. a plan prepared by a BC Land Surveyor or Qualified Environmental Professional to confirm whether the planned disturbance is within the Riparian Assessment Area; or

b. a report prepared by a Qualified Environmental Professional to determine if the stream satisfies the definition criteria.

Guidelines

In order to achieve the objectives of Development Permit Area 2-F, the following guidelines shall apply to the issuance of Development Permits:

Issuance of Development Permits

13.2.4 Each development permit application should, as a minimum, be accompanied by:

a. where applicable, an Assessment Report prepared by a QEP in accordance with the Assessment Methods and Development Permit Area 2-F guidelines for the purpose of determining the applicable SPEA and other measures necessary for the protection of riparian areas;

b. a scaled siting proposal clearly and accurately identifying all streams and water features, high water mark, top of bank, top of ravine bank, edge of wetland, riparian assessment area and the SPEA boundary in relation to existing and proposed property lines and existing and proposed development, as well as the locations of works and activities recommended in the Assessment Report; and,

c. written certification that the proposed development is consistent with the Guidelines of Development Permit Area 2-F and the Riparian Areas Regulation, and identifying any mitigation or compensation measures that are consistent with the Guidelines, including measures that may be specified as Development Permit conditions.

13.2.5 Pursuant to the Riparian Area Regulation and the Local Government Act, the Assessment Report prepared by a QEP should specifically consider and make recommendations respecting:

a. the siting of buildings, structures or uses of land;

b. areas to remain free of development;

c. the preservation, protection, restoration or enhancement of any specified natural feature or area;

d. works to preserve, protect, or enhance a natural watercourse or other specified environmental feature;

e. protection measures to be taken to preserve, protect, restore or enhance fish habitat or riparian areas, control drainage, or control erosion or protect the banks of watercourses; and,

f. timing of construction to avoid or mitigate impacts.

13.2.6 Where a development permit relates to the subdivision of land, an Assessment Report prepared by a QEP should:

a. identify adequate building sites - including but not limited to building locations; front, rear and side yard areas; site services including sewage disposal facilities and water supplies; access; and, parking - on each proposed lot;

b. identify streams that may be impacted by the proposed development; and

c. consider whether any natural watercourses should be dedicated pursuant to Section 920(7)(c) of the Local Government Act.

13.2.7 The Regional District is authorized to issue a Development Permit after receiving:

a. notification by the Ministry of Environment that Fisheries & Oceans Canada and the Ministry have been:

i. notified of the development proposal; and,

ii. provided with a copy of an assessment report which meets the requirements of the Riparian Areas Regulation; or,

b. documentation demonstrating that Fisheries & Oceans Canada has, with respect to the proposed development, authorized the "harmful alteration, disruption or destruction" of fish habitat pursuant to Section 35 of the Fisheries Act amendments thereto.

[Byl # 1265, 2014]

13.2.8 A development permit may include as a term or condition any recommendation made by a QEP in an Assessment Report respecting:

a. the siting of buildings, structures or uses of land;

b. areas to remain free of development;

c. the preservation, protection, restoration or enhancement of any specified natural feature or area;

d. dedication of natural water courses to the Crown;

e. works to preserve, protect, or enhance a natural watercourse or other specified environmental feature; and,

f. protection measures to be taken to preserve, protect, restore or enhance fish habitat or riparian areas, control drainage, or control erosion or protect the banks of watercourses.

13.2.9 A development permit may impose terms and conditions respecting the:

a. sequence and timing of construction including but not limited to timelines for completion of the works identified in the permit;

b. co-ordination of geotechnical recommendations by a Qualified Environmental Professional or Professional Engineer licensed in Province of British Columbia;

c. minor modification of a SPEA as generally described in the Riparian Area Regulation Implementation Guidebook where no impacts to fish habitat occur and as recommended in an Assessment Report by a Qualified Environmental Professional.

13.2.10 A development permit may vary or supplement a bylaw under Division 7 or 11 of the Local Government Act provided that the variance or supplement is in accordance with the objectives and guidelines of Development Permit Area 2-F.

Measures to Protect the Streamside Protection and Enhancement Area

13.2.11 Land shall be developed strictly in accordance with the development permit issued.

13.2.12 No building or structure of any kind should be located, no vegetation should be disturbed, and no soils should be removed or deposited within a Streamside Protection and Enhancement Area except in accordance with the development permit and Assessment Report.

13.2.13 The SPEA boundary should be clearly flagged, staked or otherwise marked during all development phases to avoid encroachment into the Streamside Protection and Enhancement Area.

Geotechnical Hazards

13.2.14 Where a proposed development requires geotechnical evaluation pursuant to a geotechnical hazard development permit area or Section 56 of the Community Charter, the riparian assessment should be coordinated with the geotechnical evaluation in order to provide a comprehensive development permit application.

Permit Security

13.2.15 The Regional District may require the applicant to provide security in the form of cash or an unconditional, irrevocable and automatically renewing letter of credit in cases where:

a. security for the performance of conditions respecting landscaping is necessary;

b. the Regional District considers that damage to the natural environment could result as a consequence of a contravention of a condition in a development permit;

c. the Regional District considers that unsafe conditions could result as a consequence of a contravention of a condition in a development permit; or,

d. the permit holder is required to retain, restore or replace native vegetation.

13.2.16 The amount of the security should be sufficient to cover the cost of any work that might be undertaken by the Regional District to correct deficient landscaping conditions, an unsafe condition, and damage to the natural environment that could reasonably be expected to result from the contravention of the permit.

13.2.17 A Letter of Undertaking signed and sealed by a Qualified Environmental Professional may be accepted in lieu of security where:

a. the nature of required works, such as landscaping, are minor and the risk of damage to the natural environment is low;

b. the Letter of Undertaking is signed and sealed by a Qualified Environmental Professional; and, the Qualified Environmental Professional will undertake the works and provide to the Regional District a post-construction certification and inspection report as outlined in Section 13.2.18 [Byl # 1265, 2014].

Post-Construction Certification and Inspection

13.2.18 Upon completion of the works authorized by a development permit - and for certainty upon expiry of any timeline for completion of works established as a term or condition of a development permit - the holder of the permit must submit to the Regional District and the Ministry of Environment post-construction certification from a QEP which:

a. certifies that the development has been carried out in accordance with the Assessment Report and that terms and conditions set out in the assessment report and the development permit have been properly implemented; or,

b. identifies and documents all instances of non-compliance with the assessment report and the development permit and any measures necessary to correct deficiencies, including any works that should be undertaken by the Regional District as contemplated by Section 13.2.16.

13.2.19 The requirement for post-construction certification and inspection described in Section 13.2.17 may be waived by a condition in a development permit.

Offence

13.2.20 Failure to:

a. obtain a development permit where one is duly required; or,

b. develop land strictly in accordance with a development permit issued;

are offences under the Local Government Act and are contrary to the bylaws, regulations or policies of the Regional District. Upon summary conviction, penalties for offences may be up to the maximum set out in the Local Government Act [Byl # 1265, 2014].

13.2.21 Employees, officers and agents of the Regional District may enter, at all reasonable times, a property to inspect and determine whether the requirements of Development Permit Area 2-F and the terms and conditions of a development permit are being met.

Definitions

13.2.22 In DPA 2-F, the following terms have the meanings described below:

"Assessment Methods" means the assessment methods set out in the Schedule to the Riparian Areas Regulation.

"Assessment Report" means a report certified by a Qualified Environmental Professional and prepared in accordance with the Riparian Areas Regulation Assessment Methods and the guidelines of Development Permit Area 2-F to assess the potential impact of a proposed development in a riparian assessment area.

"development" includes the alteration of land, the disturbance of soil or vegetation, and construction of or addition to buildings and structures.

"high water mark" means the visible high water mark of a stream where the presence and action of the water are so common and usual, and so long continued in all ordinary years, as to mark on the soil of the bed of the stream a character distinct from that of its banks, in vegetation, as well as in the nature of the soil itself, and includes the active floodplain.

"Qualified Environmental Professional" and "QEP" mean a qualified environmental professional as defined in the Riparian Areas Regulation.

"ravine" means a narrow valley with an average grade on either side greater than 3:1 measured between the high water mark of the watercourse contained in the valley and the top of the valley bank, being the point nearest the watercourse beyond which the average grade is less than 3:1 over a horizontal distance of at least 15 metres measured perpendicularly to the watercourse;

"Riparian Assessment Area" means

a. for a stream, the 30 metre strip on both sides of the stream, measured from the high water mark;

b. for a ravine less than 60 metres wide, a strip on both sides of the stream measured from the high water mark to a point that is 30 metres beyond the top of the ravine bank; and,

c. for a ravine 60 metres wide or greater, a strip on both sides of the stream measured from the high water mark to a point that is 10 metres beyond the top of the ravine bank.

"Riparian Areas Regulation" means B.C. Reg. 376/2004 and amendments thereto [Byl # 1265, 2014].

"Streamside Protection and Enhancement Area" and "SPEA" mean an area:

a. adjacent to a stream that links aquatic to terrestrial ecosystems and includes both existing and potential riparian vegetation and existing and potential adjacent upland vegetation that exerts an influence on the stream; and,

b. the size of which is determined in accordance with the Riparian Areas Regulation on the basis of an Assessment Report provided by a Qualified Environmental Professional.

"stream**"** includes any of the following that provides fish habitat:

a. a watercourse, whether it usually contains water or not;

b. a pond, lake, river, creek or brook;

c. a ditch, spring or wetland that is connected by surface flow to something referred to in paragraph (a) or (b).

14.0 TEMPORARY USE PERMITS

Sections 920.2 and 921 of the Local Government Act allow for the issuance of Temporary Use Permits in areas designated within an Official Community Plan. A Temporary Use Permit may allow a use not permitted by a zoning bylaw. In general, a Temporary Use Permit may be issued for a period of up to three (3) years and renewed, at the discretion of the Regional Board, only once. The Regional Board may impose special conditions under which the temporary use may be carried on, allow and regulate the construction of buildings or structures related to the temporary use, and require a security to guarantee the performance of the terms of use of the Temporary Use Permit. The security may be in the form of cash or a letter of credit, the amount of which is to be determined by the Regional Board. A major purpose of collecting the security is to ensure that the land is returned to the condition prior to issuance of the permit when the permit has expired. The Regional Board may utilize the security in the event that the conditions of the permit are not met.

Section 921 of the Local Government Act and *FVRD Development Procedures Bylaw No. 0831, 2007* specify the process by which a temporary commercial or industrial permit may be issued. Public notification and input is a central part of the process. Notification of the Regional Board's consideration of a permit application must be mailed out to owners and occupiers of property within a specified distance of the subject land and placed in a local newspaper. As well, the Board will normally require the holding of a public information meeting to present the application to the community and hear the concerns of residents.

It is the policy of the Regional Board that:

14.1.1 The Official Community Plan area, as shown on *Schedule 1: Boundary of the Plan Area*, is designated for the issuance of Temporary Use Permits.

14.1.2 A Temporary Use Permit may be issued for the following:

a. special events which are of limited duration and which will not preclude or compromise future permitted uses on the proposed site of the temporary use;

b. short-term industrial activity such as portable sawmills, heavy equipment storage, log home building operations and construction yards related to specific industrial projects of limited duration;

c. a temporary sand and gravel extraction where a permit has been issued pursuant to *FVRD Soil Deposit and Removal Bylaw No. 0729, 2006*;

d. uses which comply with the designation policies but where appropriate zoning does not presently allow for such uses;

e. transitional uses, or uses where uncertainty exists respecting appropriateness or viability of the use, and where it is premature to decide upon rezoning and long-term land use rights.

14.1.3 The Regional Board will normally require the holding of a public information meeting prior to the issuance of a Temporary Use Permit.

14.1.4 As a condition of issuing a Temporary Use Permit, the Regional Board will normally require a security in an amount adequate to facilitate completion of permit conditions and the return of the land to its pre-existing state.

15.0 INTERPRETATION

Unless otherwise stated in this Plan, the following terms have the meaning defined below. Terms not defined in this section carry the same meaning as in Provincial statutes and the bylaws of the Fraser Valley Regional District.

ACCESS means the way, or means of connection, between lands adjacent to a public roadway and the public roadway; which connection provides access to and from the private lands. Access may also mean the access permitted and specified in a Highways Access Permit issued by the Ministry of Transportation & Infrastructure; see also **PUBLIC ACCESS.**

ACCESSORY BOARDING USE means a use accessory to a residential use and contained within the principal residence where no more than two (2) sleeping rooms, which do not contain cooking facilities, are rented for the accommodation of no more than four (4) persons.

ACCESSORY RESIDENTIAL USE means a use accessory to a commercial use, a tourist accommodation use, or an industrial use, where the building or buildings include one dwelling unit for the accommodation of the owner, operator or manager.

ADVISORY PLANNING COMMISSION means a commission established under Section 898 of the Local Government Act, responsible for advising the Regional Board on planning concerns of the local community referred to it by the Board.

AGGREGATE EXTRACTION USE means a use involving the extraction and removal of aggregate materials from a lot and the subsequent reclamation and revegetation of the site. It includes sufficient breaking to allow the material to be transported from the site, but does not include processing of aggregates.

AGRICULTURAL USE means a use providing for the growing, rearing, producing and harvesting of agricultural products and includes the processing on an individual farm of the products harvested, reared or produced on that farm only; and, retail sale of agricultural products which are produced on the same parcel or on other parcels within the area that form and are managed as part of the same farm operation. For lands within the Provincial Agricultural Land Reserve and designated AGRICULTURAL in this Plan, agricultural use also includes activities designated as farm use pursuant to the Agricultural Land Reserve Act and Section 2 of the Agricultural Land Reserve Use, Subdivision and Procedure Regulation.

ALLUVIAL FAN means the alluvial deposit of a stream where it issues from a steep mountain valley or gorge upon a plain or at the junction of a tributary stream with the main stream.

ANCILLARY or ACCESSORY USE means a use auxiliary or subordinate to the principal use permitted in the land use designation.

APPROVAL means approval in writing from the responsible authority.

APPROVED COMMUNITY SANITARY SEWER SYSTEM means a system for the collection, treatment, and disposal of domestic sewage, which has a design capacity of at least 22,700 litres per day and which is approved under the Municipal Sewage Regulation of the Environmental Management Act, and which is owned, operated and maintained by either:

a. the Fraser Valley Regional District;

b. a corporation established for the purpose of owning, operating and maintaining the sewer system; or

c. a strata corporation pursuant to the Strata Property Act.

APPROVED COMMUNITY WATER SYSTEM means a system of waterworks which is approved under the Drinking Water Protection Act and its associated regulations, and which is owned, operated and maintained by either:

a. an improvement district pursuant to the Local Government Act;

b. a water utility pursuant to the Water Utility Act;

c. the Fraser Valley Regional District; or

d. a strata corporation pursuant to the Strata Property Act with a minimum of five strata lots served by the water system

ARTISAN-CRAFT WORKSHOP USE means an activity of a gainful nature which is carried on by an artisan who practices, cultivates or instructs in craftsmanship and/or arts; **includes** artists' and potters' studios, workshops for the assembly and manual repair of specialized equipment by skilled artisans, musicians, horologists and the like, antique furniture and painting, restoration and repair, glass blowing, wood or stone carving, and all other similar activities; **specifically excludes** automobile, trailer and bicycle workshops, yards for trade and landscape contractors, boat building, service establishments for small appliances, office and amusement machinery and audio-visual equipment, food processing, personal service establishments, gunsmithing, locksmithing and similar pursuits, taxidermy, tanneries and pet breeding or care facilities, laboratories and professional offices, audio-visual production services and all other related occupations and businesses.

ASSOCIATED RURAL RESIDENTIAL USES means a variety of uses associated with, but clearly ancillary or accessory to, a residential use; includes home occupations, cottage industries, accessory off street parking, artisan craft workshop, and outside storage of firewood for sale.

ASSEMBLY USE means use providing for the assembly of persons for religious, charitable, philanthropic, cultural, private recreational or private educational purposes, and includes churches, auditoriums, youth centres, social halls, community halls, private and public schools, kindergartens, play schools, day nurseries, and day care schools.

BED AND BREAKFAST means a use accessory to a residential use and contained within the principal residence in which no more than two (2) sleeping rooms without cooking facilities, accommodation for no more than four (4) persons, are used for the temporary accommodation of the traveling public, and in which breakfast but no other meal may be served to the registered

guests.

BUFFER means any device arranged and maintained to screen or separate adjoining land uses or properties, and includes any combination of setbacks, existing vegetation, ditches, roads, landscaping, berming and fencing.

BUILDING BYLAW means any building bylaw applicable to Electoral Area "G" of the Fraser Valley Regional District enacted pursuant to the Local Government Act.

COMMERCIAL CAMPGROUND AND RECREATIONAL VEHICLE (R.V.) PARK USE means a commercial use of land for the purpose of providing two or more recreational camping spaces for recreational trailers, or motor homes, together with all supporting, common leisure and service facilities for the exclusive use of, and occupancy for part of the year only, holiday-makers; may include: a recreational camping club incorporated under the Society Act; but does not include a social club, shared interest developments, mobile home park, motel, campground or camp licensed under the Community Care Facility Act.

COMMERCIAL USE means a use providing for the retail sale, repair and servicing of household, non-household, personal and non-personal goods, or for providing services to people.

CONSERVATION USE means the preservation and protection of natural resources and assets in their natural state, including the habitat of birds, fish and other wildlife.

COTTAGE INDUSTRY USE means an activity of a gainful nature which is not an offensive trade and which occupies a building accessory to residential and agriculture land uses, which includes ancillary retail and office facilities and which does not employ or involve more than three operators or employees, the principal of whom shall be resident on the parcel. Cottage industry use includes custom stone, textile, wood and metal working facilities, wholesale bakeries, plants processing and packing food grown or raised on the parcel, cottage wineries, locksmiths, gunsmiths, tinsmiths, print shops, audio visual and photographic studios, small appliances and office machinery repair, non-motorized bicycle repair shops.

DEBRIS FLOOD means a channelized slope hazard involving uncontrolled water flow which can result in water damage to unprotected buildings, erosion, deposition of gravel and timber debris and silting damage.

DEBRIS FLOW means a channelized slope hazard generally involving considerable amounts of sediments and debris, including trees and boulders, with small amounts of water, and is relatively confined to areas at the mouth of gullies, normally near the apex of the alluvial fans.

DENSITY AVERAGING means the process used to calculate the maximum number of parcels achievable by subdivision from a parent parcel for the purposes of clustering the development.

DEVELOPMENT APPLICATION means an application pursuant to an enacted provision of a Responsible Authority which affects the development of any land within the area covered by this Plan.

ENVIRONMENTAL IMPACT ASSESSMENT means a field-based technical assessment conducted, prepared and supported by a **qualified professional** including but not limited to a professional biologist, in accordance with the Ministry of Environment recommended methodologies and best practices, which assessment provides:

a. an inventory of fish and wildlife species and their habitats; threatened, rare and endangered species and their habitats; and, other sensitive ecosystems in the proposed development area, and in adjacent habitats or ecosystems which may be impacted by the proposed development area; and,

b. recommendations for the avoidance then mitigation of impacts associated with a proposed development area.

EXTEND means the enlarging of a designation by adding contiguous areas to it.

FEASIBILITY STUDY means a study or studies prepared by a professional engineer licensed in the Province of British Columbia concerned with:

a. the effect on soil stability of disturbing natural grades or natural growth, or changing the moisture content of the soil by developing, using or occupying the land;

b. groundwater levels and conditions; and,

c. the depth and extent of flooding and likely frequency of its occurring

FLOOD PLAIN means an area of land, whether floodproofed or not, which is susceptible to flooding by a watercourse, lake, ocean or other body of water.

GEOTECHNICAL STUDY means a study prepared by a qualified professional engineer with training and experience in geotechnical engineering and licensed in the Province of British Columbia which interprets the physical conditions of surface or subsurface features in a study area with respect to stability, potential seismic disturbance, interrelated chemical activity, and size and volume analysis; specifically addresses the possible effects of physical alterations or deformations of the land related to proposed building or other projects; and may establish standards for siting and construction of proposed buildings or the nature and location of proposed uses. Geotechnical studies meet the requirements outlined in *Assistance to Developers and Building Permit Applicants Undertaking Geotechnical Studies*[130], and, as applicable, the *Guidelines for Legislated Landslide Assessments for Proposed Residential Development in British Columbia*[131].

HOLIDAY PARK means any lot or parcel operated and maintained for the sole purpose of providing two or more recreational camping spaces or seasonal cabin sites together with all supporting common leisure and service facilities for the exclusive use of and occupancy for part of the year only by holiday-makers; may include a recreational camping club incorporated under

[130] Fraser Valley Regional District. *Assistance to Developers and Building Permit Applicants Undertaking Geotechnical Studies*.

[131] The Association of Professional Engineers and Geoscientists of British Columbia. *Legislated Landslide Assessments for Proposed Residential Development in British Columbia* March 2006.

the Society Act; but does not include a social club, shared interest developments, mobile home park, motel, campground, or a camp licensed under the Community Care Facility Act.

HOME OCCUPATION USE means a use accessory to a single family residential use where the householder carries on an occupation, craft or profession within the residential dwelling unit.

IMPERVIOUS AREA means the total area of impervious surface expressed as a percentage of the total area of the parcel of land. Impervious surfaces are those which water can not penetrate such as buildings, paved roads, and driveways.

INDUSTRIAL USE means the use of land, buildings and structures for the manufacturing, processing, fabricating, repair, packaging or assembly of goods; warehousing or bulk storage of goods; and related accessory uses.

INSTITUTIONAL USE means a use providing for civic, educational, religious, fraternal, hospital or cultural facilities

INTENSIVE AGRICULTURE means the use of land, buildings or structures by a commercial enterprise or institution for the confinement of poultry, swine, or fur bearing animals; for a feed lot; or, for the growing of mushrooms.

LOCAL COMMERCIAL USE means a commercial use intended to serve the day-to-day needs of the local population residing in the vicinity of the local commercial use; includes general stores, convenience stores, small personal service establishments and artisan-craft workshop uses.

LOW DENSITY COMMERCIAL RECREATION means a low density group recreation use carried out on a seasonal or temporary basis, including ranches, lodges, recreation camps and private recreational, institutional or cultural facilities; but excludes natural campgrounds, commercial campgrounds, R.V. Parks and outdoor recreation uses.

MAXIMUM SITE COVERAGE means the proportion of a parcel of land which is used for buildings, structures, driveways, patios, swimming pools and other development covering the surface of land.

NATURAL BOUNDARY means the visible high-water mark of any lake, river, stream or other body of water, where the presence and action of the water are so common and usual, and so long continued in all ordinary years as to mark upon the soil of the bed or the lake, river, stream or other body of water, a character distinct from that of the banks thereof in respect to vegetation, as well as in respect to the nature of the soil itself.

NATURAL CAMPGROUND means a use of land for camp sites on an overnight rental basis, which involves no buildings, structures or service connections; excludes commercial campgrounds and R.V. parks, sites owned or leased under the Condo Act, and camps licensed under the Community Care Facility Act of the Province of British Columbia.

NATURAL GROUND means the level of the surface of the ground which occurs or occurred naturally and before any excavation or construction.

OFFICIAL COMMUNITY PLAN means a plan prepared and adopted by a Regional Board by bylaw pursuant to the Local Government Act which applies to all or parts of an electoral area of a Regional District. It forms the basis for preparing development bylaws in an electoral area.

ON-SITE SERVICES means the provision of an individual water supply and on-site sewage disposal in accordance with the standards of the Responsible Authorities pursuant to the requirements of the Public Health Act, the Environmental Management Act, and bylaws of the Fraser Valley Regional District.

OUTDOOR RECREATION means providing for open air commercial recreation facilities for the enjoyment of the natural environment including natural campground use.

PARK and **PARK RESERVE** means open space dedicated to the preservation of the natural environment and recreation use.

PLAN AMENDMENT means a bylaw amending a schedule of this Plan prepared and adopted pursuant to the Local Government Act.

PUBLIC ACCESS means the unrestricted right of the general public to cross lands without the need for any approvals or specified permits.

PUBLIC USE means a use providing for public activities or public functions within facilities established by a government, and includes cemeteries, public parks, public play grounds and public utilities or any other facilities established by a government.

QUALIFIED PROFESSIONAL means an applied scientist or technologist specializing in a relevant applied science or technology including, but not limited to, agrology, forestry, biology, engineering, geomorphology, geology, hydrology, hydrogeology or landscape architecture, and,

a. who is registered in British Columbia with their appropriate professional organization and acting under that association's Code of Ethics is subject to disciplinary action by that association; and,

b. who, through demonstrated suitable education, experience, accreditation and knowledge relevant to the particular matter, may be reasonably relied on to provide advice within their area of expertise.

RECREATION USE means public park, conservation area, recreation area and ancillary uses as permitted by the Responsible Authorities; excludes commercial recreation uses.

RESIDENTIAL USE means the use of a building or part thereof for as a single family dwelling with a maximum density of one single family dwelling unit per parcel.

RESOURCE EXTRACTION means the pulling out or drawing out of primary forest, mineral and other natural resources and includes mining, the extraction of aggregate materials, forestry, fishing and associated local transportation uses.

RESOURCE INDUSTRIAL USE means a use related to the extraction, primary processing, and transport of products from primary natural resource materials; includes log booming, sawmills, and gravel sorting and screening plants and similar related industries.

RESPONSIBLE AUTHORITY means a governmental and/or administrative body, operating in part or in total within the region, which is charged with or capable of enacting government provisions affecting the development of land or the construction of public works within the region; includes a member municipality, a Regional District, the Province of British Columbia, the Government of Canada, and their agencies.

SINGLE FAMILY DWELLING means a structure providing for a single family residential use for person or persons, includes accessory residential as well as mobile homes and 'park model' mobile homes where permitted in the zoning bylaw.

SPECIAL EVENT means the use of land for temporary commercial or industrial use including fairs or concerts, campsites, assembly use, recreation use, emergency operations and other event-related land uses.

TEMPORARY DWELLING means the use of a single-width manufactured home as a dwelling unit, on a non-permanent foundation, for the accommodation of a person or persons employed in an agricultural activity taking place on that parcel.

TEMPORARY USE means a commercial or industrial use for which a Temporary Use Permit pursuant to Section 921 of the Local Government Act is issued.

WATERCOURSE means any natural depression with well defined banks and a bed zero point six (0.6) metres or more below the surrounding land serving to give direction to a current of water at least six (6) months of the year or having a drainage area of two (2) square kilometres or more upstream of the point of consideration.

WETLAND means land that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal conditions that supports, vegetation typically adapted for life in saturated soil conditions, including, swamps, marshes, bogs, fens, estuaries and similar areas that are not part of the active floodplain of a stream, that may not contain surface water, and that may not be connected to a stream.

Schedule 1 - Boundary of the Plan Area

Official Community Plan for Hatzic Valley, Electoral Area 'F', Fraser Valley Regional District Bylaw No. 0999, 2010

Road
Creek/Stream
Land Parcel
Major Waterbody
OCP Boundary

0 0.25 0.5 1 Km
1:20,000

Projection: Universal Transverse Mercator, Zone 10 North, North American Datum 1983

This map comprises Schedule 1: Boundary of the Plan Area of Fraser Valley Regional District Official Community Plan for Hatzic Valley, Electoral Area 'F', Bylaw No. 0999, 2010 adopted this XXth day of MONTH, 2010.

Chair _____

Administrator _____

Schedule 2 - Designations

Official Community Plan for Hatzic Valley, Electoral Area 'F', Fraser Valley Regional District Bylaw No. 0999, 2010

Designations

- Road
- OCP Boundary
- Creek/Stream
- Major Waterbody
- Agricultural
- Commercial
- Conservation Area
- Forest
- Institutional
- Limited Use
- Resort
- Rural
- Suburban Residential

0 0.25 0.5 1 Km

1:20,000

Projection: Universal Transverse Mercator, Zone 10 North, North American Datum 1983

This map comprises Schedule 2: Area Designations of Fraser Valley Regional District Official Community Plan for Hatzic Valley, Electoral Area 'F', Bylaw No. 0999, 2010 adopted this XXth day of MONTH, 2010.

Chair _____

Administrator _____

Schedule 3 - Parks

Official Community Plan for Hatzic Valley, Electoral Area 'F', Fraser Valley Regional District Bylaw No. 0999, 2010

Park Designation

- Regional Park
- Provincial Park
- Potential Trail
- Creek/Stream
- Major Waterbody
- Road
- Land Parcel
- OCP Boundary

0 0.25 0.5 1 Km

1:20,000

Projection: Universal Transverse Mercator, Zone 10 North, North American Datum 1983

This map comprises Schedule 3: Parks of Fraser Valley Regional District Official Community Plan for Hatzic Valley, Electoral Area 'F', Bylaw No. 0999, 2010 adopted this XXth day of MONTH, 2010.

Chair _____

Administrator _____

Davis Lake Prov. Park
Cascade Falls Reg. Park
Cascade Falls Reg. Park
Cascade Falls Reg. Park
Stave Lake
Hatzic Lake
Electoral Area C
Electoral Area F
District of Mission
Lost Creek
Weatherhead Creek
South Stave Creek
Cascade Creek
Sonny Lake
Davis Creek
Davis Lake
Murdo Creek
Mckay Lake
West Norrish Creek
Ridge View Rd
Carratt Rd
Carratt Creek
Stave Lake Rd
Rodela Rd
Kontney Rd
Eng Creek
Rose Creek
Thurston Lake
Hartley Rd
Spratt Rd
Burns Rd
Degraff Rd
Allan Lake
MacNab Creek
Saporano Creek
Pattison Creek
Norrish Creek
Belcharion Creek
Durieu Creek
Oru Creek
Seux Brook
Lagace Creek
Sylvester Rd
Seux Rd
Durieu Rd
Pattison Rd
Farms Rd
Seux Rd
North Herford Creek
South Herford Creek
Hatzic Slough
Sylvester Creek
Dale Creek
Stave Lake Rd
Dale Rd
Patterson Rd
Stave Lake Rd
Scorey Creek
Sword Rd
Madill Creek
Kenworthy Creek
Currie Creek
Isle Slough
Cardinal Is Creek
Cardinal Is Creek

Schedule 4 - Development Permit Area 1-F

Official Community Plan for Hatzic Valley, Electoral Area 'F', Fraser Valley Regional District Bylaw No. 0999, 2010

Road
Land Parcel
Creek/Stream
OCP Boundary
Major Waterbody
Development Permit Area 1-F

0 0.25 0.5 1 Km
1:20,000

Projection: Universal Transverse Mercator, Zone 10 North, North American Datum 1983

This map comprises Schedule 4: Development Permit Area 1-F of Fraser Valley Regional District Official Community Plan for Hatzic Valley, Electoral Area 'F', Bylaw No. 0999, 2010 adopted this XXth day of MONTH, 2010.

Chair _____

Administrator _____

District of Mission
Electoral Area F
Electoral Area C
Electoral Area F
Stave Lake
Lost Creek
Weatherhead Creek
South Statlu Creek
Cascade Creek
Sonny Lake
West Norrish Creek
Rose Creek
Thurston Lake
Norrish Creek
Midge Lake
Davis Creek
Davis Lake
Murdo Creek
Davis Creek
Ridge View Rd
Carratt Rd
Carratt Creek
Ehy Creek
MacNab Creek
Saporano Creek
Pattison Creek
North Herford Creek
South Herford Creek
Dale Creek
Scorey Creek
Hatzic Lake
Cardinal Is Creek
Isle Slough
Cardinalis Creek
Kennedy Creek
Currie Creek
Rodela Rd
Stave Lake Rd
Kontney Rd
Hartley Rd
Burns Rd
Burns Rd
Spratt Rd
Allan Lake
Degraff Rd
Bertrand Creek
Durieu Creek
Ohu Creek
Seux Brook
Lapoie Creek
Sylvester Rd
Durieu Rd
Seux Rd
Pattison Rd
Seux Rd
Farms Rd
Hatzic Slough
Sylvester Creek
Stave Lake Rd
Dale Rd
Patterson Rd
Stave Lake Rd
Sward Rd

Schedule 5 - Development Permit Area 2-F

Official Community Plan for Hatzic Valley, Electoral Area 'F', Fraser Valley Regional District Bylaw No. 0999, 2010

Road

Creek/Stream

Major Waterbody

Land Parcel

OCP Boundary

Development Permit Area 2-F

0 0.25 0.5 1 Km

1:20,000

Stream information derived from Integrated Land Management Bureau (ILMB). The ability to represent streams and Riparian Assessment Areas is limited by the accuracy and completeness of existing stream mapping. Stream and locations are approximate and potentially uncertain. They are provided for planning purposes only and should not be relied upon for legal or financial purposes. Site-specific investigation is required to determine the presence and location of streams and Riparian Assessment Areas on individual properties. Map produced: May 2010.

Development Permit Area 2-F consists of lands within the area of this Official Community Plan and entirely, or partially, within a Riparian Assessment Area, which is:

A. for a stream, the 30 meter strip on both sides of the stream, measured from the high water mark;

B. for a ravine less than 60 meters wide, a strip on both sides of the stream measured from the high water mark to a point that is 30 meters beyond the top of the ravine bank; and,

C. for a ravine 60 meters wide or greater, a strip on both sides of the stream measured from the high water mark to a point that is 10 meters beyond the top of the ravine bank.

For convenience, mapped streams are generally shown on this map. Note that Development Permit Area 2-F includes the Riparian Assessment Areas associated with all streams and ravines within the Plan area, whether mapped or unmapped, including but not limited to the streams shown here.

Projection: Universal Transverse Mercator, Zone 10 North, North American Datum 1983

This map comprises Schedule 5: Development Permit Area 2-F of Fraser Valley Regional District Official Community Plan for Hatzic Valley, Electoral Area 'F', Bylaw No. 0999, 2010 adopted this XXth day of MONTH, 2010.

Chair _____

Administrator _____

Lost Creek
Weatherhead Creek
Cascade Creek
South Statlu Creek
Electoral Area C
Electoral Area F
Sonny Lake
McKay Lake
Davis Creek
Davis Lake
Murdo Creek
West Norrish Creek
Electoral Area F
District of Mission
Stave Lake
Cardinalis Creek
Ridge View Rd
Rose Creek
Thurston Lake
Carratt Rd
Kenney Rd
Stavel Lake Rd
Rodela Rd
Carratt Creek
Eng Creek
Hartley Rd
Allan Lake
Burns Rd
Degraff Rd
Sylvester Rd
MacNab Creek
Saporano Creek
Pattison Creek
Beharanon Creek
Durieu Creek
O'Neil Creek
Seux Brook
Legace Creek
Durieu Rd
Seux Rd
Pattison Rd
Farms Rd
Sealey Rd
North Harford Creek
South Harford Creek
Harris Slough
Sylvester Creek
Dale Creek
Dale Rd
Patterson Rd
Sculey Creek
Sword Rd
Hatzic Lake
Kenworthy Creek
Currie Creek

Map 1 - Agricultural Land Reserve

Official Community Plan for Hatzic Valley, Electoral Area 'F', Fraser Valley Regional District Bylaw No. 0999, 2010

Road

Land Parcel

Creek/Stream

Agricultural Land Reserve

Major Waterbody

OCP Boundary

0 0.25 0.5 1 Km

1:20,000

ALR data produced by the Agricultural Land Commission. This map is for informational purposes only. This map will not be updated and may be out of date. It should not be relied upon for legal or financial purposes. Consult the Agricultural Land Commission for current ALR boundaries. Distances and locations are approximate. This product is distributed without warranties of any kind, either expressed or implied, including but not limited to warranties of suitability of particular purpose or use. Map produced: May 2010

Projection: Universal Transverse Mercator, Zone 10 North, North American Datum 1983

Electoral Area C

Electoral Area F

District of Mission

Electoral Area F

Lost Creek

Weatherhead Creek

South Statlu Creek

Cascade Creek

Sonny Lake

Davis Creek

Davis Lake

Murdo Creek

Moray Lake

West Norrish Creek

Stave Lake

Cardinals Creek

Isle Slough

Ridge View Rd

Rose Creek

Thurston Lake

Carratt Rd

Kontney Rd

Carratt Creek

Rodela Rd

Stave Lake Rd

Eng Creek

Hartley Rd

Burns Rd

Spratt Rd

Allan Lake

MacNab Creek

Degraff Rd

Saporano Creek

Pattison Creek

Belchamber Creek

Durieu Creek

Oru Creek

Seux Brook

Legace Creek

Sylvester Rd

Durieu Rd

Seux Rd

Pattison Rd

Norrish Creek

North Herford Creek

Hatzic Slough

South Herford Creek

Kenworthy Creek

Sylvester Creek

Dale Creek

Dale Rd

Patterson Rd

Farms Rd

Currie Creek

Scorey Creek

Sward Rd

Hatzic Lake

Magill Creek

Map 2 - Major Floodplains and Flood Protection Infrastucture

Official Community Plan for Hatzic Valley, Electoral Area 'F', Fraser Valley Regional District Bylaw No. 0999, 2010

Stave Lake Floodplain

Fraser River Floodplain

District of Mission

Electoral Area F

Electoral Area C

Electoral

Road

Land Parcel

Dyke Classification

Standard

Creek/Stream

OCP Boundary

Non-Standard

Major Waterbody

Major Floodplain

0 0.25 0.5 1 Km

1:20,000

Floodplain boundary, dyke locations and classifications, and flood control features are derived from Ministry of Environment data. This map is for informational purposes only. This map will not be updated and may be out of date. It should not be relied upon for legal or financial purposes. Please consult FVRD Floodplain Management Bylaw No. 0681, 2005 and Minstry of Environment for current information. Distances and locations are approximate. This product is distributed without warranties of any kind, either expressed or implied, including but not limited to warranties of suitability of particular purpose or use. Map produced: May 2010

Projection: Universal Transverse Mercator, Zone 10 North, North American Datum 1983

Map 3 - Land Tenure

Official Community Plan for Hatzic Valley, Electoral Area 'F', Fraser Valley Regional District Bylaw No. 0999, 2010

Land Tenure
- Road
- Land Parcel
- Creek/Stream
- OCP Boundary
- Major Waterbody
- Crown
- Private

0 0.25 0.5 1 Km
1:20,000

Land tenure data derived from British Columbia Assessment Authority records (May 2010). This map is for informational purposes only. This map will not be updated and may be out of date. It should not be relied upon for legal or financial purposes. Consult British Columbia Assessment Authority or Land Title and Survey Authority for current land tenure. Distances and locations are approximate. This product is distributed without warranties of any kind, either expressed or implied, including but not limited to warranties of suitability of particular purpose or use. Map produced: May 2010
Projection: Universal Transverse Mercator, Zone 10 North, North American Datum 1983

Electoral Area C
Electoral Area F
District of Mission
Electoral Area F
Stave Lake
Lost Creek
Weatherhead Creek
South Statlu Creek
Sonny Lake
Cascade Creek
Davis Creek
Davis Lake
Murdo Creek
Moray Lake
West Norrish Creek
Cardinal Is Creek
Isle Slough
Cardinalis Creek
Davis Creek
Ridge View Rd
Rose Creek
Thurston Lake
Garratt Rd
Kohtney Rd
Garratt Creek
Rodela Rd
Stave Lake Rd
Eng Creek
Hartley Rd
Burns Rd
Spratt Rd
Allan Lake
Degraff Rd
MacNab Creek
Saporano Creek
Pattison Creek
Baldridge Creek
Durieu Creek
Orr Creek
Seux Brook
Logue Creek
Sylvester Rd
Durieu Rd
Seux Rd
Pattison Rd
Hoggs Rd
Norrish Creek
North Herford Creek
Hattie Slough
Sylvester Creek
South Herford Creek
Kenworthy Creek
Dale Rd
Patterson Rd
Farms Rd
Dale Creek
Currie Creek
Scorey Creek
Sward Rd
Hatzic Lake
Madill Creek

Map 4 - Cultural Resources

Official Community Plan for Hatzic Valley, Electoral Area 'F', Fraser Valley Regional District Bylaw No. 0999, 2010

Community and Cultural Resource

- North Fraser Fire Hall #3
- Durieu Elementary School
- Big Tree Stump
- Rock Outcropping
- Hatzic Prairie Community Hall
- McConnell Creek Farmers Institute Hall
- Xelxe:yles (Writing on a Bluff)
- Xat'seq (Hatzic, Village)
- Sxa'yeqs (Skayuks, Hamlet)

Historic Transportation Route

- Sto:lo Transportation Route
- Wagon Trail

- Regional Park
- Big Trees
- Archaeological Sites
- Road
- Creek/Stream
- Major Waterbody
- Land Parcel
- OCP Boundary

0 0.25 0.5 1 Km

1:20,000

Archaeological data courtesy of BC Ministry of Tourism, Culture and the Arts. Big tree locations are approximate and derived from the BC Conservation Data Center. Wagon trail data interpolated from BC Township Plan, Township 18 ECM. Sto:lo transportation routes and Coast Salish cultural resources interpreted from Carlson, K.T. (Ed.). (2001). "A Sto:lo Coast Salish Historical Atlas". Chilliwack: Douglas & McIntyre Ltd. This map is for informational purposes only. This map will not be updated and may be out of date. It should not be relied upon for legal or financial purposes. It is intended to provide an overview-level sketch of archaeological and cultural resources for broad planning purposes only. Archaeological site data may be approximate and potentially uncertain. Site-specific investigation is required to determine the exact location of archaeological sites. All distances and locations are approximate. This product is distributed without warranties of any kind, either expressed or implied, including but not limited to warranties of suitability of particular purpose or use. Map produced: May 2010

Projection: Universal Transverse Mercator, Zone 10 North, North American Datum 1983

Map 5 - Transportation Network

Official Community Plan for Hatzic Valley, Electoral Area 'F', Fraser Valley Regional District Bylaw No. 0999, 2010

Road Classification

- Creek/Stream
- Major Waterbody
- Land Parcel
- OCP Boundary
- Collector
- Local
- Future Road
- Forest Service Road
- Trail

0 0.25 0.5 1 Km

1:20,000

Road classification data courtesy of GIS Innovations (2008). This map is for informational purposes only. This map will not be updated and may be out of date. It should not be relied upon for legal or financial purposes. Distances and locations are approximate. Consult the Ministry of Transportation for current road classifications. This product is distributed without warranties of any kind, either expressed or implied, including but not limited to warranties of suitability of particular purpose or use. Map produced: May 2010

Projection: Universal Transverse Mercator, Zone 10 North, North American Datum 1983

Electoral Area C

Electoral Area F

District of Mission

Electoral Area F

Mount St. Benedict Trail

Beyer Rd

Ridge View Rd

Sylvester Rd

Carratt Rd

Koktavy Rd

Rodela Rd

Hartley Rd

Burns Rd

Spratt Rd

Degraff Rd

Lundgren Rd

Cascade Ridge Dr

Durieu Rd

Seux Rd

Pattison Rd

Dale Rd

Patterson Rd

Farms Rd

Sward Rd

Stave Lake

Hatzic Lake

Hatzic Slough

Allan Lake

Sonny Lake

Thurston Lake

Lost Creek

Weatherhead Creek

South Stave Creek

Cascade Creek

West Norrish Creek

Davis Creek

Davis Lake

Murdo Creek

Cardinalis Creek

Carratt Creek

Eng Creek

Rose Creek

MacNab Creek

Saporano Creek

Pattison Creek

Norrish Creek

North Herford Creek

South Herford Creek

Sylvester Creek

Dale Creek

Scotey Creek

Maddill Creek

Kennerley Creek

Currie Creek

Bolcherton Creek

Durieu Creek

Ore Creek

Seux Brook

Lagace Creek

Map 6 - Service Areas

Official Community Plan for Hatzic Valley, Electoral Area 'F', Fraser Valley Regional District Bylaw No. 0999, 2010

Road
OCP Boundary
Creek/Stream
Flood Control Local Service Area
Major Waterbody
Hatzic Water Service Area
Land Parcel
Fire Service Area

0 0.25 0.5 1 Km
1:20,000

Utility data courtesy of FVRD Engineering Department (2009). This map is for informational purposes only. This map will not be updated and may be out of date. It should not be relied upon for legal or financial purposes. Contact FVRD Engineering Department for current service area boundaries and utility information. Distances and locations are approximate. This product is distributed without warranties of any kind, either expressed or implied, including but not limited to warranties of suitability of particular purpose or use. Map produced: May 2010

Projection: Universal Transverse Mercator, Zone 10 North, North American Datum 1983

District of Mission
Electoral Area F
Electoral Area C
Electoral Area F
Stave Lake
Hatzic Lake
Lost Creek
Weatherhead Creek
South Statlu Creek
Cascade Creek
Sonny Lake
McKay Lake
Davis Creek
Davis Lake
Murdo Creek
West Norrish Creek
Cardinal's Creek
Slough
Cardinals Creek
Davis Creek
Ridge View Rd
Rose Creek
Thurston Lake
Carratt Rd
Carratt Creek
Kontney Rd
Rodela Rd
Stave Lake Rd
Eng Creek
Hartley Rd
Spratt Rd
Allan Lake
Burns Rd
Degraff Rd
MacNab Creek
Saporano Creek
Pattison Creek
Norrish Creek
Balcherion Creek
Durieu Creek
Oru Creek
Seux Brook
Lagace Creek
Sylvester Rd
Durieu Rd
Seux Rd
Pattison Rd
Scrivens Rd
North Herford Creek
Hatzic Slough
South Herford Creek
Sylvester Creek
Dale Creek
Kenworthy Creek
Stave Lake Rd
Dale Rd
Patterson Rd
Farms Rd
Currie Creek
Scorey Creek
Sward Rd
Madill Creek

Map 7 - Geologic and Stream Hazards

Official Community Plan for Hatzic Valley, Electoral Area 'F', Fraser Valley Regional District Bylaw No. 0999, 2010

Hazard Processes

Erosion Hazards
- P Soil Piping
- V Gully or ravine erosion

Fluvial (Alluvial) Hazards
- Fl Flood (inundation)
- Dfl Sediment-ladden water flow

Landslide Hazards
- Df Debris Flows
- Dfl Debris Flood
- Dff Debris Flows and Debris Floods
- Ds Debris Slides
- Dss Debris Sloughs and Slumps
- Ls_R Rock Slide
- Ls_S Soil Slide
- Rf Rock Fall
- Ush Any or all of the above. Undifferentiated slope hazards
- Uhm Undifferentiated hazard along outside margins of terrain polygon
- NAH No apparent (slope) hazard

Terrain Features

Fluvial (Alluvial) Materials (F) and Surface Expressions
- F^Af Alluvial Fan
- F^Af_x Alluvial Fan Complex (Several Fans in Lateral Contact)
- F^Ap Alluvial Floodplain

Fluvial (Alluvial) Hazards
- Fl Flood (inundation)
- Dfl Sediment-ladden water flow

Colluvial Materials (C)
- Cf Colluvial (Debris Flow) Fan

Fluvial-Colluvial Materials and Surface Expressions
- FCf Alluvial-Colluvial Fan (Alluvial Processes Dominant)
- FCf_x Alluvial-Colluvial Fan Complex (Several Fans in Lateral Contact)
- FCf_R Alluvial-Colluvial Fan, Bedrock Controlled in Part

Colluvial-Alluvial Materials and Surface Expressions
- CFf Colluvial-Alluvial Fan (Colluvial Processes Dominant)
- CFf_x Colluvial-Alluvial Fan Complex (Several Fans in Lateral Contact)

Till or Till-Like Surface Materials and Surface Expressions
- Mb Thick Till (depths greater then 2m.)
- Mbv Variably Thick Till (depths greater than 2m. to less than 1m. Bedrock Controlled Terrain)
- Ms Steep Till-Like Soil Slopes (may be bedrock at shallow depths)
- Mms Moderate to Steep Till-Like Slopes
- Mhd Ravine Headwater Depression in Till-Like Soils

Fluvioglacial Materials and Surface Expressions
- F^Gb Thick Fluvioglacial Materials (greater than 2m.)
- F^Gt Fluvioglacial Terrace (Kame Terrace)
- F^Gh Fluvioglacial Hill (Kame)
- F^Gu Fluvioglacial Undulating

Bedrock and Bedrock Controlled Slopes
- Rms Bedrock Controlled, Moderate to Steep Slopes
- Rr Bedrock Ridges
- Rs Bedrock Controlled Slopes (Steep but uniform)
- Rss_X Bedrock Controlled Slopes (Complex Mountain Slopes)

Organic and Wetland Materials
- Obv Variably Thick Organic or Wetland Soils (depths greater than 2m. to less than 1m.)
- Obv/F^Af Organic Deposits overlying Active Alluvial Fan Materials

- U Debris Avalance
- Hazard Setback
- Cliff Promontory
- Ancient Soil Slide
- Road
- Creek/Stream
- Major Waterbody
- Land Parcel
- OCP Boundary

Geotechnical Hazards
- No Apparent Hazard
- Floodplain
- Potential Hazard
- Significant Hazard
- Known Debris Hazard Occurrences

Debris Fan Hazard Rating
- High
- Moderate
- Low

0 0.25 0.5 1 Km
1:20,000

This map is for informational purposes only. This map will not be updated and may be out of date. It should not be relied upon for legal or financial purposes. Distances and locations are approximate. Geological and stream hazards shown on this map are based on Overview Geotechnical Hazard Assessment (OGHA), Electoral Area F (Hatzic Valley). Please refer to the OGHA report for slope criteria, hazard setbacks and hazard types. Debris flow and debris flood hazards derived from Preliminary Debris Flow Hazard Assessment of Carratt, Eng, McNab and Dale Creeks, Hatzic Valley (2004) by BGC Engineering Inc. This product is distributed without warranties of any kind, either expressed or implied, including but not limited to warranties of suitability of particular purpose or use. This information is for planning purposes and professional engineering and geoscience guidance during permit reviews. Future engineering and geoscience investigations are expected to independently identify types of hazards and hazard magnitutdes and probabilities based on field evidence and appropriate analyses. Incautious human activity is likely to increase hazard probabilities.

Map produced: May 2010

Projection: Universal Transverse Mercator, Zone 10 North, North American Datum 1983

Map 8 - Interface Fire Hazard

Official Community Plan for Hatzic Valley, Electoral Area 'F', Fraser Valley Regional District Bylaw No. 0999, 2010

Road
Creek/Stream
Major Waterbody
Land Parcel
OCP Boundary

Interface Fire Hazard
High
Moderate
Low

0 0.25 0.5 1 Km
1:20,000

Interface Fire Hazard data is taken from the Office of the Fire Commissioner Interface Fire Hazard maps. This map is for informational purposes only. This map will not be updated and may be out of date. It should not be relied upon for legal or financial purposes. Distances and locations are approximate. This product is distributed without warranties of any kind, either expressed or implied, including but not limited to warranties of suitability of particular purpose or use. Map produced: May 2010

Projection: Universal Transverse Mercator, Zone 10 North, North American Datum 1983

District of Mission
Electoral Area F
Electoral Area C
Electoral Area F
Stave Lake
Hatzic Lake
Lost Creek
Weatherhead Creek
South Stave Creek
Cascade Creek
Sonny Lake
Davis Creek
Davis Lake
Murdo Creek
Mckay Lake
West Norrish Creek
Cardinals Creek
Isle Slough
Caribou Creek
Ridge View Rd
Rodela Rd
Stave Lake Rd
Hartley Rd
Burns Rd
Spratt Rd
Allan Lake
Degraff Rd
Konthey Rd
Carratt Rd
Carratt Creek
Eng Creek
Rose Creek
Thurston Lake
MacNab Creek
Saporano Creek
Partison Creek
Norrish Creek
Dale Rd
Patterson Rd
Farms Rd
Sward Rd
Dale Creek
Scorey Creek
North Herford Creek
South Herford Creek
Sylvester Creek
Hatzic Slough
Kenworthy Creek
Currie Creek
Madill Creek
Bellchanton Creek
Durieu Creek
Orv Creek
Seux Brook
Legace Creek
Sylvester Rd
Durieu Rd
Seux Rd
Partison Rd

Map 9 - Habitat

Official Community Plan for Hatzic Valley, Electoral Area 'F', Fraser Valley Regional District Bylaw No. 0999, 2010

- Obstacle To Fish Passage
- Structural Barrier
- Wildlife Trees
- Fish Observations
- Road
- Creek/Stream
- Major Waterbody
- Wetlands
- OCP Boundary

Stream Classification

- Endangered Stream
- Threatened Stream

Endangered Species Occurrences - Location Masked

- Endangered Species Occurrences - Masked

Endangered Species Occurrences - Non-Sensitive

Species Name, Species Listing

- Long-leaved Pondweed, Red
- Northern Water-meal, Red
- Oregon Forestsnail, Red
- Pacific Water Shrew, Red
- Red-legged Frog, Blue
- Ussurian Water-milfoil, Blue

0 0.25 0.5 1 Km

1:20,000

This map utilizes data from a variety of sources prepared at different scales. Species occurrence data is from the BC Conservation Data Centre (March, 2010). Obstacles to fish passage, structural barriers and wildlife trees derived from Sensitive Habitat Inventory Mapping (2006). Stream classifications taken from the *Wild, Threatened, Endangered and Lost Streams of the Lower Fraser Valley Summary Report (1997),* Lower Fraser Valley Stream Review, Vol.3. Inquiries about stream classifications should be directed to the Habitat and Enhancement Branch, Department of Fisheries and Oceans Canada. This map is for informational purposes only. This map will not be updated and may be out of date. It should not be relied upon for legal or financial purposes. Distances and locations areapproximate. This map is intended to provide an overview-level sketch of habitat resources and species presence for broad planning purposes only. Fish presence data are approximate and potentially uncertain. They are provided for planning purposes only and should not be relied upon for legal or financial purposes. Site-specific investigation is required to determine the presence and location of streams, fish and other species individual properties. This product is distributed without warranties of any kind, either expressed or implied, including but not limited to warranties of suitability of particular purpose or use. Map produced: May 2010

Projection: Universal Transverse Mercator, Zone 10 North, North American Datum 1983

Map 10 - Aquifers

Official Community Plan for Hatzic Valley, Electoral Area 'F', Fraser Valley Regional District Bylaw No. 0999, 2010

Creek/Stream
Major Waterbody
OCP Boundary
Groundwater Well
Surface Water License

Aquifer Name
Cascade
Hatzic Prairie
McConnell

0 0.25 0.5 1 Km
1:20,000

Aquifer locations are derived from the BC Aquifer Classification Maps prepared by the Ministry of Environment (2002). Groundwater wells and surface water license data from BC Ministry of Environment, Environmental Protection Division. This map is for informational purposes only. This map will not be updated and may be out of date. It should not be relied upon for legal or financial purposes. Distances and locations are approximate. This product is distributed without warranties of any kind, either expressed or implied, including but not limited to warranties of suitability of particular purpose or use. Map produced: May 2010

Projection: Universal Transverse Mercator, Zone 10 North, North American Datum 1983

Cascade Aquifer
McConnell Aquifer
Hatzic Prairie Aquifer
North East Mission City Aquifer
East Steelhead Aquifer
Steelhead Valley Aquifer
North East Mission City Aquifer

Electoral Area C
Electoral Area F
District of Mission
Electoral Area F

Lost Creek
Weatherhead Creek
South Statlu Creek
Cascade Creek
Sonny Lake
Moxy Lake
Davis Creek
Davis Lake
Murdo Creek
Stave Lake
Cardinal Is Creek
Cardinalis Creek
Rose Creek
Thurston Lake
West Norrish Creek
Carratt Creek
Eng Creek
Allan Lake
MacNab Creek
Saporano Creek
Pattison Creek
Norrish Creek
Bellrichard Creek
Durieux Creek
Ou Creek
Sioux Brook
Lagace Creek
North Herford Creek
South Herford Creek
Hatzic Slough
Sylvester Creek
Dale Creek
Scorey Creek
Kenworthy Creek
Gurrib Creek
Hatzic Lake
Madill Creek