

2.0 - Protecting the Natural Environment

The Regional District of Nanaimo is experiencing increased pressure from population growth, urban sprawl and economic development initiatives. This has led to increased demand on our environmental resources and the need to implement policies and regulations that shift development towards sustainability. The Regional District of Nanaimo's concept of sustainability is that "humans are part of the ecosystem, and that there is a need to integrate the economic and social lives of humans into the environment in ways that maintain and enhance the environment rather than degrade or destroy it". The following subsections and their associated objectives and policies work towards this concept of sustainability and Goal 4 of the Regional Growth Strategy to protect the natural environment.

2.1 Environmentally Sensitive Ecosystems

In keeping with the community's values and the Region's goal of protecting the natural environment, the Electoral Area 'G' Official Community Plan identifies and supports the protection and enhancement of important environmentally sensitive ecosystems within the Plan Area. Environmentally sensitive areas are areas of land and/or water that are sensitive to human presence, development, and interference. They are also features, areas, or habitats that are worthy of a higher level of protection as a result of vulnerability, or particular value in maintaining essential ecosystem function as well as a high abundance and/or wide range of local biodiversity, including red and blue listed and migratory species.

An inventory of sensitive ecosystems on east Vancouver Island and the Gulf Islands was undertaken by the Canadian Wildlife Service in partnership with other agencies. The result of this inventory was the Sensitive Ecosystem Inventory of east Vancouver Island and Gulf Islands 2004. Some of these ecosystems have been incorporated into the maps and policies found within this OCP. As well there are likely other environmentally sensitive ecosystems and features unknown to the community and the Regional District of Nanaimo. It is the intent of this Plan to recognize new information on environmentally sensitive features as it becomes available and to adapt to changes in the location and extent of environmentally sensitive ecosystems, habitats, and features.

Electoral Area 'G' contains a diversity of environmentally sensitive ecosystems including, but not limited to older forest, estuaries and estuarine habitat, riparian vegetation, sparsely vegetated, wetland, second growth forest, and seasonally flooded agricultural field as well as natural features such as eagle nests, osprey nests, and heron rookeries, and vulnerable groundwater resources that require careful management to protect the biodiversity of these ecosystems.

Objectives:

1. Identify, protect, conserve, restore, and enhance environmentally sensitive areas within the natural environment.
2. Ensure that site specific evaluations of properties with environmentally sensitive features are reviewed through the development application process and encourage evaluations to occur prior to land alteration.
3. Encourage and support community stewardship of the natural environment through community and individual initiatives and public education.

4. Support the coordination and harmonization of efforts among the public, stakeholders, and all levels of government in the protection of the natural environment.
5. Strongly encourage innovative approaches for environmental protection and mitigation.

Policies:

1. Land or water which is sensitive to human presence is deemed to be an Environmentally Sensitive Area (ESA). These areas are identified on Map No. 2 of this Plan. It should be noted Environmentally Sensitive Areas are not limited to the boundaries indicated. This Plan may be amended from time to time to recognize newly identified ESAs and to make changes to ESA boundaries to reflect changing on-site conditions or more comprehensive environmental assessments and amendments to the Environmentally Sensitive Areas Atlas.
2. Designate Development Permit Areas in Section 10 (Development Permit Areas) of this Plan to protect the following sensitive ecosystem types: riparian vegetation, wetland, sparsely vegetated and older forest as defined in the ESA Atlas (linkages between these ESAs are also important and are addressed in Section 2.4 – Greenways).
3. Ensure that Zoning Amendment Applications within or adjacent to Environmentally Sensitive Areas are not approved where the proposed development will adversely affect an environmentally sensitive area as determined by an environmental professional.
4. In evaluating development proposals, the RDN will require development approval information including, but not limited to, report(s) prepared by Certified Environmental Professionals (R.P.Bio, R.P.F, etc.) identifying and locating all environmentally sensitive ecosystems and features, assessing the environmental impact of a proposed development and providing recommendations to mitigate all potential impacts.
5. Require return to Crown Land, or apply protective covenants or conservation agreements for riparian corridors along the bed of watercourses, creeks, lakes and wetlands wherever development on land adjacent to these features is proposed.
6. Support and encourage communication and education on environmentally sensitive features within the private sector, non-governmental organizations, and community groups.
7. Despite the minimum parcel sizes supported by this Plan, the creation of new parcels less than the minimum parcel size supported by this Plan and located within a smaller footprint of the parent parcel may be supported to protect and/or enhance an environmentally sensitive feature without an amendment to this Plan provided the overall number of parcels is consistent with the current zoning and the environmentally sensitive feature is permanently protected. It recognized that an amendment to the policies related to Goal 3 – Rural Integrity of the Regional Growth Strategy is required in order to permit parcel clustering.
8. Density transfer from a parcel located outside of the UCB to a parcel inside the Urban Containment Boundary may be supported without an amendment to this Plan subject to compliance with the Regional Growth Strategy in order to protect and enhance an environmentally sensitive feature.

9. Development should generally conform to *"Develop With Care: Environmental Guidelines for Urban and Rural Development in British Columbia"* as amended and/or replaced from time to time.
10. Zoning amendments and development proposals shall be reviewed in relation to existing and potential archaeological sites and where sites are apparent or identified on provincial archaeological mapping, such applications shall be referred to the Heritage Conservation Branch of the Ministry of Sustainable Resource Development.
11. Development applications for lands in or adjacent to environmentally sensitive features generally as identified on Map No. 2 of this Plan, shall not result in a net loss of the sensitive feature on the subject property. Although developments that propose negative impacts to environmentally sensitive features are generally not supported, it is recognized that there may be circumstances where some impacts are unavoidable or justifiable due to severe land use constraints. In these cases, an applicant should be required to provide compensation for the loss by establishing or enhancing an equivalent type of habitat elsewhere on the subject property at a ratio to be established by, and in accordance with, the recommendations of a Qualified Environmental Professional.
12. Notwithstanding Policy 11 above, developments that result in negative impacts to environmentally sensitive features shall not be supported unless the impacts are mitigated in accordance with the recommendations of a Qualified Environmental Professional.
13. To the greatest extent possible environmentally sensitive features should remain in their natural state and should not be developed or disturbed.

Advocacy Policies:

1. With respect to a proposed subdivision within, adjacent to, or containing an ESA, request that the Subdivision Approving Officer not support the proposed subdivision unless the environmentally sensitive feature is adequately protected through covenants, park land dedication where appropriate, or conservation agreement. It is preferred that the creation of new parcels not be supported in the case where it is likely that encroachment into the sensitive area would occur over time.
2. Encourage the British Columbia Ministry of Environment and Environment Canada to monitor environmentally sensitive features and take an active role in providing the Regional District of Nanaimo with updated information on the status, location, and management of any environmentally sensitive features on an ongoing basis.
3. Encourage senior provincial and federal agencies to work with the Regional District of Nanaimo, non-government organizations, and other community interest groups to identify, preserve, protect, and enhance environmentally sensitive areas.
4. Land owners, senior government agencies, non-profit societies, and non-governmental organizations are encouraged to participate in the registration and holding of covenants and assist with funding for environmental conservation.
5. Encourage land owners to develop their land in an environmentally sensitive way.

2.2 Freshwater Management

The Plan Area contains an extensive and complex interconnected water system including watercourses, wetlands, and aquifers that help define Electoral Area 'G'. Each of these natural resources is not only vital as a fish and wildlife habitat but serves directly and indirectly as the principal source of freshwater within the Plan Area and therefore, is worthy of protection through careful land use planning.

It is recognized that there may be many significant sources of freshwater that have not yet been identified, and consequently, identification of these sources is an ongoing process.

The two major rivers located within the Plan Area are the Little Qualicum River and the Englishman River. The Little Qualicum River and one of its two major downstream tributaries, Whisky Creek, drain the Northwest portion of the Plan Area. The Englishman River flows through the Southeast corner of the Plan Area. There are also a number of significant creeks in the Plan Area including French Creek and Morningstar Creek.

The Ministry of Environment, in cooperation with Fisheries and Oceans Canada, adopted new legislation titled the "Riparian Areas Regulation" (RAR), which came into force on March 31, 2006. This new legislation was enacted in July of 2004 under Section 12 of the British Columbia Fish Protection Act. This legislation aims to protect the features, functions, and conditions that support fish life processes in riparian areas.

Objectives:

1. To identify, preserve, protect, and enhance all freshwater ecosystems within Electoral Area 'G'.
2. To encourage and promote environmentally responsible development.
3. To support continued and on-going improvements in the quantity and quality of accurate reliable data on the location and characteristics of freshwater ecosystems.
4. To maintain, enhance, and protect the biodiversity, ecological functionality, aesthetic appeal and recreational value of all watercourses in Electoral Area 'G'.
5. To support a level of protection that meets the requirements of the RAR while also protecting the features, functions, and conditions that support the life processes of amphibious and terrestrial riparian-dependant species.

Policies:

1. Designate Development Permit Areas in Section 10 (Development Permit Areas) of this Plan to protect watercourses and their associated riparian ecosystems.
2. Ensure that all development applications, including the subdivision of land containing or adjacent to a watercourse, do not adversely affect that watercourse and its associated riparian ecosystems.
3. Do not support development applications that pose negative environmental impacts, unless those impacts are mitigated on the subject parcel or an adjacent parcel containing

- similar habitat such that the end result represents an overall improvement to the function of the ecosystem being impacted.
4. In evaluating development applications, the Regional District shall require development approval information including, but not limited to, report(s) prepared by an Environmental Professional (R.P.Bio, R.P.F, etc.) identifying and locating all environmentally sensitive ecosystems and features; assessing the environmental impact of a proposed development and providing recommendations to mitigate all potential impacts.
 5. Require Return to Crown, or apply protective covenants or conservation agreements for riparian corridors along the bed of watercourses, creeks, lakes and wetlands wherever development on adjacent land is proposed.
 6. Support and encourage communication and education on environmentally sensitive features within the private sector, non-governmental organizations, and community groups.
 7. Support the restoration and 'day lighting' of previously disturbed watercourses and discourage culverting and permanent diversion of watercourses.
 8. Rezoning to permit parcel averaging within the parent parcel(s) may be supported without an amendment to this Plan, subject to compliance with the Regional Growth Strategy, in order to protect and enhance an environmentally sensitive feature in accordance with the following:
 - a. A maximum of 50 % of the parcels proposed to be created may be reduced below the minimum parcel size currently supported in the Official Community Plan;
 - b. Approvals from the authorities having jurisdiction have been met with respect to the provision of water and sewage disposal;
 - c. There must be an environmentally sensitive feature located on the subject property, which has been identified and inventoried by a Qualified Environmental Professional and who has determined the feature to be a suitable candidate for preservation based upon its local and/or regional significance;
 - d. Permanent protection of the environmentally sensitive feature must be provided in accordance with the recommendations of a Qualified Environmental Professional; and,
 - e. No further subdivision of any of the parcels proposed to be created will be supported.
 9. Density Transfer from a parcel located outside of the Urban Containment Boundary to a parcel inside of the Urban Containment Boundary may be supported without an amendment to this Plan, subject to compliance with the Regional Growth Strategy in order to protect and enhance an environmentally sensitive feature.

10. Development should generally conform with *"Develop With Care: Environmental Guidelines for Urban and Rural Development in British Columbia"* as amended and/or replaced from time to time.
11. Creative development proposals which enhance a watercourse and/or provide protection to a watercourse shall be supported including clustering of development, density averaging, covenant protection, park land dedication over and above the minimum 5% requirement, providing green space, and other methods.
12. The Regional District of Nanaimo may consider options for the protection of Dudley and Hamilton Marshes.

Advocacy Policies:

13. With respect to a proposed subdivision within or adjacent to a watercourse, request that the Subdivision Approving Officer not support a proposed subdivision unless the watercourse is adequately protected through covenants, green space dedication where appropriate, or conservation agreement. It is preferred that the creation of new parcels not be supported in the case where providing adequate protection of the watercourse would likely result in encroachment into any covenant area over time.
14. Encourage the British Columbia Ministry of Environment and Environment Canada to monitor watercourses and provide the Regional District of Nanaimo with updated information on their status, location, and management.
15. Encourage senior provincial and federal agencies to work with the Regional District of Nanaimo, non-government organizations, and other community interest groups to identify, preserve, protect, and enhance watercourses.

2.3 Coastal Zone Management

This Plan provides guidelines for the management of coastal areas to complement provincial management of Crown foreshore resources and federal management of marine waters. The Official Community Plan encourages water surface uses where they are coordinated with upland uses; and where they are compatible with other water surface uses and the shoreline environment. The coastal zone is one of the prime features of the natural environment of the Plan Area and includes recreational beaches, sheltered embayed areas and sensitive estuaries at the mouth of the Little Qualicum and Englishman Rivers as well as French and Morningstar Creeks. The coastal zone also includes shoreline which may be susceptible to erosion or flooding in some areas.

The Plan Area contains one of only 22 provincially approved wildlife management areas. The Parksville–Qualicum Beach Wildlife Management Area (PQBWMA) encompasses 1024 hectares of coastal foreshore, estuary, and river habitat between Craig Bay and the Little Qualicum River including land adjacent to the Englishman River. The PQBWMA includes most of the coastal shoreline in the Plan Area and a portion of the Englishman River. It contains a diversity of ecosystems and animal communities that are sensitive to development and human disturbance, including a significant flock of Pacific Black Brant Geese that stop to rest and feed within this area each spring.

In 1994, a development permit was granted to allow development on land adjacent to the West side of the estuary on French Creek. There is, however, a strong community desire to find a way to preserve and restore these estuarine lands to fish channels and to preserve one of the only large

tracts of forested foreshore land remaining in the Plan Area between the Englishman River Estuary and the Little Qualicum River Estuary. The land, if preserved for ecological values, could then become a portion of the PQBWMA.

The French Creek Harbour is a major commercial marine harbour in the Plan Area and is excluded from the PQBWMA. The Commercial Harbour is managed by the French Creek Harbour Authority which regulates the commercial and recreational use of the harbour in coordination with Crown foreshore and marine waters legislation. The Harbour offers moorage primarily for commercial fishing vessels, but also offers limited recreational moorage and commercial storage of small boats. The harbour also includes a ferry terminal to Lasqueti Island and other commercial marine related operations.

The Integrated Land Management Bureau (ILMB) is responsible for the administration and allocation of leases respecting the aquatic Crown Foreshore portion of the shore zone, pursuant to the Land Act. The Regional District has the jurisdiction to regulate the use of land and water surfaces through zoning regulations.

Objectives:

1. Recognize the foreshore and waterfront areas as a finite resource and an integral part of the community's character and as a major destination for leisure and recreational pursuits.
2. Encourage development which will not alienate the foreshore from public access or impact on the natural environment.
3. Advocate cooperation and coordination between agencies responsible for the use and management of marine, foreshore and upland resources in order to assure more comprehensive management of the coastal zone.
4. Foster the public ownership and stewardship of the waterfront.
5. Maintain, enhance, and protect the biodiversity, ecological functionality, aesthetic appeal and recreational value of the waterfront.

Policies:

1. Designate Development Permit Areas in Section 10 (Development Permit Areas) of this Plan to protect the coastal waterfront including its associated riparian ecosystems.
2. Discourage the continued development or intensification of neighbourhoods along the coastal strip in order to limit alienation of foreshore areas, impacts on environmentally sensitive features, and the aesthetic impacts of development.
3. The owners of waterfront property and users of the shoreline and ocean are required to avoid disturbance, pollution, or damage to the foreshore and intertidal areas.
4. Support community involvement in the cooperation and coordination between agencies responsible for the use and management of marine, foreshore and upland resources in order to balance community objectives with comprehensive management of the coastal zone.

5. Where feasible, protect beach access road right-of-ways for public beach access and preservation of the shore zone ecosystems. The Regional District may request tenure for road right-of-ways for community park use.
6. The portion of the Plan Area within the PQBWMA, as established by the Environmental Stewardship Division of the Ministry of Environment, Lands and Parks is shown on Map No. 2. Approaches for co-management will be used, consistent with Section 12 (Cooperation Among Jurisdictions) of this Plan, to coordinate beach access and coastal zone activity with Wildlife Management Area objectives.
7. The use of shoreline stabilization measures on Crown Foreshore, in a manner that obstructs pedestrian access to and along public beaches or foreshore areas, shall not be supported. All works below the high water mark require Fisheries and Oceans Canada approval and a Crown foreshore tenure from the ILMB. Where approval for Crown foreshore use is considered, the RDN may support proposals for shoreline stabilization measures below the high water mark, provided they are designed to encourage public access along the beach area and do not have negative environmental impacts.
8. All proposals pertaining to lands adjacent to the PQBWMA that involve encroachment or trespass in to the Crown foreshore including the use of machinery below the natural boundary, must be referred to Fisheries and Oceans Canada (DFO) and the Ministry of Environment for comments and/or approval.
9. The use of marine retaining walls and other "hard" surfaces such as seawalls, concrete groynes, gabions, and rip rap shall only be supported where a qualified professional has determined that "soft" approaches to shoreline stabilization such as vegetation enhancement, upland drainage control, biotechnical measures, beach enhancement, anchor trees, and gravel placement are not appropriate given site specific conditions. In addition, the construction of shoreline stabilization measures including marine retaining walls should be in compliance with the Regional District of Nanaimo Marine Retaining Wall Policy, as amended from time to time.
10. Proposals for improved public access and environmental protection along the waterfront shall be supported.
11. The construction of structures for the purpose of providing private beach access shall only be supported where it does not impede public access and where it can be demonstrated that the proposed structure would not have a negative environmental impact and would be safe from a geotechnical and structural engineering perspective.
12. The surface of water within the Plan Area shall not be zoned for residential or industrial purposes.
13. Waterfront development proposals which do not provide suitable public waterfront access or which could cause damage to the environment, on land adjacent to the coastal foreshore, shall be opposed by the RDN.

Advocacy Policies:

14. The Ministry of Transportation shall be encouraged to foster the improvement of beach access road right-of-ways for public recreational use and beach access.

15. With respect to the dedication of road at the time of subdivision for a parcel that is adjacent to the ocean or a watercourse, the Subdivision Approving Officer is encouraged to require full access to all water bodies. If more than one access to a water body is a requirement under Section 7(f) of The Land Title Act, the Regional District of Nanaimo may support the consolidation of accesses to support recreational uses where such consolidation will not make access to the beach for the maintenance of properties or public infrastructure awkward, difficult, or impossible.
16. The Ministry of Transportation is strongly encouraged to deny encroachment permits to occupy road ends adjacent to the ocean or a watercourse where the permit would affect public access.

2.4 Greenways

Community Greenways are linear green corridors that provide a network of linear linkages between natural areas. These green space networks are critical to maintain functioning ecological processes, including the movement of organisms between ecosystems, and may also provide an opportunity for passive recreational uses. Public green spaces such as parks and trails, private green spaces such as agricultural land or golf courses, and shoreline areas of creeks and water bodies represent some of the greenway features in the Electoral Area 'G' Plan Area.

Plan Area residents have indicated support for the protection of native flora and fauna and public and private approaches for the protection and enhancement of such greenway features in order to enhance the liveability of the area and protect the environment. This section of the Plan identifies the community's long-term objectives and establishes an action plan for protection of greenway features in the Plan Area.

Objectives:

1. Create a 'Greenways' network to protect functioning ecological processes in corridors linking public and private green spaces and landscapes which may be environmentally sensitive or which may enhance the natural characteristics of the area.
2. Conserve and protect wildlife and waterfowl habitat sensitive to human disturbance through community greenways.
3. Support the identification and protection of native flora and fauna in greenways.
4. Promote the integration of the philosophy of community greenways into all future planning and development initiatives of the RDN, provincial and federal agencies, and private landowners.

Policies:

1. The creation of a Greenways Plan and integrated Regional Greenways Network in cooperation with the City of Parksville and the Town of Qualicum Beach is supported.
2. The designation of the following priority areas is supported for greenways protection within the Plan Area:

-
- a. Coastal shoreline areas and the estuaries of the Little Qualicum and Englishman Rivers as well as French and Morningstar Creeks.
 - b. Greenway corridors along the Little Qualicum and Englishman Rivers, French, Whisky, and Morningstar Creeks;
 - c. The E&N Rail right-of-way and greenway linkages thereto.
 - d. Parcels that, if fully or partially protected, provide linkages between identified ESA's.
3. The identification and designation of areas for the protection of native flora and fauna, and nature appreciation within the potential greenways shall be supported. In particular, private or community initiatives, including protection through land trust societies, restrictive covenants, ecological reserves or community park land acquisition.
 4. The development of passive recreational trail connections in greenways shall be supported where they are compatible with protection of the environment and greenway principles.
 5. The principles established in the publication "*Community Greenways: Linking Communities to Country, and People to Nature*" and the Greenways strategy of this Plan shall be assessed and applied where proposals for zoning amendment, subdivision or development permits are received.
 6. Creative development proposals which enhance greenway protection shall be supported, including clustering of development to protect additional green space, density averaging, covenant protection, park land designation and other methods.
 7. Land dedication for the purpose of greenway preservation may be considered as a community amenity and/or park land for passive recreational uses through a Zoning Amendment Application or Proposed Subdivision.

Advocacy Policies:

8. The habitat protection initiatives of the Ministry of Environment, BC Fisheries, and Fisheries and Oceans Canada shall be supported along rivers, streams and wetland areas and shall complement the Regional District's park land and greenway protection initiatives.
9. The Regional District of Nanaimo shall work with the Town of Qualicum Beach and the City of Parksville on the creation of a Greenways Plan and integrated Regional Greenways Network.

2.5 Natural Hazard Mitigation⁵

Natural hazard areas are sources of potentially dangerous chance events. Examples of natural hazard areas include lands which may be susceptible to damage from floods, mass movement of soil, landslides and earthquakes. Natural hazard areas are identified on (Map No. 2 Environmentally Sensitive Features and Natural Hazard Areas, Map No. 9 Development Permit

⁵ Bylaw No. 1540.06, adopted October 8, 2024

Area: Environmentally Sensitive Features and Hazard Lands Development Permit Areas and Map No. 11 Development Permit Area for Coastal Flood Hazard).

Potential landslides along the coastline are a major concern within the Plan Area. Some areas along the shore zone include steep wave-cut bluffs (with slopes between 30% and 60%) composed of unconsolidated sand. The threat of landslides is of particular concern in areas where homes have been constructed near the edges of these unstable slopes.

Areas of the coastline are also vulnerable to other coastal hazards including storm surge, coastal and estuary flooding, erosion and over time sea level rise. Climate change will increase the intensity and frequency of natural hazard events if unmitigated.

Seismic activity is a distinct possibility within the Plan Area. Vancouver Island is classified as a Zone 4 area according to the 1990 National Building Code Seismic Zoning Map. This indicates that the area is at high risk for seismic activity.

To help protect property, people and ecological function in development decisions, this Plan advocates the use of development permits to complement other regulatory devices, such as setbacks from unstable slopes and flood controls. Development permits offer the flexibility to customize development standards to reflect specific on-site conditions. Associated guidelines are designed to minimize the risk of potential hazards on persons and property.

Objectives:

1. Minimize the risk of personal injury or loss of property which may result from natural hazards.
2. Enforce mitigation measures which are compatible with the needs of local residents, are sensitive to the environment, and are consistent with current standards established by a qualified professional.
3. Identify, conserve and protect natural hazard areas and adjacent lands from damage due to development, subdivision or alteration of land.

Policies:

1. Known land susceptible to flooding, mass movement, unstable slopes, high rates of erosion, steep slopes or land that would pose a threat to property or lives if developed is deemed a natural hazard area (NHA). These areas are identified on Map No. 2 Environmentally Sensitive Features and Natural Hazard Areas, Map No. 9 Environmentally Sensitive Features and Hazard Lands Development Permit Areas and Map No. 11 Development Permit Area for Coastal Flood Hazard
2. Natural Hazard Areas are not limited to the boundaries indicated on Map No. 2, Map No. 9 and Map No. 11 and adjustments may be made to reflect changing on-site conditions or environmental assessments.
3. This Plan supports a review of natural hazard areas within the Plan Area to more accurately delineate their location and characteristics.

4. Designate Development Permit Areas in Section 10 of this Plan to protect lives and property from natural hazards to ensure that development is reviewed through the development permit process prior to the development or alteration of land.
5. A development application, subdivision or alteration of land in a natural hazard area shall not be supported unless the applicant or appropriate authority provides evidence that measures can and will be taken to render the development capable of withstanding the effects of the hazard, and to protect adjacent properties from possible impacts.
6. Development proposals in floodplains must comply with the Regional District of Nanaimo Flood Hazard Mitigation Bylaw No. 1872, 2023, including requiring future buildings and structures to be sited a minimum of 30 metres from the natural boundary of Englishman River, Little Qualicum River, and French Creek and 15 metres from all other watercourses, and satisfying flood control elevation requirements.

Advocacy Policies:

7. The Ministry of Environment is encouraged to provide additional floodplain mapping data on other watercourses in the Plan Area.

2.6 Groundwater Resources

Groundwater resources are particularly important to Plan Area residents as they rely on this resource for domestic water and for agricultural use. The location and characteristics of groundwater aquifers is very complex and is not fully understood within the Plan Area. Therefore, careful land use management is required to ensure the long-term viability of the Plan Area's domestic water supply. All surface water courses and known groundwater aquifers in the Plan Area are recognized as environmentally sensitive resources.

Water resource management primarily falls within the jurisdiction of the Water Management Branch of the Ministry of Environment. The policies of this Official Community Plan are intended to complement the provincial responsibilities for water management by guiding land use and servicing decisions in order to reduce any long-term negative impacts on the quantity and quality of water resources in the Electoral Area 'G' Plan Area.

Objectives:

1. Support and encourage further research, inventories, and monitoring of groundwater resources within the Plan Area
2. Ensure that development applications and proposed subdivisions do not have a negative affect on the quantity or quality of groundwater both today and into the future
3. Encourage a comprehensive and innovative approach to water conservation

Policies:

1. The general locations of known aquifers are identified on Map No. 2 (Environmentally Sensitive Areas and Aquifers). The identified aquifers are not limited to the boundaries indicated. Adjustments may be made to reflect new information as it becomes available.

2. Designate Development Permit Areas in Section 10 of this Plan to protect groundwater resources from potential negative affects of proposed development, where a development permit would be required prior to the development or alteration of land.
3. Zoning amendments that propose to increase the density or intensity of the use of land above an identified aquifer on Map No. 2 shall only be supported where an aquifer impact assessment conducted by a Hydro geologist or other qualified person can demonstrate to the satisfaction of the Regional District of Nanaimo that the proposed development will be serviced with an adequate supply of potable water that meets or exceeds Canadian Dinking Water Guidelines and will not negatively affect the subject aquifer(s) or jeopardize the quality or quantity of water available for use by existing Plan Area residents.
4. The establishment of land uses which would have a negative impact on the quality, or quantity of ground or surface water shall not be supported.
5. The Regional District of Nanaimo should, in cooperation with the Ministry of Environment, community water service providers, and Plan Area residents, pursue a detailed aquifer assessment of the Plan Area to obtain more accurate and detailed groundwater information in order to better understand and manage groundwater resources.
6. Consider the formation and implementation of a comprehensive water conservation program in cooperation with the Ministry of Environment, community water service providers, and Plan Area residents.
7. Support the creation and implementation of an aquifer/groundwater monitoring program in cooperation with the Ministry of Environment, community water service providers, and Plan Area residents
8. This Plan supports a feasibility study looking at the possibility of the formation of a joint drinking water management and purveyor function between the Regional District of Nanaimo, The City of Parksville, the Town of Qualicum Beach, the Little Qualicum Waterworks District, the Arrowsmith Water Service, and private water service providers to manage and purvey drinking water within the Plan Area, the Town of Qualicum Beach, and City of Parksville in order to standardize the level of service and manage drinking water at a watershed/sub-regional scale.
9. Encourage the use of xeriscaping, low flow plumbing fixtures, micro-irrigation and other innovative water conservation technologies in all existing and proposed development.
10. All development applications must minimize impervious surfaces and should consider both natural and man-made systems to maximize groundwater recharge while ensuring that groundwater resources are protected from potential deleterious substances.

Advocacy Policies:

11. Encourage the Subdivision Approving Officer, when considering a proposed subdivision to require an aquifer impact assessment to ensure that the proposed development will be serviced with an adequate supply of potable water that meets or exceeds Canadian Drinking Water Standards and will not negatively affect the subject aquifer(s) or

- jeopardize the quality or quantity of water available for use by existing Plan Area residents.
12. Senior agencies are encouraged to recognize that there are proven water conservation technologies that can significantly reduce water consumption and amend their legislation to remove barriers to water conservation.
 13. The Ministry of Environment is strongly encouraged to monitor existing water extraction licenses and to revoke licenses that are no longer in use.
 14. When considering applications for new water licenses and water license renewals, the Ministry of Environment should consider the long-term impact to existing groundwater users.
 15. The Ministry of Environment is encouraged to adopt a groundwater extraction licensing and monitoring program to encourage water conservation and to provide aquifer data to help better understand and manage groundwater resources.
 16. The Provincial Government is requested to introduce legislation to govern the management of groundwater resources to ensure that:
 - a. the rate of groundwater withdrawal does not exceed the rate at which the sources are recharged, and
 - b. the human use of ground or surface waters does not have negative impacts on fish and wildlife habitat or on the recreation potential of a creek, river or significant wetland.

2.7 Rain Water Management

Plan Area residents are concerned that additional development will result in more impervious surfaces. The creation of impervious surfaces interrupts the natural hydro geological cycle by decreasing the percentage of rain water and other surface water that is able to naturally infiltrate back in to the earth.

The resulting excess surface water, the water that would have otherwise been able to infiltrate back in to the earth, no longer becomes available to recharge the aquifers and moderate stream flow and stream temperature. In addition, the excess water has the potential to erode native soils and pick up contaminants as it flows along the ground before depositing them in watercourses that form part of the natural drainage pattern. Therefore, there is a direct relationship between the amount of impervious surfaces in our built environment and environmental health.

Since many Plan Area residents rely on groundwater for their domestic water supply and the Plan Area contains many fish bearing streams that are sensitive to disturbance that are also valued for their role in the ecosystem and for recreational opportunities, it is important to ensure that rain water is managed in a way that respects the environment.

Objectives:

1. Recognize rain water as a natural resource that must be managed to protect the environment including the quality and quantity of ground and surface water.

2. Support the use of engineering techniques and environmental designs that mimic the function of the natural environment.
3. Minimize the amount of impervious surfaces to the greatest extent possible.
4. Encourage innovative approaches to rain water management.
5. Support the use of permeable construction materials and man-made features that facilitate infiltration.

Policies:

1. Development or subdivision of land must be designed to:
 - a. Replicate the function of a naturally vegetated watershed;
 - b. Maintain the hydrological regime of surface and groundwater and pre-development flow rates;
 - c. Minimize interference with groundwater recharge; and,
 - d. Not introduce or remove materials where it would cause erosion of or the filling in of natural watercourses and/or wetlands.
2. Erosion control must be provided during construction and demolition.
3. The Regional District of Nanaimo will consider regulating impervious surfaces within the Plan Area through tools such as zoning regulations, landscaping requirements, etc.
4. The creation and implementation of a comprehensive area wide rain water management plan is strongly supported.
5. The Regional District will consider approving land development proposals only if there is assurance that rain water drainage from development does not increase the peak flow run off into adjacent areas.
6. Rain water management provisions shall be incorporated in to all Development Permit Areas included in Section 10 of this Plan.
7. Properties must not be developed in a manner which allows drainage water collected on a property to flow onto any adjacent private or public lands including public roads. On-site drainage shall be controlled by retention of open ground for infiltration, on-site retention basins, naturally vegetated areas, rock pits or dry wells to the satisfaction of the building inspector, who may require the owner to have the on-site storm drainage facilities designed by a qualified professional engineer at the owner's cost. Where onsite drainage is not possible due to poor drainage conditions as determined by a professional engineer, other environmentally sound options may be considered and may be subject to approval by the Ministry of Transportation.
8. Zoning Amendment Applications that will result in increased density or intensification of land use will be required to demonstrate that impervious surfaces have been minimized.

9. The Regional District of Nanaimo shall not support development applications that propose to release rain water run off containing sediments or other contaminants.

Advocacy Policies:

10. The Regional District shall request that the Approving Officer require subdivisions to be designed to maintain the hydraulic regime of streams while providing sufficient drainage in a manner which does not interfere with groundwater recharge or prevent the intrusion of erosion material into natural watercourses, lakes and wetlands.

2.8 Sustainable Development Practices and Climate Change

Well designed developments can contribute towards Electoral Area 'G residents' goal of maintaining a healthy natural environment. Factors such as historical land use patterns, inefficient building and site lay out design, and more recently trends in climate change have raised environmental awareness and the need to improve the efficiency of and reduce the ecological footprint of the built environment.

There are accepted building technologies, materials, and practices available that significantly improve the efficiency of the built environment while reducing its ecological footprint and at the same time reducing the long-term costs of operation and maintenance. The following objectives and policies work towards reaching the community's goal of maintaining a healthy natural environment through the use of more efficient building materials, techniques, and practices.

Objectives:

1. Encourage the use of energy efficient building materials, techniques, and practices that reduce the amount of energy consumption
2. Encourage nodal developments that reduce the dependence on automobiles for the primary mode of transportation
3. Advocate the use of green technologies that encourage the efficient use of water and reduce the ecological footprint of developments in Electoral Area 'G'
4. Encourage developments that contribute towards maintaining a healthy natural environment and improving sustainability
5. Educate the public on sustainable development practices and the use of green building technologies

Policies:

1. Provided that funding is available, the Regional District of Nanaimo may consider a rebate program for replacing inefficient high capacity toilets with currently acceptable low flow models.
2. The use of proven innovative and technologically viable technologies that make efficient use of water resources shall be supported, subject to provincial approval where applicable.

3. The Regional District of Nanaimo shall consider incentives to encourage sustainable developments.
4. The use of green technologies, energy efficient building materials, techniques, and practices to reduce over all energy consumption and reduce the ecological footprint of buildings and their associated uses shall be encouraged.
5. Rezoning applications that propose developments that achieve Leadership in Energy and Environmental Design (LEED) certification are strongly encouraged and such developments may be considered as part of a community amenity package, where deemed appropriate by the Regional District of Nanaimo.
6. This Plan supports the adoption of a green building policy for all new buildings.
7. Higher density development shall be concentrated in the Wembley Neighbourhood Centre, the French Creek Mixed Use Area, and within the Urban Containment Boundary in accordance with Section 3.1 of this Plan.
8. Comprehensive development proposals that consider the full life cycle of input materials and process by-products as well as seek to minimize energy and raw materials use, minimize waste, and that build sustainable economic, ecological and social relationships (eco-industrial networking) are supported (may require a Regional Growth Strategy amendment).
9. Where irrigation is required to maintain proposed landscaping, it should be designed and installed by an Irrigation Industry Association of British Columbia certified irrigation designer.

Advocacy Policy:

10. The Vancouver Island Health Authority is encouraged to support the use of green technologies for on-site rain water, gray water, and sewage recycling.

2.9 Energy Use and Climate Change⁶

Bill 27, enacted by the Government of British Columbia (Province) in 2008, requires official community plans (OCPs) to address how the Regional District of Nanaimo (RDN) will provide direction and take action to reduce GHG emissions in its electoral areas. Specifically, OCPs must include targets for the reduction of greenhouse gases and policies and actions with respect to achieving those targets.

The Province has set a target to reduce GHG emissions to 33% below 2007 levels by 2020 and 80% by 2050. The amount of GHG emitted is influenced by many factors. The RDN can directly and indirectly influence the level of emissions generated due to land use patterns, housing form, transportation systems, construction standards, and landfill operations. The RDN can also be instrumental in:

⁶⁶ Bylaw 1540.01, adopted May 25, 2010

- Recognizing the role sustainable forestry practices play in offsetting GHG emissions by storing carbon;
- Helping to slow global warming and supporting adaptation to the impacts of climate change by protecting the health of ecosystems; and
- Promoting and supporting the use of renewable energy and district energy systems.

Energy consumption is strongly influenced by land use patterns, density and mobility choices. Subdivision design, site planning, building design, and construction technologies are also significant factors in the amount of energy consumed. Reducing energy consumption means building compact, complete communities that are not auto-dependent, increasing the number of multi-unit dwellings, supporting (near) net-zero building design and construction, and supporting the use of renewable energy and district energy systems.

The RDN is in the process of preparing a Community Energy & Emissions Plan (CEEP) that will provide a framework for reducing energy consumption and GHG emissions within the region and establish specific targets for the reduction of emissions in specific areas - for example, building construction, transportation, and energy source. This information will be used to help develop more detailed area specific targets, policies and actions to be included in this Plan.

It is also important to plan for adaptation to the potential impacts of climate change. In particular, OCPs may include policies that address the need to adapt to potential sea level rise, water deficits, flooding, and wildfires, etc.

Policy Target

Support Province targets to reduce greenhouse gas emissions 33% below 2007 levels by 2020, and 80% below 2007 levels by 2050.

Policies

1. ***Growth Management*** - *Encourage population growth within village centres to reduce transportation based greenhouse gas emissions.*

Encouraging the majority of growth in village centres helps to facilitate more people living close to existing services, which decreases their need to drive. Designated growth areas coupled with policies to increase population densities in areas with improved services should decrease transportation related emissions, which are the largest source of emissions in the region.

Actions

- Support redevelopment in village centres which will result in higher densities and a greater mix of uses;
 - Support changes to the Urban Containment Boundary only if the result is a decrease in GHG emissions.
2. ***Compact Communities*** - *Support neighbourhood form that provides opportunities for energy efficient modes of transportation such as walking, cycling or public transit.*

When dwellings are located close to shopping, work and leisure activities residents are less reliant on driving. Higher population densities within existing communities can also support both improved public and commercial services within walking distance of residences.

Actions

- Support a variety of housing types within village centres;
- Support a mix of land uses that will contribute to having more complete and compact communities;
- Support the establishment of commercial or retail services in village centres that will provide for the needs of the residents in the village centre and in the immediate surrounding area;
- For development proposals within village centres consider how land use and transportation can be coordinated.

3. *Buildings and Energy* – *Encourage the incorporation of green building features into the siting and construction of buildings.*

Compact communities include more energy efficient forms of housing. By sharing walls, attached dwellings require less energy for space heating, the largest household energy expenditure. Specific green building features should be incorporated in the siting or design of buildings to make them more energy efficient and also make use of renewable energy sources.

Actions

- Consider green building features as a community amenity for zoning amendments consistent with this plan;
- Review the site layout in zoning amendments to consider how buildings may use energy more efficiently;
- Consider partnerships with the private sector for green building demonstration projects;
- Support the development and use of locally produced renewable energy.

4. *Forest Land and Carbon Sinks* - *Recognize the importance of natural areas for carbon absorption and develop tools to encourage development in existing developed areas as a means to redirect development away from greenfield sites.*

Plants, and in fact all living biodiversity within natural areas capture and store carbon from the atmosphere. A growing forest is a carbon sink capable of absorbing emissions from other sources such as transportation and settlement. But these areas are threatened by land use change and deforestation. The RDN should develop tools and incentives to encourage development in existing developed areas as a means to redirect development away from greenfield sites.

Actions

- Develop tools and incentives to facilitate the encouragement of the redirection of development from greenfield sites to village centres;

- Develop tools and incentives to encourage the retention of trees and vegetation on private property.

5. Food Production – *Support efforts to maintain a sustainable locally produced source of food.*

Escalating costs, competition with cheap imported foods and cumbersome regulations on operations have all diminished local agriculture and the ability of farmers to maintain viable farms. Support for local agriculture will cut the number of commercial vehicles transporting food into the region and provide the security to local farmers to adopt more sustainable practices.

Actions

- Review the zoning bylaw to reduce obstacles to maintaining efficient farming operations, agricultural processing or compatible land uses;
- Support the provision of services and infrastructure necessary to the efficient and sustainable farming operations;
- Support the development and provision of resources to support agricultural sales;
- Encourage the retention of land in the Agricultural Land Reserve and other productive farm lands.

6. Transportation and Infrastructure – *Promote private and public infrastructure that may use energy more efficiently.*

Infrastructure and services provided in compact complete communities provides opportunities for personal and institutional choices that conserve energy. Efficient use of infrastructure may reduce transportation related emissions through integrating active transportation with existing road networks or it may reclaim energy resources from waste streams to service public and private facilities.

Actions

- Provide trails and pathways that are functional and support efficient pedestrian movement;
- Support transit and transportation alternatives that will reduce greenhouse gas emissions;
- Recover energy and materials from both public and private sector waste streams that may be used to service communities or facilities.