

Municipality of North Cowichan

Official Community Plan Advisory Group

AGENDA

Wednesday, April 28, 2021, 5:00 p.m.
Electronically

Pages

1. CALL TO ORDER

This meeting, though electronic, is open to the public and all representations to the Official Community Plan Advisory Group form part of the public record. At this time, due to the COVID-19 Pandemic, public access to Council Chambers is not permitted, however, this meeting may be viewed on the District's live stream webcast at www.northcowichan.ca/meetings.

2. APPROVAL OF AGENDA

Recommendation:

That the Official Community Plan Advisory Group approve the agenda as circulated [or as amended].

3. ADOPTION OF MINUTES

3.1. Official Community Plan Advisory Group Minutes

2 - 3

Recommendation:

That the minutes of the OCP Advisory Group meeting held February 24, 2021 be adopted.

4. BUSINESS

4.1. Welcome - Project Update

4.2. Update and Discussion on Growth Management

4 - 25

4.3. Quamichan Watershed Stewardship Society - Response Letter

26 - 27

4.4. North Cowichan Environmental Policy Review - For Information

28 - 64

4.5. Wrap Up and Next Steps

5. NEW BUSINESS

6. ADJOURNMENT

Municipality of North Cowichan Official Community Plan Advisory Group MINUTES

**February 24, 2021, 5:00 p.m.
Electronically**

Members Present	Cam Campbell Chris Crowther Bernie Jones Mona Kaiser Caitlin Kenny Rupert Koyote Ender McDuff, Chair Sandy McPherson David Messier Brielle Varasteh
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Staff Present	Rob Conway, Director, Planning and Building Chris Hutton, Community Planning Coordinator Mairi Campeau, Community Planner
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Consultant Present	Rob Barrs Suzy Lunn
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1. CALL TO ORDER

There being a quorum present, the Chair called the meeting to order at 5:04 p.m.

2. APPROVAL OF AGENDA

IT WAS MOVED AND SECONDED:
That the Official Community Plan Advisory Group approve the agenda as circulated. CARRIED

3. ADOPTION OF MINUTES

3.1 Official Community Plan Advisory Group Minutes

IT WAS MOVED AND SECONDED:
That the minutes of the OCP Advisory Group meeting held February 10, 2021 be adopted. CARRIED

4. BUSINESS

4.1 Discussion on Evaluation Criteria and Growth Management Scenarios

A presentation was provided with some revisions to the growth management scenarios strategy.

The OCP Advisory Group then had a discussion on how to move forward with this stage of the project.

The Advisory Group determined there was still work to be done on the scenarios prior to moving forward.

A motion was put on the table to strike a working group/sub-committee. The Advisory Group will need to identify the membership and terms of reference for the subcommittee. Agendas and minutes will need to be developed, and the meetings will need to be live-streamed. The sub-committee will report back to the OCP Advisory Group.

IT WAS MOVED AND SECONDED:

That the OCP Advisory Group develop a sub-committee of 4 people plus one more space for those members who were not in attendance, to meet 2 or 3 times prior to the next OCP Advisory Group meeting. This sub-committee will work to finalize the growth scenarios options and develop three versions of one scenario. The four members appointed to this sub-committee were David Messier, Cam Campbell, Chris Crowther and Mona Kaiser.

CARRIED

4.2 Wrap Up and Next Steps

5. NEW BUSINESS

6. ADJOURNMENT

The meeting ended at 7:25 p.m.

Signed by Chair

Certified by Recording Secretary



MODUS

from insight to impact

North Cowichan Growth Scenarios Guide

Official Community Plan Update

Prepared by: MODUS Planning, Design & Engagement Inc.

Version: 2

Date: 28 April 2021

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ATTACHMENT 1: GROWTH SCENARIO 3D MODELS

ATTACHMENT 2: WATER AND SEWER SERVICING MEMO

ATTACHMENT 3: ENVIRONMENT MEMO

1 OVERVIEW

1.1 Background

When we use the term “growth”, we are usually referring to a combination of increased population and increased development (residential and employment-related) that accompanies it. Many communities in BC, including North Cowichan, are experiencing population growth that results from immigration to Canada and migration from other Canadian communities/regions. As with most BC communities, North Cowichan is not seeing any natural increase (more births than deaths). The growth in population results in increased demand for housing and services and the need for employment for these people. Increased demand for residential development also arises from a change in household size as well as demand for recreational and commercial properties.

Growth management is the practice of planning for and controlling the location, density and type of land use and development in a community. The idea is that by managing where growth occurs, we can increase the public benefits arising from growth and also mitigate the negative impacts of growth on health, asset management costs and the environment.

As North Cowichan grows and develops over the long-term, growth can be shaped to help meet our liveability and climate goals and protect our important natural and community assets. While growth management is one important tool to achieve the OCP vision, goals and principles, we will be considering other policy tools, as we move forward with the update to the OCP.

The [OCP Backgrounders](#) provide important context for this stage of the process. The Growth Management backgrounder highlights the following:

- Single family is the primary housing form.
- There is a lack diverse housing options, including ground-oriented multi-family housing.
- There is an insufficient supply of purpose-built rental housing.
- The population is aging.

1.2 Growth Scenarios

This growth scenarios describe three concepts for long-term development and growth through 2040. The scenarios will be used as a foundation for engaging the public on this important topic. Through the analysis of the engagement, the staff and consulting team will identify a preferred scenario that will be integrated into the growth management policy chapter of the OCP. The draft growth management policy chapter and other chapters on housing, environment etc. will be part of the next phase of engagement for the OCP.

Based on the discussions with the OCP Advisory Committee Working Group, the scenarios include:

- Business as Usual
- Focussed Growth
- Neighbourhood Node Growth

Each scenario preserves North Cowichan’s agricultural, natural and rural areas outside the Urban Containment Boundary. Each scenario includes an analysis using the [draft goals](#) (slides 25-31) developed during the fall 2020 as part of the OCP update. These goals are:

1. Focus Growth and Development in Established Centres
2. Build Resilient, Supportive and Inclusive Communities
3. Encourage a Diverse Mix of Housing Types, Tenures and Affordability
4. Regenerate and Protect the Natural Environment
5. Enhance Food Security
6. Support a Thriving Sustainable Economy
7. Prioritize Climate Action (added at the February 24, 2021 OCP Committee Meeting)

In addition to input from the North Cowichan staff technical team (environment, engineering and planning) the following studies and reports were used to inform the analysis for each scenarios:

- [Cowichan Communities Health Profile](#)
- [Cowichan Industrial Land Use Strategy](#)
- [North Cowichan Housing Needs Assessment](#)
- [North Cowichan's Climate Action and Energy Plan](#)
- Municipality of North Cowichan Child Care Plan

1.3 North Cowichan Growth Forecast

According to the baseline projections in the [Rennie Intelligence Long-Range Projections of Population, Housing, and Employment](#) in the Cowichan Valley Regional District Report (June 2019):

- North Cowichan might expect its population to increase from 29,913 (2017) to 38,612 by 2050, an increase of 8,699 people or 29% over 34 years.
- Housing units are projected to increase from 12,820 in 2017 to 16,519 in 2050 (an increase of 3,699 or 29%).
- Jobs are expected to increase from 11,310 to 14,542 (an increase of 3,232 or 29%) over the same time period.

The Housing Needs Assessment identified a need for more one bedrooms, subsidized units for those experiencing homelessness, purpose-built rental units and affordable home ownership options.

1.4 Community Character Study

The draft findings from the [Community Character](#) stage of the OCP that took place early in 2021 include preferences for land use, development and housing forms and provide insight as we develop the scenarios. They reinforce the draft growth management goal *to focus growth and development in established centres*. A high-level summary includes:

- the residents of the **established centres** of the South End Centre/ University Village, Chemainus and Crofton support low-rise multi-family-mixed use buildings to promote resilient, supportive, inclusive communities.
- residents of **communities in transition** on the urban and rural edge such as Berkey's Corner and Bell McKinnon are supportive of some growth that promotes housing diversity and economic opportunities.
- residents of Maple Bay have an **appetite for change** that will promote housing options and creation of viable commercial options
- Quamichan Lake area residents report on rapid **development that is perceived as being 'out of character'** and aren't receptive to any more growth in housing units
- the Rural Areas need **continued protection and regeneration** of the natural areas and farmland.

2 CURRENT STATUS

2.1 Water and Sewer Infrastructure

The map shows the Urban Containment Boundary and the water and sewer servicing area. Most of the development that has taken place over the last 20 years has occurred within the Urban Containment Boundary.

The Municipality operates water systems in Chemainus, Crofton, and the South End areas. The South End system supplies the local areas of Berkey’s Corner, Bell McKinnon, Quamichan, Maple Bay, plus portions of South End Centre, Rural West and Rural East. They have adequate capacity for anticipated growth. The biggest consideration is fire flow demands for water if density increases.

The South End, Chemainus and Crofton are connected to the municipal sewer system and have adequate capacity for the anticipated growth (portions of Bell McKinnon and Quamichan not yet connected).

Maple Bay is not serviced with sanitary sewer however, the municipality operates a small sewer system near Birds Eye Cove.

Some upgrade may be needed in older neighbourhoods. Increased density and site coverage results in more impervious area and increased runoff. Properly designed and maintained drainage works need to be incorporated into all new developments to ensure that municipal infrastructure and natural systems are not adversely impacted. See the attached memo on Water and Sewer for more information.

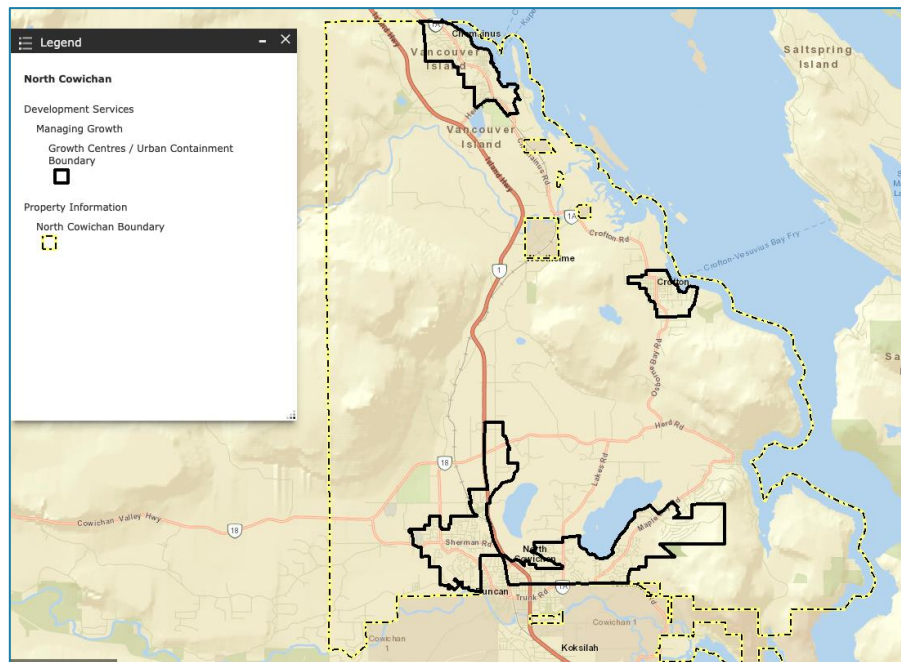


Figure 1: North Cowichan Urban Containment Boundary

2.2 Environment & Climate

North Cowichan mainly consists of agriculture, forest reserves, natural and rural areas (see the map below). In determining future growth areas, it is important to note the environmental features, particularly within the Urban Containment Boundary. In addition to the information shown on the map below, North Cowichan’s mapping system provides data on a number of other environment features and natural hazards such as:

- Water bodies, i.e., lakes, marshes, wetlands, rivers and streams

- Coastal Setbacks
- Riparian areas and sensitive ecosystems,
- Conservation land, e.g., Garry Oak Preserve, Somenos/S'amunu conservation area, covenants
- Natural hazards such as wildfires and steep slopes
- Parks,
- Municipal Forest Reserve, and
- Agricultural Land Reserve and agriculturally zoned land.

The link to the environmental map which includes a number of layers can be found [here](#).

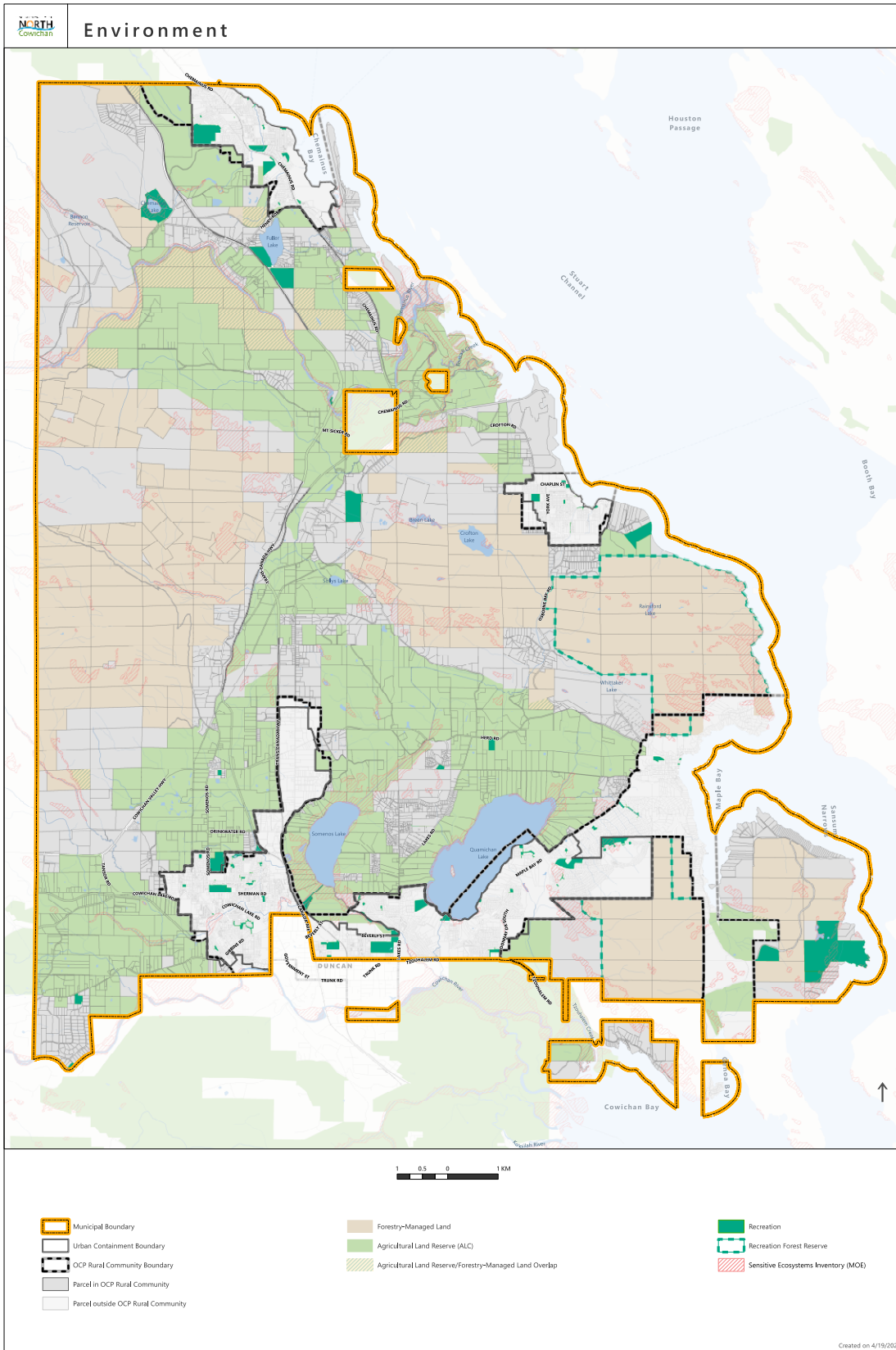


Figure 2: North Cowichan Environment Map

The [Climate Action and Energy Plan](#) (CAEP) identifies opportunities to reduce North Cowichan's energy consumption and emissions through community actions, policy and other municipal mechanisms. The [Climate Change Backgrounder](#) includes important information to inform the discussion on land use and energy and emissions. The attached memo includes further information about greenhouse gas emissions, climate resilience and ecosystem functions related to growth management. The following points excerpted from the memo are important to highlight:

- The emissions come from 4 major sectors; light industrial operations 39%, vehicles 34%, agriculture 13%, residences 7%, and losses during storage/transport 5%
- Because the vast majority of our electricity (more than 90%) is derived from hydroelectric dams, changes in housing type have less impact on community emissions than changes in transportation mode and pattern.
- Several thousand vehicle trips per day are made between North Cowichan and either Nanaimo or Victoria, which constitutes a significant share of personal vehicle emissions.
- The maximum likely storage of carbon in the municipal forest reserve (MFR) would offset about 6% of community emissions in 2021. Because the carbon sequestration is annually constant, the proportion of this offset would increase if we meet our emissions reduction targets.
- Development within the existing UCB would allow North Cowichan to meet greenhouse gas reduction targets.
- Concentration of new residential and commercial development in the UCB will minimise threats to ecosystem function but this will not change the impact of industrial and agricultural land use.
- Increasing high density housing options will need to be offset by protection of riparian areas and include consideration of buffers.

2.3 Current Status and Capacity in Existing Plans and Zoning

In order to determine future growth areas, it is important to understand the current number of housing units and jobs in North Cowichan and the number of units currently approved under comprehensive development zones and allowed under existing zoning.

2.3.1 Housing Units

According to the census, there are currently 8,200 single detached homes in North Cowichan and 1,535 apartments and 2,580 duplex/ triplex/ townhouse plus 510 moveable dwellings, see the table below.

Single Detached	Apartments	Ground Oriented	Moveable	Total
8,200	1,535	2,580	505	12,820

North Cowichan has approved development on the books in the form of comprehensive development (CD) plan areas (with approved zoning and phased development agreements) as well as other land zoned for additional density within the Urban Containment Boundary. The intent is for the Zoning Bylaw update (which will follow the OCP update) to align zoning with the land use direction confirmed in the new OCP. Most CD plans cannot be changed at this time as legal agreements are in place.

The CD plans in Quamichan (Kingsview and Stonehill Estates) have approximately 1,400 units yet to be developed. The CD4 zone in Chemainus on Askew Creek Drive has undeveloped unit potential of approximately 200 units.

Each of the scenarios assumes development of the remaining undeveloped units in the comprehensive development plan areas as approvals are already in place.

Beyond the approved (already zoned) development noted above, North Cowichan has significant capacity in recently approved Local Areas Plans (including Bell McKinnon, University Village and Crofton). The intention is to align these plans with the growth management direction confirmed through this process and consider the need for new local plans for those areas without one (ex. Berkey’s Corner, Maple Bay etc.)

Jobs

According to the Rennie Report there are currently 11,310 jobs in North Cowichan with the majority in the health and education, followed by manufacturing and trades.

Primary	TWU	Construction	Manu.	Trade	Fire&Pro/Sci/Tech/Service	Educ&Health	Acc&Food	Other	Public Admin	Total
653	397	859	1,586	1,814	1,102	3,323	772	558	249	11,310

The map below illustrates the commercial and industrial areas where some of these jobs are located including:

- Chemainus Industrial Park and
- Chemainus Bay Industrial Areas
- Crofton Industrial Areas/ Catalyst Lands
- Drinkwater Industrial Area
- North Road Industrial

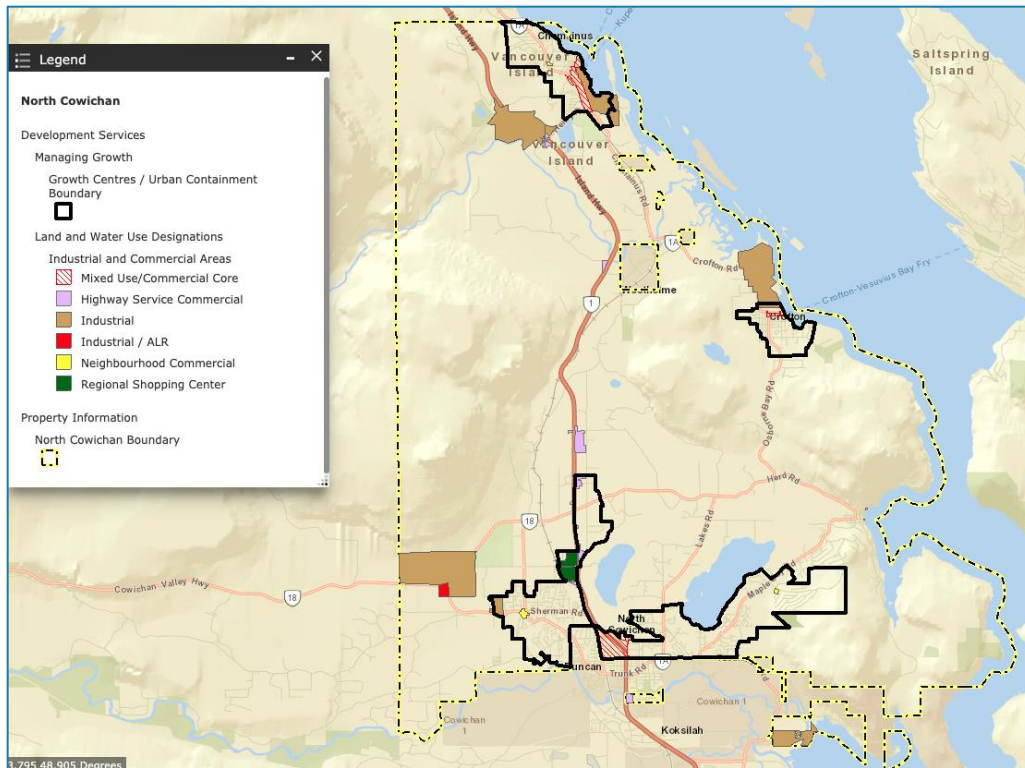


Figure 3: North Cowichan Industrial and Commercial Areas

3 SCENARIO 1: Business as Usual

This scenario follows the growth patterns set out by the 2011 OCP, Zoning Bylaw and a similar density and pattern to what has occurred in the last 20 years which has been mainly **lower density single family development**. Under this scenario, growth will continue to be limited to the existing Urban Containment Boundary, preserving the agricultural, natural and rural areas outside the UCB.

Focused Growth in Existing Centres

This scenario follows the growth management direction as identified in local plans including:

- Bell McKinnon Local Plan
- University Village Local Plan
- Crofton Local Plan
- Chemainus (OCP Designation - Mixed Use Commercial Core)

Residential development has also occurred outside the local areas plans in the comprehensive development plan areas in Quamichan, Berkey's Corner and Chemainus. While some of the growth would be focussed in existing centres, Bell McKinnon would create a new community.

Resilient, Supportive and Inclusive Communities

Less dense communities in the form of single-family housing may mean less opportunity for public benefits such as child care, social services to address homelessness, substance abuse, mental health and accessibility in the built environment. Housing is spread out so that residents are reliant on cars and less physically active and less able to rely on transit

Diversity of Housing, Types and Tenures

Under this scenario we expect the majority of new housing units to be single family and less affordable to local residents. There may be fewer new rental or non-market units, given a greater proportion of lower density development.

Regeneration and Protection of the Natural Environment

While this scenario continues to protect natural areas, some rural and natural areas within the UCB may be developed, such as in Bell McKinnon.

Food Security

While agricultural lands outside the UCB may be protected, there may be some loss of food production lands within the UCB.

Thriving Sustainable Economy

Under this scenario, existing industrial and commercial lands will be maintained. Through other policy levers, North Cowichan may wish to encourage green, local jobs in these areas. Bell-McKinnon is built out according to the local plan with the hospital and surrounding residential units and commercial areas.

Climate Action

Under this scenario the forestry reserve will be maintained which promotes carbon sequestration. Less dense communities contribute to vehicle emissions. Bigger homes are less energy efficient due to their size. Since agricultural and industrial lands will be maintained, emissions will continue from these sources (52%). All new construction contains 'embodied' carbon within its material which is an important consideration for new development.

4 SCENARIO 2: Focussed Growth

This scenario seeks to avoid any further development on rural lots in the UCB (beyond what is already approved) and uses infill policies to focus development and maximize infrastructure in existing developed areas. Infill is defined as increasing density on vacant or under-used parcels within existing urban areas.

Focussing Growth in Established Centres

This scenario follows the growth management direction to create **denser communities** as identified in local plans including:

- University Village Local Plan
- Crofton Local Plan
- Chemainus (OCP Designation - Mixed Use Commercial Core)

Growth Area Boundary Revisions

- No residential growth for Bell McKinnon to protect rural lots and environmentally sensitive areas, hospital site remains with some medical services surrounding the site near Herd and Bell McKinnon Road.

- No further residential growth for Quamichan (beyond what is already approved) to protect rural character, as per the community character study.
- Berkeley's Corner - Focus ground oriented multifamily/ mixed use building near neighbourhood commercial at Sherman and Somenos and along Sherman Rd corridor to protect environmental areas and rural lots.
- Focussing growth in Crofton and Chemainus to the commercial core areas.

Water and sewer services are in place to support this scenario (sewer lines need to be extended in Bell McKinnon).

Resilient, Supportive and Inclusive Communities

Denser communities may mean more opportunity for public benefits that support the principles of social justice and equity such as child care, social services to address homelessness, substance abuse, mental health and accessibility in the built environment. Housing is focussed around commercial nodes to promote walkability to reduce energy use and emissions and aid those that can't afford a car and take transit.

Diversity of Housing, Types and Tenures

In order to meet housing needs and affordability, under this scenario we expect a higher percentage of units multi-family (duplexes, townhomes, apartments) versus single family and a higher percentage with rental tenure and non-market units to support low-income residents. New units will be designed to fit the local character of the built environment and will be built to energy efficient standards.

Regeneration and Protection of the Natural Environment

This scenario will enhance landscape scale ecological connectivity and biodiversity across North Cowichan with a view to fostering sustainability, resilience and regenerative change. Environmental and ecosystem protection and natural hazards areas have guided the creation of updated growth areas boundaries. New land use designations could further protect and enhance conservation areas.

Food Security

This scenario will sustain or expand upon existing green space, expand agricultural activity and local food production on non-ALR lands to create a sustainable, local food system in North Cowichan. This scenario would seek to expand land for food production distribution in a variety of designations.

Thriving Sustainable Economy

This scenario re-imagines the Bell-McKinnon as a high tech medical oriented business node that contributes to a thriving sustainable economy rather than a residential community.

This scenario will maintain current industrial and commercial lands and using other policy levers to encourage green, local jobs. The single family home construction industry may be impacted under this scenario and could switch to building multi-family units.

Climate Action

In addition, to focusing growth to reduce vehicle emissions, energy use and stewarding the natural environment, this scenario would expect new units to be built to energy efficient standards. Since agricultural and industrial lands will be maintained, emissions will continue from these sources (52%). All new construction contains 'embodied' carbon within its material which is an important consideration for new development.

5 SCENARIO 3: Neighbourhood Node Development

This scenario builds on Scenario Two and shifts focus to neighbourhood nodes to create 15 minute neighbourhoods. The notion of 15-minute neighbourhood developed during the COVID-19 pandemic and means that residents can walk or cycle to shops or services in 15 minutes.

Growth Area Boundary Revisions

- Some housing/ commercial development at Herd and Bell McKinnon Rd near hospital site and along Bell McKinnon south corridor (Core Village Designation in Local Plan)
- Gentle infill/ ground-oriented housing around the neighbourhood commercial node in Quamichan to promote viable commercial opportunities (above what's approved in CD zones)
- Gentle infill/ ground-oriented housing in Maple Bay to create viable commercial opportunities and a diversity of housing forms, where on-site wastewater treatment can be achieved.
- Neighbourhood nodes in Crofton and Chemainus with infill and policy-supported density.

Focussing Growth in Established Centres

This scenario would focus growth in established centres and add additional density near each neighbourhood node. Though Bell McKinnon is not an established centre, it would create a new community where residents could walk to shops and services within 15 minutes. Maple Bay is not connected to the municipal sewer system. Any new development would need to include on-site wat

Resilient, Supportive and Inclusive Communities

While the neighbourhood nodes would not be as dense as the core communities, walking and cycling to nearby shops and services mean better health outcome for residents. Housing focussed around commercial nodes to promote walkability to reduce energy use and emissions and aid those that cannot afford a car and take transit.

Diversity of Housing, Types and Tenures

As with Scenario 2 we expect a higher percentage of units multi-family (duplexes, townhomes, apartments) versus single family and a higher percentage with rental tenure and non-market units to support low-income residents. New units will be designed to fit the local character of the built environment as identified in the character profiles and will be built to energy efficient standards.

Regeneration and Protection of the Natural Environment

As with Scenario 2 environmental and ecosystem protection and natural hazards areas have guided the creation of the neighbourhood nodes. Though the Bell McKinnon growth area has been reduced from BAU some rural lots may be developed.

Food Security

As in Scenario 2, this scenario will sustain or expand upon existing green space, expand agricultural activity and local food production on non-ALR lands to create a sustainable, local food system in North Cowichan. This scenario would seek to expand land for food production distribution in a variety of designations.

Thriving Sustainable Economy

This scenario will maintain current industrial and commercial lands and using other policy levers to encourage green, local jobs. The single family home construction industry may be impacted under this scenario and could switch to building multi-family units. It will create vibrant commercial neighbourhoods node to support the economy.

Climate Action

As with Scenario 2, in addition, to focusing growth to reduce vehicle emissions, energy use and stewarding the natural environment, this scenario would expect new units to be built to energy efficient standards. Since agricultural and industrial lands will be maintained, emissions will continue from these sources (52%). All new construction contains ‘embodied’ carbon within its material which is an important consideration for new development.

Attachments:

1. Servicing Memo
2. Growth Scenarios and Goals Analyses

Memo

Date	February 10, 2021	File:	5600-01 5340-01
To	Chris Hutton, MCIP, RPP, Community Planning Coordinator		
From	Ken Horton, P.Eng., Project Engineer	Endorsed by	
Subject	OCP Growth Management – Summary of Preliminary Servicing Comments		

Water Supply

- The Municipality operates water systems in Chemainus, Crofton, and the South End areas. The South End system supplies the local areas of Berkey's Corner, Bell McKinnon, Quamichan, Maple Bay, plus portions of South End Centre, Rural West and Rural East.
- It should be noted that portions of the South End are serviced by the City of Duncan water system. This is because the City of Duncan water system was established a number of years before the Municipality's South End water system. The areas serviced by the City include James Street and Lewis Street south to the City boundary, Sherman Road east of Lane Road to the City boundary, and the Quamichan Heights/Seine Road area.
- Overall supply and storage capacity of the three systems operated by the Municipality is generally good. System design and improvements over past decades have been conservative and based on higher growth rates than are now projected, which has helped to ensure there is adequate capacity. Water conservation programs have also been very successful in reducing per capita demand.
- Water studies were carried out for Chemainus, Crofton, and the South End in 1999/2000 which identified upgrades required for ultimate (full buildout) conditions. Some upgrades are included in the Municipality's annual capital project lists. The water studies are in the process of being updated.
- The City of Duncan needs to be consulted with respect to the capacity of its system to service growth in South End Centre.
- An important growth management consideration is that higher density building forms require more water for fire protection than detached single family housing. As a result, even though overall system capacity is good, some water mains in local areas may need to be upgraded to accommodate higher density.
- Some of the water mains in older residential areas are nearing the end of their service life. Redevelopment presents an opportunity to replace/upgrade these mains with some of the funding coming from new development.

Sanitary Sewer

- Similar to water supply, the Municipality operates sanitary sewer collection and treatment systems in Chemainus, Crofton, and the South End areas. It also operates a small system near Birds Eye Cove.

- The South End system currently services the local areas of Berkey's Corner, South End Centre and portions of Quamichan and Bell McKinnon. It is designed to accommodate further servicing of the Quamichan and Bell McKinnon areas. The Maple Bay neighbourhood is not serviced with sanitary sewer, and the current municipal system design does not anticipate servicing this area.
- Sanitary sewer studies were carried out for Chemainus, Crofton, and the South End in 2008. These studies identified a number of upgrades to the collection system that are required for existing and ultimate (full buildout) conditions. It should be noted that existing and ultimate densities assumed in 2008 were based on the OCP and zoning at that time, so they may not reflect current thinking for some areas. These studies are currently being updated.
- Sewage treatment capacity is adequate for all three systems as growth rates have been lower than assumed when the Sewage Treatment Plants (STPs) were designed. We have done detailed assessments of the remaining capacity of the Chemainus STP, Crofton STP, and Joint Utilities Board STP that services the South End, based on historical growth trends and the current OCP and zoning. Results are summarized below:
 - **Chemainus STP:** Sufficient capacity to at least 2053.
 - **Crofton STP:** Sufficient capacity to at least 2053 under the current operating permit.
 - **Joint Utilities Board STP:** Sufficient capacity to approximately 2043.
 - **Maple Bay STP:** Sufficient capacity. Growth in its catchment area is constrained by the sewer service area boundary.
- Similar to water, some of the sewer pipes and manholes in older residential areas are nearing the end of their service life and redevelopment presents an opportunity to have new development partially fund upgrades.

Drainage

- The impact of growth on drainage systems should not be overlooked. Increased density and site coverage results in more impervious area and increased runoff. Properly designed and maintained drainage works need to be incorporated into all new developments to ensure that municipal infrastructure and natural systems are not adversely impacted. In particular, the South End urban core area is protected from flooding by a dike network. There are numerous flood pump stations (5 in North Cowichan and 1 in the City of Duncan) that pump water that accumulates within the urban core area, behind the dikes, over the dikes to prevent localized flooding. It is important to ensure there are not significant increases in runoff from impervious areas (in particular rooftops and paved areas) that will result in excessive flows to these pump stations.
- It is recommended that an updated Master Drainage Plan become a priority related to growth management and asset management.

Ken Horton PEng

Project Engineer

Engineering | Development Services and Engineering

Municipality of North Cowichan

North Cowichan Growth Scenario 01 Business As Usual Growth

Date: 21/04/2021

LEGEND

-  DNC Boundary
-  Local Plan Boundary
-  Urban Containment Boundary
-  Comprehensive Development Plan Areas
-  20-year Growth
-  Neighbourhood Node
-  Mixed Use Commercial Core
-  Forestry Recreation
-  Sensitive Ecosystem Inventory
-  Forest Reserve
-  Agricultural Land Reserve (ALR)
-  Transportation Network
-  Streams & Waterbodies

This scenario follows the growth patterns set out by the 2011 OCP (i.e. the present Urban Containment Boundary), Local Area Plans and Zoning Bylaw and a similar density and pattern to what has occurred in the last 20 years. Growth will continue to be limited to the existing Urban Containment Boundary, preserving the agricultural, natural and rural areas. This scenario follows the growth management direction set out in:

- Bell McKinnon Local Plan
- University Village Local Plan
- Crofton Local Plan
- Chemainus (MUCC)
- CD Plan Areas

This model is for informational purposes only and is not suitable for legal, engineering or surveying purposes. Terrain data is based on 1 meter contours derived from the LIDAR dataset published (2018-11-26) by the Local Government - Municipality of North Cowichan and licensed under Open Government Licence - Municipality of North Cowichan.



Goals	Pros	Cons
<i>Growth and Development in Established Centres</i>	<ul style="list-style-type: none"> • Will focus most growth as per the local plans with higher densities around mixed-use commercial cores • The existing sewer and water in the South End, Chemainus and Crofton have adequate capacity for anticipated growth • Existing zoning and local area plan capacity can accommodate projected growth 	<ul style="list-style-type: none"> • Following the Bell McKinnon Plan will mean some development on rural lots and sewer lines will need to be extended • Fire flow demands may be an issue if density increases in certain areas • Past subdivision patterns indicate that future growth may be dispersed at a lower density through the UCB outside the local plan boundaries • Single family development may be not fit community character in rural areas, as per character profiles • Increased site coverage of lower density development results in more impervious areas and increased run off. Drainage must be designed so that natural systems are not affected • Existing land use designations/ zoning restrict a broad range of uses in residential areas (small businesses etc.)
<i>Resilient, Supportive and Inclusive Communities</i>	<ul style="list-style-type: none"> • Some of the new growth will create a new complete community (BM) and strengthen existing ones • Residents of Bell McKinnon supported the local planning process and likely wish plan to proceed • New hospital will be surrounded by housing and services 	<ul style="list-style-type: none"> • Less dense communities means people are more reliant on cars and thereby less physically active • Less dense development may mean less opportunities to realize public benefits thru development (childcare, accessibility improvements for public realm etc.)
<i>Diversity of Housing, Types and Tenures</i>	<ul style="list-style-type: none"> • Will provide some diversity of housing forms (mainly single family) 	<ul style="list-style-type: none"> • Past development patterns show the majority of new housing units may be large single-family homes which does not meet the need identified in the Housing Needs Assessment for affordable and rental housing and are less energy efficient due to size
<i>Regeneration and Protection of the Natural Environment</i>	<ul style="list-style-type: none"> • Forestry, natural and rural areas outside of UCB continued to be protected from development • Municipality to continue to operate and require wetlands/ponds to help remediate surface water discharge before it enters the environment • Continued protection of environment in developable areas thru DPA's • Continued protection from natural hazards through DPA's 	<ul style="list-style-type: none"> • Some rural lots within UCB will be developed • Ecosystem connectivity and biodiversity may be impacted due to low density development throughout UCB
<i>Food Security</i>	<ul style="list-style-type: none"> • Agriculture and rural areas continue to be protected outside the UCB • Food production continues to be focussed on agricultural land 	<ul style="list-style-type: none"> • May be some loss of food production lands in UCB due to development
<i>Thriving Sustainable Economy</i>	<ul style="list-style-type: none"> • Commercial and Industrial lands maintained where local, green jobs can be encouraged 	<ul style="list-style-type: none"> • May be less single family development and impact construction industry
<i>Climate Action</i>	<ul style="list-style-type: none"> • Forestry reserve maintained and which promotes carbon sequestration (would offset 6%) 	<ul style="list-style-type: none"> • Less dense communities means more car trips, energy use and emissions • Vehicles account for 34% of emissions. Several thousand car trips are made per day to Nanaimo and Victoria for work etc. and these patterns will likely continue • Agriculture accounts for 13% of GHG emissions • Light industrial operations account for 39% of emissions from burning natural gas and other fossil fuels

North Cowichan Growth Scenario 02 Focused Growth

Date: 21/04/2021

LEGEND

-  DNC Boundary
-  Local Plan Boundary
-  Urban Containment Boundary (revised)
-  Comprehensive Development Plan Areas
-  20-year Growth
-  Neighbourhood Node
-  Mixed Use Commercial Core
-  Forestry Recreation
-  Sensitive Ecosystem Inventory
-  Forest Reserve
-  Agricultural Land Reserve (ALR)
-  Transportation Network
-  Streams & Waterbodies

This scenario seeks to avoid any development on rural lots (beyond what is already approved) and uses infill policies to focus development and maximize infrastructure in existing developed areas. This scenario follows the growth management direction set out in the:

- University Village Local Plan
 - Crofton MUCC & Chemainus Node
 - CD Plan Areas
- Growth Area Boundary Revisions
- No residential growth for Bell McKinnon to protect rural and environmentally sensitive areas. Hospital site remains with some medical services surrounding the site near Herd and Bell McKinnon Road.
 - No further growth for Quamichan (beyond approved CD Plans) to protect rural character, as per the community character study
 - Berkey's Corner - Focus ground oriented multifamily/ mixed use building near neighbourhood commercial @ Sherman and Somenos and along Sherman Rd corridor to protect environmental areas and rural lots

This model is for informational purposes only and is not suitable for legal, engineering, or surveying purposes. Terrain data is based on 1 meter contours derived from the LIDAR dataset published (2018-11-26) by the Local Government - Municipality of North Cowichan and licensed under Open Government Licence - Municipality of North Cowichan.



Goals	Pros	Cons
<i>Growth and Development in Established Centres</i>	<ul style="list-style-type: none"> • Will focus growth in established centres of Berkey’s Corner, University Village, Chemainus and Crofton and can accommodate projected growth • Community character study indicated support low-rise, multi-family mixed use buildings in these communities • The existing sewer and water in the South End, Chemainus and Crofton have adequate capacity for anticipated growth 	<ul style="list-style-type: none"> • Fire flow demands may be an issue with higher density development • Site coverage results in more impervious areas and increased run off. Drainage must be designed so that natural systems are not affected.
<i>Resilient, Supportive and Inclusive Communities</i>	<ul style="list-style-type: none"> • New growth will strengthen existing communities by providing walkable, compact communities to foster social interaction and improved health outcomes • Denser communities means people are more reliant on cars and thereby more physically active • Denser developments may mean more opportunities for public benefits (childcare, non-market housing, accessible public realm, parks etc.) • New hospital will proceed with some medical services in surrounding area • New land use designations could accommodate a broader range of social uses in residential and commercial zones (child care, support services for homelessness, substance abuse and mental health, etc.) 	<ul style="list-style-type: none"> • Residents of Bell McKinnon may be frustrated with not following thru on local plan.
<i>Diversity of Housing, Types and Tenures</i>	<ul style="list-style-type: none"> • Focus on multi-family/ ground-oriented housing which creates options for younger people, seniors and lower-income families • Higher percentage of purpose built rental and non-market housing which creates affordable housing options 	<ul style="list-style-type: none"> • May restrict single family home development and limit supply which may increase prices
<i>Regeneration and Protection of the Natural Environment</i>	<ul style="list-style-type: none"> • Agricultural, forestry, and rural areas continued to be protected from development • Ecological connection and biodiversity protected by revising growth areas within UCB (riparian areas and sensitive ecosystems) • New land use designations could further protect and enhance natural conservation areas 	<ul style="list-style-type: none"> • New development will impact the site and should be low-impact integrating natural features such as mature trees etc. • New development should use only eco-friendly construction materials (no old growth timber etc.)
<i>Food Security</i>	<ul style="list-style-type: none"> • Agriculture and rural areas continued to be protected outside UCB • More food producing land protected within UCB • New land use designations could allow food production in a variety of designations 	<ul style="list-style-type: none"> • N/A
<i>Thriving Sustainable Economy</i>	<ul style="list-style-type: none"> • Commercial and industrial lands maintained where local, green jobs can be encouraged • More live/work designations • More mixed used designations (commercial and residential designations) • High-tech medical node would create more jobs • New land use designations could allow local, small scale businesses in residential areas 	<ul style="list-style-type: none"> • May be less single family development and impact construction industry
<i>Climate Action</i>	<ul style="list-style-type: none"> • Forestry reserve maintained and promotes carbon sequestration • Denser communities means less energy use/ emissions from cars 	<ul style="list-style-type: none"> • New construction materials contains ‘embodied carbon’ • Several thousand car trips are made per day to Nanaimo and Victoria for work and these patterns may continue, unless focus on local job creation/ work from home options • Agriculture accounts for 13% of GHG emissions and will likely continue in this scenario • Light industrial operations account for 39% of emissions from burning natural gas and other fossil fuels, if further climate action policies changes aren’t enacted

North Cowichan Growth Scenario 03 Neighbourhood Node Growth

Date: 21/04/2021

LEGEND

-  DNC Boundary
-  Local Plan Boundary
-  Urban Containment Boundary (revised)
-  Comprehensive Development Plan Areas
-  20-year Growth
-  Neighbourhood Node
-  Mixed Use Commercial Core
-  Forestry Recreation
-  Sensitive Ecosystem Inventory
-  Forest Reserve
-  Agricultural Land Reserve (ALR)
-  Transportation Network
-  Streams & Waterbodies

This scenario builds on Scenario Two and adds additional neighbourhood nodes in Bell McKinnon (BM), Quamichan, Maple Bay, Chemainus (MUCC) and Crofton.

Growth Area Boundary Revisions

- Some housing/ commercial development at Herd and BM Rd near hospital site and along BM corridor (Core Village Designation in Local Plan)
- Gentle infill/ ground-oriented housing around the neighbourhood commercial node in Quamichan to promote viable commercial opportunities (above what's approved)
- Gentle infill/ ground-oriented housing in Maple Bay to create viable commercial opportunities and a diversity of housing forms



Goals	Pros	Cons
<i>Growth and Development in Established Centres</i>	<ul style="list-style-type: none"> • Would support neighbourhood nodes in Bell McKinnon, Quamichan and Maple Bay to create a '15 minute' neighbourhood for residents • Community character study indicated support housing options and viable commercial options in Maple Bay • The existing sewer and water in the South End, Chemainus and Crofton have adequate capacity for anticipated growth 	<ul style="list-style-type: none"> • Fire flow demands may be an issue with higher density development • Increased site coverage of lower density development results in more impervious areas and increased run off. Drainage must be designed so that natural systems are not affected. • No municipal sewer system in Maple Bay and cost of serving may make development non-viable
<i>Resilient, Supportive and Inclusive Communities</i>	<ul style="list-style-type: none"> • New growth will strengthen opportunities for viable neighbourhood commercial uses • New hospital will proceed and allow for some surrounding commercial and residential growth to support medical workers and others • People are less reliant on cars and thereby more physically active in they have neighbourhood shops/services closer • New land use designations could accommodate a broader range of social uses in residential and commercial zones (child care, support services for homelessness, substance abuse and mental health, etc.) 	<ul style="list-style-type: none"> • Would mean some housing and commercial development on rural lots near the hospital site in Bell McKinnon.
<i>Diversity of Housing, Types and Tenures</i>	<ul style="list-style-type: none"> • Focus on multi-family/ ground-oriented housing which creates options for younger people, seniors and lower-income families • Purpose built rental and non-market housing to provide affordable housing options 	<ul style="list-style-type: none"> • Single family home development may be restricted and limit supply which may increase prices
<i>Regeneration and Protection of the Natural Environment</i>	<ul style="list-style-type: none"> • Agricultural, forestry, and rural areas continue to be protected from development • Ecological connection and biodiversity protected within existing UCB (riparian areas and sensitive ecosystems) • New land use designations could further protect and enhance natural conservation areas 	<ul style="list-style-type: none"> • New development will impact the site and should be low-impact integrating natural features such as mature trees etc.
<i>Food Security</i>	<ul style="list-style-type: none"> • Agriculture and rural areas continue to be protected • More food producing land within UCB protected • New land use designations to allow food production in a variety of designations 	<ul style="list-style-type: none"> • N/A
<i>Thriving Sustainable Economy</i>	<ul style="list-style-type: none"> • Commercial and Industrial lands maintained where local, green jobs can be encouraged • More neighbourhood commercial opportunities • More live/work designations • More mixed-use buildings (commercial and residential) • New land use designations could allow local, small scale businesses in in residential areas 	<ul style="list-style-type: none"> • May restrict new single-family development
<i>Climate Action</i>	<ul style="list-style-type: none"> • Forestry reserve maintained and promotes carbon sequestration • Neighbourhood nodes mean people can walk or bicycle to shops and service and less energy use/ emissions from cars 	<ul style="list-style-type: none"> • New construction and development contains 'embodied carbon' • Patterns of car trips to Victoria/ Nanaimo for work may continue, unless focus on local job creation/ work from home options • Agriculture accounts for 13% of GHG emissions and will likely continued • Light industrial operations account for 39% of emissions from burning natural gas and other fossil fuels, if further climate action policies changes aren't enacted

To: Chris Hutton, MCIP, RPP
Community Planning Coordinator
Development and Engineering Services | Planning
Municipality of North Cowichan
chris.hutton@northcowichan.ca

From: Quamichan Watershed Stewardship Society (QWSS)

March 15, 2021

To respond to the following request from North Cowichan

“That Council seek the advice and recommendations from the following key stakeholders in relation to the land use policy development to be included in the revised Official Community Plan for North Cowichan, and ask that they provide their opinions on what they believe is necessary to achieve Council’s goals of restoration and regeneration of the municipality’s lakes, streams, estuaries and rivers, and of protecting biodiversity:

Thank you for the opportunity to participate in the land use policy development discussions in light of the impending OCP and the ongoing climate emergency. Our understanding from Dr. David Preikshot’s report is that the Municipality of North Cowichan (MNC) is underway with the following tasks in the Quamichan Watershed:

1. Actively monitoring nutrient load, temperature and oxygen levels seasonally
2. Analyzing lake chemistry (including core sampling) to determine the course of best action in how to correct (phoslock, etc) excessive nutrient loads and imbalances.
3. Installation of test zeolite filters to reduce phosphate loading in 4 input streams and the results are forthcoming.

With regards in specific to the Quamichan Watershed, our recommendations are as follows:

1. North Cowichan would continue to actively engage stakeholders including but not limited to the Cowichan Tribes, the Cowichan Land Trust, the Fresh Water Fisheries Society, the Somenos Marsh Wildlife Society, Quamichan Lake Neighbourhood Association, QWSS, Rowing Canada and the Cowichan Estuary Restoration and Conservation Association through a combined future Quamichan Area Management Committee. This committee would provide a stakeholder mechanism to partner with the MNC to provide a cohesive voice for stakeholders.
2. To support riparian area restoration through invasive species removal, native re-plantings and riparian area public education via direct stakeholder volunteer participation, public engagement and educational materials distribution and other networking.
3. Stakeholder outreach to include the local agricultural community. Ideas include the creation of environmental farm plans to recycle/reuse some of the nutrients on existing farmland for the benefit of the farmer (lower fertilizer/transport costs) and thereby reducing potential run-off nutrient loading to the lake. These are ideas that already fall under the Provincial Nutrient Management Plan. To demonstrate the agricultural benefits, QWSS intends to partner with a local area farmer to install nutrient trapping belt zones (with limestone and zeolite already available through MNC).

4. Consider MNC arrangement/incentives to convert/purchase/exchange/create easements on private/farmland areas for both restoration where required and protection of riparian zones wetland ecosystem corridors to help reduce nutrient loading. Ideas also would include a natural areas protection tax incentive in exchange for conservation covenants.
5. To continue to support the MNC in the responsible management of run-off waters in new developments soon after site clearing and preparation but, prior to the construction phase. Support MNC planning initiatives including increased sewer hookups, bioswales, stormwater detention ponds, plantings, green spaces, more small footprint clusters/densely compacted developments.
6. To support biodiversity protection through the creation of ecosystem corridors (green and riparian) to allow interdependent flora, fauna and the associated watershed health to thrive. In coordination with the MNC Parks & Trails Masterplan to support the creation of interconnected footpaths, where appropriate, alongside ecosystem corridors and Quamichan Lake to allow for greater public appreciation and exposure to the importance of biodiversity and watershed health.
7. Regarding future Watershed Development and to reduce the amount of phosphorous entering the environment
 - a) minimize small lot development in the watershed
 - b) support access to municipal sewage systems within urban containment boundary
 - c) promoting a minimum 30m riparian area setback for any development around lakes and waterways and the general enforcement (through RAPP) of Riparian regulations.
8. To support focused fine bubble aeration in critical and sensitive areas in Quamichan lake during the acute turn-over periods for fish refuges and to keep public use areas like Art Mann Park clean. This could have immediate impact for relatively low cost. Municipality can provide 3 phase wiring and site for a screw-type compressor. Both wind and currents transport algal blooms towards Art Mann Park. We are advised that aeration assists in algae bloom dispersal and the addition of oxygen aids in aerobic breakdown of organics and can strip CO₂ and ammonia nitrogen out of the water.
9. To mitigate increasing seasonal drought, to support longer term projects for expanding fresh water reservoir storage volumes (Crofton Lake, Maple Mountain, Mt. Prevost etc) and the related potential for increasing water capacity for flushing during the summer months. This would also have the added benefit of maintaining flow in Quamichan Creek where cut-throat and coho currently reside.
10. To consider a phosphorus syphoning plan and related treatment facility where the principle is to remove higher phosphorus containing waters near the bottom of the lake (2x more phosphorus content compared to surface waters). This could run year round and during the summer the syphon could draw the water level down slightly over normal summer levels. Winter rain water would then dilute the sum total of phosphorus gradually over time. This would be a heavily involved Cowichan Tribes and Department of Fisheries project that could start small and scale up based on success.

Best Regards,

Per Dahlstrom, Jim Cosh, David Groves & Sarah Nelles
 Quamichan Watershed Stewardship Society

North Cowichan Environmental Policy and Regulation Review



February 16, 2021

Submitted to:

Rob Conway
Municipality of North Cowichan



DIAMOND HEAD

3559 Commercial Street
Vancouver, BC 604.733.4886

Executive summary

Diamond Head Consulting was engaged to review North Cowichan’s environmental policies and regulations. The objective of this review is to identify opportunities that will position North Cowichan as a leader in municipal environmental policies and regulation. A total of 32 policies and bylaws were reviewed to identify weaknesses and opportunities to strengthen the municipality’s policies so that they comply with current best management practices and align with other local governments. This report summarizes the findings and recommendations from this review.

North Cowichan’s current environmental policies and regulations provide the municipality with a strong basis for environmental protection. **The successful implementation of these recommendations will require careful considerations to ensure that sufficient staffing and adequate resources are provided for effective implementation, communications with the public and bylaw enforcement.** Detailed recommendations to update, clarify and strengthen existing policies and regulations are made Appendices 1 and 2.

The following high-level recommendations provide an overview of actions that the municipality could take in order to strengthen its environmental leadership over the coming years. They include:

- Recommendation 1.** Provide consistent definitions across DPs/bylaws/etc. Alternatively, refer to a document where all definitions can be referenced and updated.
- Recommendation 2.** Update bylaws to keep definitions, references to, and requirements consistent with current federal and provincial legislation. Examples of legislation that has been updated in recent years includes the federal Fisheries Act; provincial Riparian Areas Protection Regulation; Water Sustainability Act; and Environmental Management Act.
- Recommendation 3.** Update and publish mapping to clearly and accurately show DP areas. Use a combination of desktop techniques (i.e., LiDAR and accurate contour data) and ground truthing for best accuracy.
- Recommendation 4.** Review DPA guidelines to ensure that broad, difficult to enforce ideas are included in the objectives, with specific requirements under the guidelines. For example, guideline 3.4.2.h of the Natural Environment DPA 3 states “Protect and enhance biodiversity within terrestrial ecosystems”. This is more of a goal than a quantifiable measure.
- Recommendation 5.** Define professional qualification requirements in existing bylaws and consider consolidating those requirements into the Development Procedure Bylaw’s development approval information. There are inconsistencies across a number of bylaws/DPAs as to required designations.
- Recommendation 6.** Review watercourse protection in the municipality:
 - Disconnected features (which are not protected by RAPR), are currently protected in the Municipality’s zoning bylaw, however, the values behind their

protection are not clear. The intent of this should be reviewed and guidelines provided to developers and QEPs. For example, it's unclear if section 13.1.c of the zoning bylaw is intended to protect amphibian habitat, sources of water for people or wildlife, or for stormwater management.

- Consider increasing the setback requirements for streams. Many municipalities choose to develop additional watercourse setbacks above and beyond the RAPR requirements. Often this includes measuring setbacks from the top of bank instead of the stream boundary. However, this would require additional review and resources at the Municipality's level, as the Municipality would be reviewing QEP reports as opposed to relying on the province.

Recommendation 7. Use the Official Community Plan engagement findings to confirm support for new or updated policy that protects environmental values. Consider additional engagement for any policies that are new or contentious.

Recommendation 8. Develop restoration guidelines for development impacts or encroachment in protected natural areas or riparian setbacks. These should be placed in the Development Permit Area 3 Guidelines and become a requirement of development.

Recommendation 9. Review the list of "absent" policies and regulations identified in this review to determine which are needed in North Cowichan. Prioritize their development and implementation in a way that best represents the values and needs of the community. For instance:

- Consider developing guiding environmental policies that will provide a framework for bylaw and DP updates. Examples include a Biodiversity Strategy and Community Forest Strategy.

Recommendation 10. Consider introducing tree protection measures through a tree bylaw and/or the subdivision approval process to prevent unnecessary tree clearing.

Recommendation 11. Review staffing and resourcing needs to improve North Cowichan's capacity to implement, communicate and enforce current bylaws and regulations.

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1.0 Environmental Policy Review Framework

The Municipality of North Cowichan retained Diamond Head Consulting (DHC) to review their environmental policies and regulations and to provide recommendations to improve, clarify and strengthen them. This report summarizes our team’s findings from the detailed review into a set of high-level recommendations and implementation plan which are discussed in the following sections.

Policies and regulations were reviewed at two levels of detail. A high level review was completed for 32 environmental policies, bylaws and regulations. A more comprehensive and detailed review was completed for a smaller number of bylaws and regulations that are central to the Municipality’s management of the environment. Detailed recommendations for all policies and regulations reviewed are provided in Appendices 1 and 2.

1.1 Comprehensive Bylaw/Regulation Review

The comprehensive review focused on the following bylaws and regulations:

- Environmental setbacks in the Zoning Bylaw 2950
- Development Permit Area 2 – Marine Waterfront
- Development Permit Area 3 – Natural Environment
- Development Permit Area 4 – Natural Hazard
- Relevant sections of Subdivision Bylaw 1851
- Parks & Public Places Regulation Bylaw
- Soil Removal and Deposit Bylaw

For each bylaw and regulation subject to detailed review, the project team considered the following:

1. The intent and objectives of the bylaw or regulation
2. High level recommendations to:
 - a. Bring it to current standards/best practices, including:
 - i. Consistency with current Provincial and Federal regulations and requirements
 - ii. Appropriateness of information requirements
 - b. Improve its effectiveness to achieve the stated intent and objectives, including:
 - i. Effective triggers for the application of the regulations
 - ii. Clear, detailed, and impactful requirements under the regulation
 - iii. Appropriate enforcement mechanisms suited to the Municipality’s staffing and resourcing
3. Recommendations to improve specific content and wording in the bylaw or regulation

1.2 High-Level Policy Gap Analysis

In addition to the comprehensive review of key bylaws and regulations, a broader gap analysis was completed for a number of other bylaws, regulations, plans and policies that affect how the municipality

managed the natural environment. Staff identified 25 policies and regulations to include in this review. This gap analysis was completed to determine how the following environmental elements are addressed in each policy:

- Natural Environments
 - Freshwater
 - Terrestrial
 - Marine
- Risk associated with natural areas
- Climate change and energy
- Monitoring and enforcement

During this high-level review, the project team:

1. Evaluated the effectiveness of the policies or regulations to address the environmental elements. Identified gaps, weaknesses and out-of-date components,
2. Provided high level recommendations to address identified deficiencies, and
3. Identified opportunities for leadership by improving and adding environmental policies.

2.0 Key Recommendations

2.1 The Role of Municipalities for Environmental Management

Municipalities are limited in their ability to protect and enhance environmental features. They have jurisdiction over municipal-owned lands but are limited in their role to influence how private lands are managed. Opportunities are often restricted to when development takes place. Municipalities with strong environmental regulations typically include requirements for development permits when proposing projects adjacent to marine foreshore areas, watercourses, and sensitive terrestrial ecosystems. These DPs, when designed well, will ensure development will not impact these areas and can provide the opportunity for the municipality to acquire some areas. The acquisition of sensitive environmental lands allows municipalities to ensure they are best protected over the long term.

Other policies that are effective at protecting the environment focus on the protection of trees. Trees are a fundamental element of most terrestrial natural areas. Protecting them helps to ensure that natural ecosystems are also protected. The protection of trees is usually enforced through a tree bylaw as well as tree protection and replacement requirements within subdivision and zoning bylaws.

2.2 An Assessment of North Cowichan's Current Environmental Policies & Regulations

North Cowichan has a strong foundation of environmental policy. There are however opportunities to strengthen existing policies and introduce new ones to further the Municipality's goals on environmental leadership. The District's Development Permit Areas help to reduce the impact of development on sensitive ecosystems. However, there are changes that, if implemented, would improve these DPAs. There is also a lack of regulation to prevent tree removal during development.

As requirements to environmental protection are strengthened there is a need for resources to review, approve and enforce them. The ability for the Municipality to demonstrate environmental leadership with its regulations is closely tied to its ability to enforce them.

The District emphasizes the protection of environmental values in its Official Community Plan, Local Areas Plans and recent plans like the Parks and Trails Master Plan. The ongoing OCP review will provide a great opportunity for the Municipality to strengthen its vision and values for the management of the natural environment. Initiatives such as the Somenos Marsh Wildlife Strategic Plan are also a great example of collaborative management of a sensitive ecosystem taking place in North Cowichan.

The following updates to existing policies and regulations are recommended to clarify and strengthen North Cowichan's environmental leadership.

Updating DPA Mapping and Development Guidelines

The environmental DPAs provide excellent framework for mitigating the impacts of development. They can be improved by ensuring definitions are consistent and that references to other legislation are up to date. The requirements for the protection and restoration of sensitive areas should be updated. also be added and standards provided for development related impacts. The mapping for these DPs should also be updated. The technology of mapping has greatly improved and allows for features in these DPs and their setbacks to be clearly mapped, providing clarity to staff and landowners¹.

Watercourse Protection

Watercourse protection in North Cowichan meets the minimum requirements under the provincial Riparian Areas Protection Regulation (RAPR). The province requires municipalities take a "meet or beat" approach for riparian areas regulations. Many municipalities choose to provide additional measures for watercourse protection under their own jurisdiction. Most of these municipalities are in the Lower Mainland, providing North Cowichan with the chance to be a leader in this on Vancouver Island. RAPR requires additional measures beyond the Streamside Protection and Enhancement Area (SPEA) to ensure slope stability and stable, healthy riparian trees. Municipalities can, and often do, chose to define setbacks measured back from the top of bank instead of the stream boundary, as a way to pre-emptively consider these measures within the municipal DP or zoning bylaw setback.

The current zoning bylaw in North Cowichan defines the terms watercourse and stream. The term stream matches the definition under RAPR, while the term watercourse captures additional watercourses not protected under RAPR. The use of both terms can be confusing when defined in the zoning bylaw but used in other legislation such as the Natural Environment DP 3. The use of these two terms should be reviewed to determine if North Cowichan intends to only protect streams under RAPR (i.e., streams related to their fish value) or to also protect other watercourses (such as non connected

¹ Environmental Law Centre. (2016). *EDPAs: In Practice and in Caselaw – March 2016*. Prepared for the University of Victoria.

wetlands and ponds) for additional values beyond fish habitat (e.g., stormwater management, amphibian habitat, etc.).

Legislative References & Professional Qualifications Requirements

Many legislative references in North Cowichan's environmental regulations are outdated and reference previous versions of provincial legislation. Detailed recommendations appended to this report identify bylaws that should be updated to match the current legislative requirements (ex. federal Fishers Act, Water Sustainability Act, Riparian Areas Protection Regulation, etc.).

In addition, several regulations refer to using appropriately qualified professionals; however, they do not clearly define which studies should be undertaken by the various types of professionals. Some references are also made to outdated or undefined qualifications. Clearly defining professional qualification requirements would ensure a consistent quality level for submissions made to the municipality. An example of a vague qualification currently used in the District's policy is "coastal professional." This could be clarified to a professional designation such as Professional Engineer, Professional Biologist, etc. It could be further refined with qualifiers such as a Professional Engineer specialising in coastal engineering. Some municipalities require that the professional provide a summary with the submission proving their qualifications and experience.

Restoration Guidelines

Restoration of disturbed areas or areas taken over by invasive plants is critical for ensuring the long term health of urban natural areas. Currently, North Cowichan relies on its Untidy and Unsightly Premises Bylaw to identify and regulate the removal of noxious weeds on private property. There are no requirements in other environmental policies to manage invasive species. The Natural Environment DP 3 states "development activity to avoid encroaching into protected areas"; however, it does not provide direction around what to do if development does encroach, or if there was encroachment prior to development.

Clear restoration guidelines would help homeowners and developers understand what is expected of them to maintain the integrity of natural forested and riparian areas that are within or adjacent to their properties. They would also specify how to compensate for encroachment or development related impacts. Restoration guidelines should include the removal of non-compliant structures, unauthorized fill, invasive species, and garbage, and replanting with native trees and understory vegetation. Restoration plans are developed and submitted by a QEP to ensure they meet the District's expectations.

Maintenance and monitoring are required to ensure restoration sites are successful. Typically, a fee estimate would be developed as part of the restoration plan including the costs of carrying out the restoration plan works, as well as maintenance and monitoring. This fee estimate would then be used to develop a security/bond, which would be released upon successful restoration at the end of the maintenance period. Typically, municipalities require 100% survival of trees, at least 80% survival of

understory species, and a maximum of 5% invasive plant species by the end of the monitoring period (typically 3 years). The property owner is required to hire a QEP to complete the monitoring and determine if the restoration requirements have been met. If not, additional maintenance will be required until they are met in order to return the security. This ensures that the developer covers the costs of the operations and provides the municipality with the funds to address insufficient restoration work if necessary.

2.3 Opportunities for Leadership

This section outlines a few key areas where the Municipality could demonstrate environmental leadership by pursuing new environmental policies or regulation initiatives. The opportunities for leadership identified in this review include the management of invasive species, improvements to the protection and restoration of ecosystems and their connectivity, the protection of trees within the urban containment boundary, and public support and bylaw enforcement.

Invasive Species Management

Many plans and policies refer to the importance of managing invasive species. Currently the District has an invasive species management agreement with the Province who provides an annual grant to fund control measures on public land. The District determines priority species and creates an annual work plan in consultation with provincial Invasive Plant Specialists and stakeholders at regional meetings. Regional meetings ensure the District's approach is consistent with efforts undertaken by neighbouring jurisdictions. The District uses the provincial Invasive Alien Plant Program (IAPP) mapping platform to maintain inventory and treatment data records.

The District's Unsightly Premises Bylaw places the duty on all landowners to control invasive species listed in the BC *Weed Control Act* growing on private property. This is the only regulatory tool available to the municipality to enforce the control of invasive plants on private property. There may be other priority local invasive plant species which are not listed in the BC *Weed Control Act* that the municipality may wish to consider adding to the bylaw. However, enforcement of such a bylaw can be time consuming and costly; generally, municipalities only resort to this approach in the case of the highest risk invasive species which are already subject to municipality-wide treatment programs on public land. Two common examples of such species in the south coast are giant hogweed and knotweed species.

Preventing the introduction and spread of invasive species is the most cost effective and efficient way to minimize negative impacts. There are opportunities for prevention across municipal departments and through increased public awareness. Conducting a risk assessment of the priority species the Municipality has already identified to explore modes of introduction and spread would ensure that the Municipality is doing all it can internally toward prevention and would identify targeted opportunities for increasing public awareness of the problem. The Municipality should continue to work with other local governments to support a regional approach to invasive species management.

Ecosystem Management and Connectivity

Several bylaws and policies refer to the importance of protecting as well as connecting sensitive ecosystems together in North Cowichan. It can be difficult for QEPs to comply with this policy without some landscape level understanding of which areas are most important as core habitat and as movement corridors.

There are steps already underway to develop a Biodiversity Protection Policy. Protecting biodiversity usually includes the protection of a diversity of habitat and ensuring that they are connected together. As a part of this Policy, it is recommended that some spatial mapping be completed that shows habitat types, the value of those areas and critical movement corridors to be protected. There may also be opportunities to collaborate with regional habitat mapping initiatives.

Land Clearing Pre-Development & Tree Protection During Development

There is currently a Landscaping Policy which enables staff to collect securities and require a tree preservation and protection plan as well as arborist supervision for development permits, subdivisions and parks, trails and public rights of way. However, under current regulations land clearing often occurs years before the land is developed. This can lead to unnecessary tree clearing in cases where development does not proceed, or where sites are left bare for long periods of time. This can lead to erosion and the proliferation of invasive plants.

The municipality should consider regulatory provisions to prevent pre-emptive land clearing associated with subdivisions. This could be achieved either through updates to the Subdivision Bylaw, or the adoption of a Tree Protection Bylaw. Additional measures to ensure tree protection and replacement may be warranted if there is community support, particularly within the Urban Containment Boundary.

Based on the community values expressed through the ongoing OCP update process, the municipality may also wish to consider developing a Community Forest Strategy. Such a Strategy could provide the municipality with a clear vision, goals and performance standards for the management of its community forest, including but not limited to considerations for a tree bylaw.

The development of a Tree Protection Bylaw would help manage phased tree removals, tree protection and replacement, especially within the Urban Containment Boundary. However, adequate staffing would be required to administer and enforce such a bylaw. Staff are currently finding enforcement difficult. As such, a successful tree bylaw requires that strong enforcement measures be enabled and funded appropriately. This could include provisions such as the ability to recover the cost of unpaid fees and actions taken under the bylaw as arrears of taxes, as well as funding to pursue legal action under the Offence Act for major bylaw contraventions where owners remain uncooperative.

Public Support & Enforcement

In addition to the adoption or updating of environmental policies and regulations, the District can strengthen its environmental leadership through public education and consultation. Bylaws are an important way to manage the environmental values found across the Municipality. Much of natural assets found in North Cowichan are found on private property. As a result, it is important to ensure that environmental regulations respond to community values. The process of updating or adopting new regulations provides an opportunity for the Municipality to work closely with community members and developers.

In addition, adequate resources including staffing will be required to enable the enforcement of new environmental regulations. Penalties can be used as a deterrent. Bylaw provisions can also require oversight by qualified professional contactors. Public education can also provide a valuable tool to improve implementation outcomes.

3.0 Implementation Plan

Table 1 introduces an implementation plan for eleven high-level recommendations formulated as a result of this policy review. Recommendations are prioritized based on the importance of the updates and the expected level of efforts associated with their implementation. Resourcing considerations are included with regards to staffing needs and external consultant resources which are expected to be required for their implementation.

While good policies and regulations play an important role in the environmental leadership of municipalities, resourcing is also a key consideration to enable their implementation. For instance, research on tree ordinances in the US has identified many criteria for the effective regulation which provides helpful insights of the implementation of environmental regulations². The research points to the importance of regulations to relate to clearly defined goals and basic performance standards, often defined in higher-level policies such as the OCP or management strategies or plans. It also highlights the importance of the implementation process to enable the proper enforcement of regulations with a designated staff member responsible for its implementation, and flexibility in the implementation to allow for site-specific decisions to be made. Finally, the research points to the importance of community support and the alignment of the regulation with community values and priorities as a key factor in the successful implementation of regulations.

Staff have noted ongoing challenges with enforcement of bylaws, particularly as it relates to development and property maintenance. Updated or new regulations should provide staff with adequate provisions to enable their enforcement. The municipality will also need to carefully consider staffing levels to ensure that they are and remain adequate to enable the proper implementation of its regulations.

The ongoing OCP update offers a good opportunity for the Municipality to ensure that policy and regulatory updates align with community values. In addition, the Municipality should ensure that public education is provided to engage and inform community members about updates to existing regulations or new regulations being drafted.

² Bernhardt, E.; Swiecki, T. J. (1991). *Guidelines for developing and evaluating tree ordinances*. Prepared for: Urban Forestry Program, California Department of Forestry and Fire Protection, Sacramento, CA. 76 p. (Download from UFEI site)

Nichols, S., (2007). *Urban Tree Conservation: a White Paper on Local Ordinance Approaches*. Montgomery Tree Committee, Montgomery, Alabama

Table 1. Implementation plan for high-level recommendations.

Actions/Recommendations	Priority (short-, med- or long-term)	Level of Effort (Low, moderate or high)	Resourcing implications (Staff/consultant)
Recommendation 1. Provide consistent definitions across DPs/bylaws/etc. Alternatively, refer to a document where all definitions can be referenced and updated.	S	Low	Staff time
Recommendation 2. Update bylaws to keep definitions, references to, and requirements consistent with current federal and provincial legislation. Examples of legislation that has been updated in recent years includes the federal Fisheries Act; provincial Riparian Areas Protection Regulation; Water Sustainability Act; and Environmental Management Act.	S	Low	Staff time
Recommendation 3. Update and publish mapping to clearly and accurately show DP areas. Use a combination of desktop techniques (i.e., LiDAR and accurate contour data) and ground truthing for best accuracy.	M	High	Staff time; Support from consultant
Recommendation 4. Review DPA guidelines to ensure that broad, difficult to enforce ideas are included in the objectives, with specific requirements under the guidelines. For example, guideline 3.4.2.h of the Natural Environment DPA 3 states “Protect and enhance biodiversity within terrestrial ecosystems”. This is more of a goal than a quantifiable measure.	S	Low to moderate	Staff time; Support from consultant
Recommendation 5. Define professional qualification requirements in existing bylaws and consider consolidating those requirements into the Development Procedure Bylaw’s development approval information. There are inconsistencies across a number of bylaws/DPAs as to required designations.	S	Low	Staff time
Recommendation 6. Review watercourse protection in the municipality: <ul style="list-style-type: none"> • Disconnected features (which are not protected by RAPR), are currently protected in the Municipality’s zoning bylaw, however their protection are not clear. The intent of this should be reviewed and guidelines provided to 	M	Moderate	Staff time; Support from consultant

Actions/Recommendations	Priority (short-, med- or long-term)	Level of Effort (Low, moderate or high)	Resourcing implications (Staff/consultant)
<p>developers and QEPs. For example, it’s unclear if section 13.1.c of the zoning bylaw is intended to protect amphibian habitat, sources of water for people or wildlife, or for stormwater management.</p> <ul style="list-style-type: none"> Consider increasing the setback requirements for streams. Many municipalities choose to develop additional watercourse setbacks above and beyond the RAPR requirements. Often this includes measuring setbacks from the top of bank instead of the stream boundary. However, this would require additional review and resources at the Municipality’s level, as the Municipality would be reviewing QEP reports as opposed to relying on the province. 			
<p>Recommendation 7. Use the Official Community Plan engagement findings to confirm support for new or updated policy that protects environmental values. Consider additional engagement for any policies that are new or contentious.</p>	S/M	Moderate	Staff time; potential support from consultants
<p>Recommendation 8. Develop restoration guidelines for development impacts or encroachment in protected natural areas or riparian setbacks. These should be placed in the Development Permit Area 3 Guidelines and become a requirement of development.</p>	M	Moderate	Staff time; Support from consultants
<p>Recommendation 9. Review the list of “missing” policies and regulations identified in this review to determine which are needed in North Cowichan, and prioritize their development and implementation in a way that best represents the values and needs of the community. For instance:</p> <ul style="list-style-type: none"> Consider developing guiding environmental policies that will provide a framework for bylaw and DP updates. Examples include a Biodiversity Strategy and Community Forest Strategy. 	L	High	Staff time; Support from consultant

Actions/Recommendations	Priority (short-, med- or long-term)	Level of Effort (Low, moderate or high)	Resourcing implications (Staff/consultant)
<p>Recommendation 10. Consider introducing tree protection measures through a tree bylaw and/or the subdivision approval process to prevent unnecessary tree clearing.</p>	M	High	New staff; Support from consultant
<p>Recommendation 11. Review staffing and resourcing needs to improve North Cowichan’s capacity to implement, communicate and enforce current bylaws and regulations.</p>	M	Moderate	Staff time; Support from consultant

4.0 Appendix 1 – Comprehensive Bylaw/Regulation Review

4.1 Zoning Bylaw 2950

Intent and objectives

The Zoning Bylaw regulates how land and structures may be used. Zoning may include regulations for building siting, size location and shape. For environmental considerations, it can establish setbacks from sensitive features. The Zoning Bylaw provides a tool to establish and enforce environmental setbacks, while DPAs remain better suited to protect environmental features from damage. Specific to environmental considerations, this Bylaw regulates how water features are protected and includes the environmental DP guidelines.

High level recommendations

Overall, the intent of this Zoning Bylaw is to provide definitions for water features, the required assessment area and to specify and enforce the required setbacks and protection mechanisms for them. The following are broad recommendations to update it and improve its effectiveness:

1. Update all references to Provincial legislation. Currently, this bylaw refers to Riparian Areas Regulation and the Fisheries Act. However, the current legislation is the Riparian Areas Protection Regulation (RAPR) and the Water Sustainability Act (WSA). In addition, there have been several updates to the Environmental Management Act in recent years, particularly with reference to contaminated sites.
2. Choose one term to be used and defined in the same way it is in the Provincial policy for water features. There are currently multiple terms used to refer to water features (i.e. stream and watercourse). Definitions should be consistent and be based on the definition in RAPR which uses the term “Stream”.
3. Section 13.1.c states that, in addition to marine setbacks and water features protected under RAPR, there be a 15m setback from “any other watercourse or source of water supply, excluding wells.” This is quite broad and could include a number of smaller non connected features that could hold up development or require a variance. The intent of this statement should be identified, and wording adjusted accordingly.

Specific Recommendations for Improvement

The following are recommended updates and considerations within each section of the zoning bylaw:

Section – 12 - Definitions

- 84 (page 9) – Add reference to the ocean in this definition.
- 121.1 - This definition should be amended to be consistent with that of RAPR:
 - a watercourse or body of water, whether or not usually containing water, and
 - any of the following that is connected by surface flow to a watercourse or body of water referred to in paragraph (a):

- a ditch, whether or not usually containing water;
- a spring, whether or not usually containing water;
- a wetland;
- 132 - The definition of watercourse could be removed. There is no definition in the WSA or RAPR for a watercourse even though it is used within the definition of a stream. We recommend using one of these two terms. Stream is most common and is used by RAPR.

Part 4 – General Recommendations - Watercourses 13

- 13.1 (a) – While there is no clear regulation about the distance of new constructions from the ocean, the DFO generally recommends that new construction be 15-30m back from the ocean to prevent impacts to fish. A larger setback would also be prudent considering a changing climate, including sea level rise and increased intensity of storms and associated flooding. We recommend that this setback be extended from 7.5m to 15m. Ideally it would extend to 30m, however, this would likely require additional research and consultation to determine the feasibility and variance requirements.
- 13.1 (b) – The provincial Fish Protection Act no longer exists. Reference to legislation needs updating to the Riparian Areas Protection Regulation (under the Riparian Areas Protection Act) and the Water Sustainability Act. This could also include the federal Fisheries Act which was recently updated and includes standards for the protection of fish and fish habitat.
- 13.1 (c) Review the intent of this regulation. RAPR should protect any features defined as streams, the definition of which includes either containing or connecting to fish habitat. If this section is meant to protect non-connected water features they need to be more clearly defined. Examples of this include ponds and wetlands that exist on their own in the landscape. These do provide high value habitat for wildlife but are not considered important to protect fish by provincial or federal policy.

Part 5 – Zones

- 46 (1) This refers to watercourse and creek. Choose one term for all water features to use throughout.
- RS – 3 58.1 (4) Change reference from Fish Protection Act to RAPR, and change Streamside Protection Area to Streamside Protection and Enhancement Area.

4.2 DPA 2 Marine Waterfront

Intent and objectives

This DP area aims to manage the design and construction of development on the waterfront. It is primarily focused on public access, views, commercial needs and low impact development. One objective directed at environmental protection includes:

- Integrate development with the Site's natural attributes to reduce negative impacts to coastal ecosystems.

High level recommendations

The following are broad recommendations to update it and improve its effectiveness:

1. Consider combining the shoreline content in DP 3 to this DP. The focus of this DP 2 is on the design of built features and access for the public, rather than on natural features. However, one of the objectives is to protect sensitive ecosystems and natural processes. There is overlap between this DP and the shoreline component of DP 3. It is recommended that the guidelines and requirements in DP 3 and DP 2 be combined.
2. The impacts of climate change on sea level rise should be considered in this DP. Mapping was recently completed by the Cowichan Valley Regional District and could inform this review.

Specific Recommendations for Improvement

The following are recommended updates and considerations within each section of the DP:

Section 2.1

- Either define how to identify natural boundary, refer to the zoning bylaw definition or change this to the highest high tide line.

Section 2.4.1

- Include a section that requires restoration opportunities to be identified and pursued.

Section 2.4.8

- Mention natural plant communities and features that provide habitat for wildlife.

4.3 DPA 3 Natural Environment

Intent and objectives

This DP area aims to protect:

- Watercourses that provide fish habitat
- Important wildlife habitat including corridors
- Biodiversity
- Raptors nests
- High value wildlife trees
- Plant communities at risk
- Habitat for species at risk
- Shoreline/intertidal areas
- Groundwater, aquifers and watersheds

High level recommendations

Overall, the intent of this DP is comprehensive and includes most sensitive natural features and functions. The following are broad recommendations to update it and improve its effectiveness:

1. Update references to provincial policy and definitions that have changed since this DP was written.
2. Update terminology to ensure consistent language is used throughout the DP. There is mixed terminology used throughout which can cause interpretation problems (i.e. watercourse vs stream, wildlife tree vs nest tree).
3. Consider adopting wider setbacks for the protection of watercourses. The current riparian setbacks follow the Provincial minimum standards, which some communities feel are too narrow and may not provide the protection that the Municipality is envisioning for all stream corridors.
4. Move the marine shoreline areas guidelines to DPA 2 – Marine Waterfront. Section 3.4.3 provides guidelines to develop along shoreline areas, but moving them to DPA 2 – Marine Waterfront would consolidate all guidelines for both the built and natural environment in one DPA.
5. Provide clear definitions of who is qualified to carry out environmental assessments. In particular, define who qualifies as a QEP (Qualified Environmental Professional), tree risk assessor, and a coastal professional.
6. Update the environmentally sensitive area mapping. Up to date mapping is key to identifying natural areas requiring protection, and areas where development may occur while minimizing the impact on the natural environment. This mapping is easiest to continually update and share with the public when available in an online mapping system.
7. Provide clear guidance for the identification and protection of sensitive habitat and corridors. Relying on QEPs discretion to identify and protect sensitive habitat and corridors for wildlife is vague and unlikely to meet the DP’s objective. QEPs work for land developers and can be reluctant to identify habitat areas unless they are clearly defined by the province or municipality.
8. Important “wildlife corridors” (as mentioned in the DP) should be defined and mapped. This could be mapped as a Green Infrastructure Network as part of a Biodiversity Conservation Strategy, or on its own.
9. Consider providing reporting requirements for QEP submissions. This could include guidance around the content and organization of QEP reports. This helps to ensure consistency between applications and with staff reviews.
10. Consider removing the requirement for buffers around protection areas or better define what a buffer is. This section is unclear if it is referring to the setbacks themselves, or a buffer off of the setback that provides a transition area between the protected features and the development. Buffers off of a protected area can be contentious, especially if fencing is to be permanent at this buffer and the area becomes secured as a result. Examples could include: a construction zone requirement 2m outside of the SPEA boundary; tree root protection zones of edge trees based on trunk diameter; edge of invasive species removal and restoration areas.
11. Move the broader DP guidelines to the objectives section. Those guidelines, which are broad in nature, will be more suitable as objectives. The guidelines should only include items that can be clearly defined and achieved by an applicant.

12. Require an arborist report for all trees that are within ten metres of the Protected Areas. The protection of trees is a clear way to ensure natural areas are being protected and restrict encroachment. These edge trees are sensitive to damage from development if works encroach into their critical root zone. Some trees require protection up to 10 m from the trunk in order to maintain healthy root structures. An arborist report will identify required root protection zones where protection measures should be implemented and any existing or potential hazard trees which should be removed. The DP currently refers to hazard trees and calls for the protection of the drip line of trees. Requiring an arborist report if work is proposed adjacent to ESA areas with a clear set of guidelines or terms of reference will enable the Municipality to ensure that retained trees are safely protect and that the applicant avoids creating new hazards.
13. Specify the tree risk assessment qualifications required, and tree risk assessment procedure and risk thresholds for identifying hazard trees in ESA areas.
14. Develop clear restoration requirements for development in or adjacent to natural areas and riparian setbacks, or where unauthorized development or disturbance has occurred in the protected area. This should include the removal of non-compliant structures, invasive species, and garbage, and replanting with native trees and understory vegetation.
15. Review exemptions to ensure all environmental values are being protected through development.

Specific Recommendations for Improvement

The following are recommended updates and considerations within each section of the DP.

Section 3.1

- Review the definition of a stream to ensure it is consistent with provincial definitions. Watercourses/streams are defined differently under different provincial policies (the Water Sustainability Act, WSA, and Riparian Areas Protection Regulation, RAPR). This definition should include what lower value features are included and some parameters for QEPs and applicants. Some smaller features and low value ditches could be excluded. Ensure the terms ‘aquatic systems’, ‘stream’ and ‘watercourse area’ are all defined properly.
- Update wording for where the watercourse guidelines apply to:
 - Include all watercourses, whether they are on the OCP map or not.
 - Remove the wording “only if determined by the municipality.” If a stream exists on or near a property, mapped or not, it should be protected. Unmapped connected streams are still protected under RAPR.
- Change the measurement point for watercourses to the top of bank or, if not existing, the stream boundary. Meet or exceed RAPR requirements for the assessment area.
- Consider combining the requirements for Coastal Areas with DP2. Definition should be clarified for the line to be measured back from. With sea level rise, the term often used now is the highest high tide mark instead of the natural boundary. This line can be difficult to identify where there are influences of wave action and rocky shorelines.

- Update the wording around species at risk. A QEP can't designate a species at risk and can only refer to provincial and federal designations.
- Update the definition of wildlife tree – it is not defined in the Wildlife Act. Change the definition to designate the nest of an eagle, heron, osprey, falcon, or burrowing owl.
- Define a QEP

Section 3.2

- Remove the term “or similar professional”. This leaves an opening to remove trees without proper justification. The determination of hazardous trees should require an assessment by a qualified ISA Tree Risk Assessor.
- Consider removing or amending exemption G, “Subdivision of lands containing a portion of the DPA where all of the following apply”. The current exemption does not require the land be protected through the development process other than through the covenant. This could lead to degradation of the natural environment prior to the covenant or dedication being in place , and does not provide staff with the tools to require its restoration.

Section 3.3

- Strengthen language from “development activity to avoid encroaching into protected areas” to “must not encroach”.
- Change variance requirement of providing equal or greater areas of ecological value to net gain of habitat area. Value is subjective and changes over time, while habitat area is quantifiable.
- Clearly define buffers and the location of fencing and land dedication.
- Expand specifications for monitoring and include requirements to submit summary reports to the municipality.
- Replace the tree crown drip line with a minimum distance and trunk diameter multiplier (ex. 10x diameter at breast height, DBH). Tree crown drip line is often not adequate to protect the critical root zone of trees.
- Specify a threshold to the current tree risk assessment methods for trees to be allowed to be removed from within protection areas, per the International Society of Arboriculture’s Tree Risk Assessment Qualification.
- Specify a required survivability of plants and trees in restoration areas after a set number of years before bonding is released. For example, 100% survival of trees and 80% or 90% survival of understory vegetation is a common requirement in other DPs.
- Require monitoring and removal of invasive species over a specified monitoring period that corresponds with plant survivability (typically 3-5 years). Invasive species must not make up more than 5% of plant species in restored areas .
- Update references to the 17 best management practice documents listed (3.3.3). These should be updated periodically.

Section 3.4

- Provide clear guidance on the no net loss requirement for “environmentally sensitive terrestrial ecosystems.” This is currently not clearly defined and is open to interpretation.
- Provide a clear definition of “endangered Douglas-fir forests” and “Garry Oak meadow ecosystems”
- Consider developing a Green Infrastructure Network for the Municipality to identify priority corridors and habitat patches. It is difficult to require protection of habitat linkages without identifying them as part of a Municipality-wide network.
- Move broad guidelines to the objectives section. Some guidelines are broad and read like objectives (e.g. “protect and enhance biodiversity within terrestrial ecosystems” and “protect ecological values”). As guidelines, it would be difficult to demonstrate how they have been achieved.
- Consider moving the guidelines for shoreline protection to DP 2 – Marine Waterfront.
- Define who is a “qualified coastal professional”.
- Rewrite the Nest Tree Protection Areas section of the DP (3.4.4) and expand it to require bird nest surveys prior to the removal of trees in the bird nesting season (March-August). The intent of this section of the DP appears to be to protect raptors and heron nests, however, all nests are protected under the Wildlife Act, including song birds.
- Require that a raptors/heron nest construction plan be developed by a QEP.

4.4 DPA 4 Natural Hazard

Intent and objectives

This DP area aims to regulate development on steep slopes, floodplains and fire hazard areas. It protects structures and ensures stable building sites and mitigates hazards while preserving environmental features and functions. It also prevents personal injury.

High level recommendations

The following are broad recommendations to update it and improve its effectiveness:

1. The professional requirements and standards should be more specific to the topic. State which professionals can sign off on which reports. As an example, the qualifications are different for assessing tree risk compared to flood hazard or wildfire.
2. Clearly specify which reports and assessments are required in which areas. This DP includes three very different risk types.
3. Add some clarification on the municipality’s position to balance wildfire risk against tree preservation. While steep slope and floodplain requirements help protect environmental values, the Wildfire requirements do not as they promote the removal of conifer trees.
4. Review and update mapping of natural hazard areas. Current mapping is outdated and needs improvement.

Specific Recommendations for Improvement

The following are recommended updates and considerations within each section of the DP:

Exemptions - General

- Define qualified professionals for risk mitigation
- Define the standard to be used to determine a hazardous tree and the qualifications required to determine this (i.e. ISA standards, certified tree risk assessor)
- Remove one of the fence building sections – it is mentioned twice in sections (c) and (g).

General Guidelines

- Specify what reports are needed for the different hazards. The guidelines currently specify that a geotechnical assessment is required. However, some areas may be in floodplain or wildfire areas and do not have steep slopes which would require a geotechnical report.
- Move the requirement for a geotechnical assessment down to Section 4.3.1 – Steep Slope Lands. It does not need to apply to other hazard areas.

General Guidelines - 4.3.3 Floodplain Lands

- Reference Section 11 of the WSA for emergency flood work.
- Consider updating to include pre-determined setbacks, or referring to the zoning bylaw for floodplain setbacks. The current guidelines do not have pre-determined setbacks. They could be provided and changeable by a QEP report as relevant.
- Specify that the setback cannot be reduced to below the minimum standard of the Provincial Riparian Areas Protection Regulation. Confirm that a geotechnical report is what is required for flood control.
- Reword the sentence in (g) iv. to specify that development will not cause filling in beyond the area approved for the development.

4.5 Subdivision Bylaw 1851

Intent and objectives

This bylaw regulates how lands are subdivided. This includes the layout of properties, roads, drainage and other infrastructure. It includes the protection of streams and the ocean, and their setbacks, as well as the provision of lands for walkways and public access to water features and the ocean.

High level recommendations

The following are broad recommendations to update it and improve its effectiveness:

1. This bylaw is intended to protect water features and the ocean as well as their setbacks during subdivision. The terms used for water features should be standardized to be the same as the other municipal policies (i.e. watercourse or stream).

2. Consider including reference to dedication of not only lands for stream setbacks but also sensitive natural areas as defined in DP – 3 Natural Environment. These should be in addition to lands used as urban parks, but could include lands to be used as natural parks.
3. Include reference to tree preservation. Consider introducing a tree bylaw to help prevent tree clearing ahead of the application process.
4. Consider adding a requirement for applicants to submit a tree survey and Tree Management Plan, to be approved ahead of tree clearing.
5. Consider incorporating tree planting standards to the Engineering Standards Road Design standard drawings.

Specific Recommendations for Improvement

The following are recommended updates and considerations within each section of the Subdivision Bylaw.

- 30 - Reword this to use the same terms for water features as the Zoning Bylaw and DPs. Add ocean as one of the water bodies. Change the setback to being measured either from the natural boundary or the riparian/marine setback as per DPs 2 and 3.
- 31 – Reword this to use the same terms for water features as the Zoning Bylaw and DPs.

4.6 Parks & Public Places Regulation Bylaw 3626

Intent and objectives

This Bylaw specifies what activities are permitted within parks and at what hours of the day. It permits homeless people to sleep overnight under certain conditions, and restricts commercial activities without permits and defines the requirements for a park or facility use permit. It also enforces a general set of rules of behavior and conduct. Fire risk is addressed by restricting open fires and ignition sources, including fireworks. Municipality bylaw officers can enforce this bylaw by impounding items that contravene the bylaw, removing people from the park and issuing maximum fines of \$1,000 per day.

High level recommendations

The bylaw seems to adequately address areas of concern including behavior, fire risk, vehicles and overnight camping. No broad recommendations are provided.

Specific Recommendations for Improvement

The following are recommended updates and considerations within each section of the bylaw:

Definitions

- Update the environmentally sensitive areas definition to include the Marine Waterfront DP areas.

General provisions and restrictions

- Replace the word flower with shrub or plant in 2 (b).

4.7 Soil Removal and Deposit Bylaw, 2009

Intent and objectives

This bylaw regulates how soil is removed, transported and deposited. This is to protect soils and their importance to the integrity and health of natural areas, and the agricultural industry. It manages the risk of erosion and sediment transport to environmentally sensitive areas. It prevents changes to natural hydrology and protects the stability of slopes. It also mitigates against dust and noise that could impact residents' health and wellbeing. This bylaw provides additional protection to riparian areas and waterbodies beyond the DP and development permit process.

This bylaw is directed at the movement of large volumes of soil from larger parcels, and from areas within the Agricultural Land Reserve (ALR). Smaller volumes of soil movement outside of the ALR, as well as on lots smaller than 1ha are exempt from the bylaw. If larger amounts of soil are being moved from smaller lots outside of the ALR, it is assumed that its movement would be regulated as part of a development as approved by the Municipality.

High level recommendations

The following are recommended updates and considerations within each section of the bylaw:

1. Review the minimum volume of soil and size of land parcel that must comply with this bylaw. Ensure the bylaw's current size requirements are sufficient to capture all significant soil removal and deposit activities.
2. Consider adding a requirement as part of the permit that soils deposited are free of invasive species. The spread of invasive plant species is a growing concern and is often caused by the movement of soils. There is no soil test for the presence of invasive species. This would be something that staff or QEPs may visibly see in the soil and could then act upon.

Specific Recommendations for Improvement

The following are recommended updates and considerations within each section of the DP:

Section 3

- Add that in addition to a development permit, a DP 3 approval is required and must comply with the Riparian Areas Protection Regulation which defines development as the movement of soil (5).
- Consider specifying a minimum standard for topsoil quality and depth, and more details for replanting with native plants, in addition to currently guidelines that Require topsoil to be placed over the area and it be planted or sown with grass (6).

Section 4

- Consider reducing the exemptions for volumes for soil movement outside of the ALR, which currently exempts soil movement if it is an amount less than a certain volume (300m³ per parcel or 60m³ per acre per year). This is a large amount of soil. We would be interested to hear feedback from staff on these thresholds.
- Consider reducing the size of exempted parcels, instead of the current exemption for parcels <1 ha in size.

Section 13

- The security may be too low to prevent infractions. Consider increasing securities so as to encourage compliance.

5.0 Appendix 2 – High-Level Policy Gap Analysis

The content below is intended to provide an overview of the high-level policy gap analysis for various bylaws, management plans, local area plans, and policies that are relevant to this review.

Bylaws:

1. Blasting Bylaw 3255
2. Building Bylaw 2003
3. Campground Bylaw 2140
4. Fire Protection Bylaw 3340
5. Firearms Bylaw 3077
6. Float Home Standards Bylaw 3015
7. Forest Use Bylaw 3265
8. Mobile Home Parks Bylaw 1775
9. Untidy and Unsightly Premises Bylaw 1991
10. Waterworks Bylaw 3620

Management Plans:

1. Bonsall Creek Watershed Management Plan (2016)
2. Cowichan Estuary Environment Management Plan (1987)
3. Integrated Forest Resources Management Plan (1981)
4. Maple Mountain Management Plan (1992)
5. Somenos Marsh Wildlife Society 5 Year Strategy Plan (2017-2022)

Local Area Plans:

1. Bell McKinnon Local Area Plan (2018)
2. Crofton Community Local Area Plan (2015) & University Village Local Area Plan (2015)
3. Chemainus Town Centre Revitalization Plan (2011)

Policies and High-Level Plans:

1. Climate Action and Energy Plan (CAEP, under review)
2. Development Permit Area 1
3. Energy Step Code Rebate Policy (2020)
4. Parks and Trails Master Plan (2017)
5. Site Adaptive Planning in Urban Rural Interface (2019)
6. Trail Maintenance Policy (2020)

5.1 Bylaws

Blasting Bylaw 3255

The Blasting Bylaw prohibits blasting without a permit. This bylaw requires qualifications and fees to obtain a blasting permit. It specifies blasting restrictions for the timing, proximity to land uses and

weather conditions. It requires that notifications be issued and that access near the site be controlled. It also permits the municipality to access a site to enforce the requirements.

It is recommended that:

- The Blasting Bylaw be updated to add restrictions during high to extreme fire hazard.

Building Bylaw 2003

The Building Bylaw regulates construction in North Cowichan to consider the public interest. It describes building permit requirements and defines the role of the building inspector. The building bylaw does not specifically address climate change or the natural environment. It does have some requirements for water conservation, requiring low water consumption toilets and urinals. Local governments are restricted by the Building Act, which precludes them from establishing separate building standards, except through the BC Energy Step Code.

A timeline for implementing Step 2 of the BC Energy Step Code in North Cowichan was established in August 2020, and is required as of May 2, 2021. This timeline should continue to be developed for additional steps of the code.

Campground Bylaw 2140

The Campground Bylaw provides a framework to regulate campgrounds in North Cowichan. The bylaw states that campgrounds cannot be altered without written approval and a permit by the Building Inspector, and includes what is required for a permit application.

The bylaw is effective at establishing buffers around campsites, and designating minimum setbacks from watercourses. It requires structures to be sited 30 m from watercourses when the 200-yr floodplain is unknown, otherwise the setback is based on the 200-yr floodplain. It also sets water, stormwater, and sewage requirements. The bylaw addresses concerns from flooding, requiring a minimum elevation for structures, and multiple requirements to address the risk of fire; however, it does not address tree risk.

It is recommended that the Campground Bylaw:

- Further defines what should be located within campground buffers (i.e. native vegetation).
- Confirm watercourse setbacks are compliant with RAPR, as they appear to be focused on reducing flood risk to the site vs. protecting the watercourse.
- Provide guidance around overall campground layout, including to avoid sensitive habitat, and include goals for vegetation retention.
- Incorporate tree risk assessment, including hazard trees and identifying windfirm edges.

Fire Protection Bylaw 3340

The Fire Protection Bylaw prohibits land owners from having conditions on site that are considered a fire hazard including the accumulations of combustibles. It ensures the security of burned buildings. This

bylaw regulates incineration on a property and requires all intentional fires to be supervised. It provides restrictions and requirements for open burning and wood burning appliances and requirements for fire pits.

The Fire Protection Bylaw allows the municipality to ensure that forestry and industrial activity does not cause debris accumulations. In addition, it gives the municipality power to enter a property to mitigate fire hazard if the owner fails to. It recognizes and provides permission to the municipality to fight fires on private property, allows the fire department to respond to non-fire related emergencies, and empowers the municipality to order an open burning ban.

It is recommended that:

- The Fire Protection Bylaw be updated to refer to Firesmart standards and the CWPP once adopted as the standards to achieve on properties.
- The identification of fire hazard be better defined so the public can understand what may be considered an infraction. It is currently dependent on the opinion of the local assistant. This could.

Firearms Bylaw 3077

The Firearms Bylaw regulates the use of bows and firearms. It creates designated areas where hunting can occur, including maps of the areas. Overall, this bylaw appears to be effective at limiting hunting to designated areas.

It is recommended that:

- Assuming that the community still supports the use of the designated lands for hunting, then no recommended changes.

Float Home Standards Bylaw 3015

The Float Home Standards Bylaw regulates float home requirements and applies to all areas of land and water within North Cowichan, and extends 1000 feet beyond the foreshore highwater mark. Float homes need a building permit to moor in a marina, and must meet the requirements set out in the bylaw by 2001 (either mooring after that time or meeting specific requirements by then if moored earlier). The home must be buoyant, able to handle winds without sinking or dislodging, comply with electrical and gas safety requirements.

The bylaw requires a sewer connection when available or approved toilet system to ensure the waste is not released into the environment, which is likely sufficient to inhibit dumping and protect water quality from float homes. The bylaw allows for penalty fees, which likely improves enforcement.

It is recommended that:

- The location of float homes is selected to avoid sensitive foreshore habitat.

Forest Use Bylaw 3265

This Forest Use Bylaw applies to the municipal forest reserve and other municipal lands used for forest purposes. It prohibits certain forest uses and damaging activities, and serves to protect the natural areas from disturbances that have not been approved and permitted under the bylaw.

Overall, this bylaw appears to be effective at addressing the relevant environmental components considered for this review. It protects against impacts to the forest in the reserve and other municipal lands used for forestry. It prevents open fires, which is critical to prevent wildfires. Finally, it protects the integrity of natural forests, which is critical to mitigate against climate change impacts, and it allows for fines to be issued under the Offence Act.

The effectiveness of the monitoring and enforcement for this bylaw could be challenge for the large, forested areas it regulates. A review could be done to determine how often infractions are committed, how many fines are issued and if there are enough resources for monitoring and enforcement.

Mobile Home Parks Bylaw 1775

The Mobile Home Parks regulates the parking of mobile homes and creation of mobile home parks. The development of mobile home parks requires consideration of proposed water supply, sewage disposal, wastewater disposal and garbage disposal. Maps included in the development process must show watercourses and steep slopes & banks, and consider flooding and erosion in the development.

The bylaw is likely moderately effective at minimizing impact to the natural environment. It minimizes pollution and waste, but does not require vegetation retention or placing parking pads away from sensitive areas. It addresses many risks associated with the natural environment, requiring vertical and horizontal setbacks from water features and addressing fire risk reduction. It does not include setbacks off of steep slopes, but this is covered under DPA 4.

It is recommended that the Mobile Homes Parks Bylaw:

- Provide guidance around overall park layout, including to avoid sensitive habitat, goals for vegetation retention, and buffer requirements between parking pads.
- Incorporate tree risk assessment, including hazard trees and identifying windfirm edges.

Untidy and Unsightly Premises Bylaw 1991

The Untidy and Unsightly Premises Bylaw addresses provincially designated noxious weeds, as defined under the Weed Control Act. It requires noxious weeds are cleared and are not allowed to accumulate on private property. However, using the term “noxious weeds” may exclude many regionally significant invasive plant species.

The bylaw provides North Cowichan with the tools to ensure noxious weeds are removed from private property at the owner’s expense. However, the bylaw does not address public property, invasive species

(not all of which are included under noxious weeds), newly introduced species that have the potential to become invasive, or restoration requirements.

It is recommended that:

- The municipality expands the scope of the bylaw, or develop a separate bylaw, that includes invasive species rather than just noxious weeds, with specifics on how these are designated. This would be an opportunity for North Cowichan to develop a list with the most relevant invasive species to North Cowichan, focusing and prioritizing invasive species and noxious weed management. This could be done in consultation with the Environmental Advisory Committee.
- Proper disposal of invasive species and noxious weeds be addressed. Section 3 regarding dumping could be updated to include the dumping of invasive species, as many can spread through illegal dumping of garden waste.
- A policy of Early Detection Rapid Response (EDRR) be initiated to detect and manage new infestations and new invasive species.
- The municipality undertakes a mapping exercise of public lands to map the extent of invasive species, providing a baseline of existing infestations.
- North Cowichan considers developing an Invasive Species Management Plan (ISMP), which would use the baseline mapping to develop a plan to manage and prioritize treatment of invasive species in North Cowichan.
- Restoration requirements be developed. Invasive species are likely to recolonize an area after removal if the area is not replanted with native plants. Good start to native plants here: https://www.northcowichan.ca/EN/main/departments/environmental-services/native-plants/Native_Drought_Tolerant_Gardening.html

Waterworks 3620

The Waterworks Bylaw regulates water access, usage and pricing. It requires water meters be installed on new and upgraded connections, and sets out water conservation measures.

The bylaw is effective at addressing the component of the natural environment it aims to – water. It addresses water conservation measures and requires metering going forward on all new builds and retrofits. The bylaw allows the municipality to enforce non-compliance with water conservation measures and apply fines.

It is recommended that:

- North Cowichan consider updating the fee schedule bylaw to charge for use. The bylaw is set up to charge for use, but the fees bylaw appears to charge by use only when over an "allowed" amount. Pricing by use on a sliding scale can encourage conservation.

5.2 Management Plans

Bonsall Creek Watershed Management Plan (2016)

This plan provided a description of the hydrology, aquatic ecology and land use in the Bonsall Creek watershed, which covers a large area of North Cowichan. The plan recognises restoration efforts and the importance of stewardship groups for watershed management, and a discussion on climate change impacts.

This is comprehensive report that includes balanced discussion of conservation and land use trade offs. Actions items to manage the watershed are clear and prioritised with justification.

It is recommended that:

- As the plan is implemented and updated in the future, it includes some analysis of adjacent terrestrial conditions and their impacts on the watershed.

Cowichan Estuary Environmental Management Plan (1987)

This report summarizes impacts to and recommends actions to mitigate impacts from industry to the Cowichan river estuary. It is a high value estuary for salmon and shorebird habitat. It recognizes agreements with major industrial companies to mitigate their impacts in this area. This focusses largely on log storage leases. Areas are designated for use in the estuary including industry/commercial, agriculture, habitat and conservation and recreation. A project review process is specified to ensure new uses are reviewed and approved. The estuary is located just south of North Cowichan outside of its boundaries, but discusses industrial activities within the municipality.

This management plan is several decades old, and as a result it references old agreements and legislation such as the Environment Management Act. Some of the industrial parties no longer exist, while new ones are likely active in the estuary.

It is recommended that:

- The municipality work with the province and other stakeholders to update the Management Plan.

Integrated Forest Resources Management Plan (1981)

This plan from 1981 focuses on the timber reserves and sustainable management of the municipal forest reserve. It focusses on timber inventory, growth and yield and silviculture planning to 2020. The forest reserve covers 25% of the land base, and timber extraction in the forest has become increasingly controversial.

An Interim and Long-Term Forest Management Plan for the Municipal Forest Reserve are currently being developed and include a public consultation process currently underway. The plan update aims to balance uses, including timber harvesting, recreation values and ecological stewardship.

There is an interim and Long-Term Forest Management Plan currently being developed for the Municipal Forest Reserve. As part of these updates it is recommended that:

- Forest planning concepts be updated to more current practices.
- The implications of wildfire risk be included as a consideration during planning and operations.

Maple Mountain Management Plan (1992)

This report summarizes findings from public consultation which explored uses of this forest area apart from traditional forestry and timber extraction. It provides a summary of each resource use and the feedback from the consultation process. Apart from forest management, the highest value resource uses were identified by the public as aesthetics, hiking and recreation activities. Sensitive forest communities were identified for preservation, including Gary oak ecosystems. Alternative lower impact harvesting methods were recommended.

The report provides a good summary of public opinion in 1992. Public perception of forestry and non timber resources values can be expected to have changed over the past 30 years. In addition, it doesn't recognize risks associated with forested areas such as wildfire, tree hazard or the changes in forests resulting from climate change. Mountain biking is also a fast growing sport that is popular in this area and may warrant consideration for the management of the forested area (as documented on mountain bike trail sites including "Trailforks").

While this provides valuable insight into the vision of the community in the 1990's, it may no longer provide much guidance around the current community. Recreational aspects of this plan are covered in the Parks and Trails Master Plan, which should likely be the primary guiding document around parks and recreation in this area.

Somenos Marsh Wildlife Society 5 Year Strategy Plan (2017-2022)

The 5 Year Strategic Plan provides a clear vision and guiding principles for the rehabilitation, protection and management of the Somenos Marsh Conservation Area and the Somenos Marsh Wildlife Society. It sets out guidance for the operation of the Society and to recognize its key relationships in the achievement of its mission. The goals, objectives and actions set out important priorities for the restoration, research and monitoring in the Conservation Area.

The strategic plan builds on the 2001 Management Plan which was developed by Ducks Unlimited and the Somenos Steering Committee. The strategic plan is well-organized, and the continued management of the area by the Society and the committee is a great example of collaborative efforts including First Nations to manage a sensitive ecosystem.

5.3 Local Area Plans

There are four official Local Area Plans (LAPs) in North Cowichan: The Bell McKinnon LAP (2018), the Crofton Community LAP (2015), the University Village LAP and the Chemainus Town Centre Revitalization Plan (2011). North Cowichan's LAPs provide a sense of the values of each neighbourhood, and some of their environmental protection goals, as well as good policies to protect and enhance the natural environment, particularly through the identification and protection of environmentally sensitive areas and the setting of related targets.

The most recent Bell McKinnon LAP provides a good example. It includes principles to integrate ecological design and develop a blue-green infrastructure network in the community. It sets explicit targets and metrics to guide the implementation of its goals and principles, including canopy cover and effective impervious areas targets, and provides recommendations to improve energy efficiency and develop a connected network of green space.

5.4 Policies & Plans

Climate Action and Energy Plan (currently under review)

This plan recognizes the changes in the climate and the municipality's commitment to reduce their green house gas emissions. It provides a summary of existing and expected energy consumption and provides a plan to conserve energy, reduce emissions and to address the expected impacts of climate change.

The plan includes a commitment to the BC Climate Action Charter which includes becoming climate neutral with respect to municipal operations by 2012. This plan was developed after this year in 2013. It recommends that the OCP adopt a target of reducing emission to 33% under 2007 levels by 2025. It identified the majority of emissions (76%) coming from transportation. Most recommended actions focus on changes to transportation as well as making development more energy efficient and switching to more sustainable energy sources.

The discussion of climate change impacts include those that affect the natural environment such as wildfire, sea level rise, storms, drought and temperature extremes. These impacts are prioritised and current approaches to manage the risks are summarised. No detailed recommendations are made for strategies to mitigate the risk of climate change on the natural environment. The only action that relates directly to the natural environment includes increasing North Cowichan's tree cover. Options for an urban forest strategy and tree bylaw are discussed as well as incentives to plant trees on private property.

Updates are underway to improve greenhouse gas modeling, the municipal emissions reduction goals, review and reschedule projects, and develop an implementation and monitoring framework.

It is recommended that the plan update:

- Prioritises the recommendation to develop an urban forest strategy and tree bylaw. Adopt targets for tree canopy cover by land use type.
- Includes more detailed actions to address impacts on the natural environment such as sea level rise, drought, temperatures, wildfire, storms, forest pest and disease and invasive species.

Development Permit Area 1

Development Permit Area 1 - General regulates development to meet five objectives: the site choice and efficient land use, mobility, site design and landscaping, infrastructure and servicing impacts, and building form and character. The DP encourages site level planning to preserve environmentally and archeologically significant lands and to avoid hazard lands. It also encourages development in designated growth centres as well as the retention of existing landforms, biodiversity and vegetation.

While DP 1 includes key environmental objectives, it does not define specific goals or requirements to achieve the objectives. This lack of details can keep things flexible, but also makes enforcement difficult for the municipality. It also touches on wind hazard, while other hazards are covered under DP 4 – Hazard Lands.

It is recommended that:

- Ensure the wind hazard provisions are compliant with DP 4 – Hazard Lands.
- More specific environmental requirements be introduced related to the stated environmental objectives, as the environmental DPA 3 doesn't apply to the entire municipality. These could include requirements such as developing away from ESAs, identifying targets for pervious surfaces, protecting a % of natural areas in all new greenfield development, etc.
- The Municipality consider connectivity from a species movement perspective as well as from a mobility perspective. These frameworks can be complimentary.
- More guidance be provided on GHG reduction design strategies, or reference to the Step Code.

Energy Step Code Rebate Policy

The Energy Step Code Rebate Policy is a council policy that encourages voluntary participation in the BC Energy Step Code in advance of mandatory requirements. It provides rebates associated with implementation of the BC Energy Step Code, increasing the rebate with increasing efficiencies or "steps".

The rebate provides incentives to improve energy efficiencies for "Part 9" buildings (i.e. single-family homes). However, these incentives are too low to cover the costs associated with meeting the requirements and the associated reporting to prove that the code requirements have been met. It will likely subsidize houses that were planning on meeting the requirements but are unlikely to be high enough to encourage houses that were not already looking into energy efficiencies. This policy is also only directed at single-family homes and does not support energy use reductions in multi-family homes.

It is recommended that the Municipality:

- Consider increasing the rebates to better cover the costs associated with meeting the requirements and expanding it to multi-family homes.
- Develop and publicise a timeline to implement the BC Energy Step Code in North Cowichan. Step 2 will be implemented as of May 1, 2021. It is expected that step 3 will be mandatory in the BC Building Code in 2022. The Municipality should consider implementing further Step requirements in the future, and exploring the possibility of implementing higher step requirements for new development through the rezoning process.

Parks and Trails Master Plan

The Parks and Trails Master Plan guides the development and management of municipal parks and trails. It includes a goal to conserve and restore the function of natural habitat and ecosystems, and to contribute to the connectivity of those areas within the region with the goal of providing continuous access.

The Master Plan sets out good guidance to protect and restore the municipality's existing green network of environmentally sensitive areas, wetlands, riparian and river corridors, steep slopes and forest patches. It includes actions to manage invasive species in municipal parks and along trails.

It is recommended that:

- The Master Plan be updated over time to keep the green network map up-to-date, for example to maintain its consistency with OCP map 7 (Environmentally Sensitive Areas).

Site adaptive planning in urban rural interface (2019)

This Council Policy identifies specific properties as being within the Urban-Rural Interface Area, which are likely to be proposed for future development. It approves a more detailed analysis process for these lands during a development application to ensure environmental, hazard and local character values are addressed. It requires staff to pursue a planning process called "demonstrative site adaptive planning analysis" for development applications on these designated lands.

The Council Policy does not include specifics or references for what is required to be included in this planning analysis, and as a result may be too broad to be enforceable in its current form.

It is recommended that:

- The Council Policy be updated to add guidelines to be followed for the demonstrative site adaptive planning analysis. The guidelines should reference specific concerns to be addressed, i.e. wildfire risk, windthrow and tree risk, as well as flooding and sea level rise.

Trail Maintenance Policy 2020

The Trail Maintenance Policy Describes the trails to be maintained within the municipal boundaries and the level of maintenance to which they are to be sustained at. The policy identifies and prioritizes trail

maintenance based on cost, safety, budgets, personnel, and the environment. It describes the different trail types, including use, trail material and height. Maintenance activities includes inspections, clearing, remediation, re-routing, decommissioning and issue tracking.

The policy effectively manages and prioritizes trail maintenance, and protects natural resources within the immediate vicinity of trails. It sets specific roles, responsibilities and timelines for implementation. However, the policy does not define inspections or safety standards (i.e. who is inspecting for what). In addition, Priority D trails are not reviewed. Currently no trails are identified as Priority D in the Policy; however, this should be revisited if trails are designated Priority D in the future.

It is recommended that:

- Inspection and safety standard requirements are described in the policy or in a supplemental implementation document to ensure the intended standards are being met.
- The municipality considers identifying the required qualifications to carry out the assessment (i.e. if they need to be a QEP such as a Registered Professional Forester, or an ISA Certified Arborist, and a Certified Tree Risk Assessor, etc.)