# Agenda and Reports

1) **Public Hearing Agenda**  
Will be published November 16, 2021

2) **Staff Report** - October 13, 2021  
This report provides an overview of the project and the land use issues related to the review of this Rezoning Bylaw and Development Cost Charges Bylaw.

3) **Bylaw 8538**, which rezones the subject site from Parks, Recreation and Open Space to Comprehensive Zone 139 (CD139) to enable the development of a Social Housing Development.

4) **Bylaw 8539**, which waives Development Cost Charges for the property

5) **Notice**

### Additional Information

6) **Minutes** – Regular Meeting of Council held November 1, 2021  
Will be added once adopted by Council and signed by the Mayor and Clerk

7) **Land Use**

Maplewood Village Centre and Innovation District Implementation Plan & Design Guidelines

Maplewood Lands Environmental and Hydrogeological Assessment Report

Development Permit Areas (DPAs):
- Form and Character of Multi-family Development;
- Energy and Water Conservation and Greenhouse Gas Emission Reduction;
- Protection from Creek Hazard;
- Protection of the Natural Environment; and
- Streamside Protection.

### Public Input

8) **Public Input**
AGENDA
PUBLIC HEARING

Tuesday, November 23, 2021
7:00 p.m.
Council Chamber, Municipal Hall
355 West Queens Road
North Vancouver, BC
Watch at https://dnvorg.zoom.us/j/65345321120

Council Members:
Mayor Mike Little
Councillor Jordan Back
Councillor Mathew Bond
Councillor Megan Curren
Councillor Betty Forbes
Councillor Jim Hanson
Councillor Lisa Muri

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355 West Queens Road, North Vancouver
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AGENDA

Unaddressed Lands East of Riverside Drive, North of Old Dollarton Road and South of Maplewood Park:
Zoning Bylaw Amendments

1. OPENING BY THE MAYOR

2. INTRODUCTION OF BYLAW BY CLERK

District of North Vancouver Rezoning Bylaw 1414 (Bylaw 8538)

Purpose of Bylaw:
Bylaw 8538 proposes to amend the District’s Zoning Bylaw by rezoning the subject site from Park, Recreation and Open Space (PRO) to a new Comprehensive Development Zone 139 (CD139). The CD139 Zone addresses permitted and accessory uses and zoning provisions such as density, setbacks, height, building and site coverage, and parking and bicycle regulations.

3. PRESENTATION BY STAFF

Presentation: Robyn Hay, Development Planner

4. REPRESENTATIONS FROM THE PUBLIC

5. QUESTIONS FROM COUNCIL

6. COUNCIL RESOLUTION

Recommendation:
THAT the November 23, 2021 Public Hearing be closed;
AND THAT “District of North Vancouver Rezoning Bylaw 1414 (Bylaw 8538)” be returned to Council for further consideration.

7. CLOSING
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October 13, 2021  
Case: PLN2021-00055  
File: 08.3060.20/055.21

**AUTHOR:** Robyn Hay, Development Planner

**SUBJECT:** Bylaws 8538 and 8539: Rezoning and Development Cost Charge (DCC) Waiver Bylaws for a Social Housing Development at the “Riverside Site”

### RECOMMENDATION

THAT “District of North Vancouver Rezoning Bylaw 1414 (Bylaw 8538)” to rezone the subject site from Park, Recreation and Open Space to Comprehensive Zone 139 (CD139) be given FIRST reading;

AND THAT “Riverside Drive Development Cost Charges Waiver Bylaw 8539, 2021” be given FIRST reading;

AND THAT Bylaw 8538 be referred to a Public Hearing;

AND THAT Staff be directed to proceed with waiving any additional District of North Vancouver fees including development permit and building permit fees and such fees can be in excess of the $30,000 maximum specified in the Council Policy entitled “Eligibility Criteria for Waiving Municipal Permit Application Fees” subject to securing the social housing units in a lease agreement.

### REASON FOR REPORT

On September 27, 2021 Council directed staff to initiate a District-led rezoning process for the four District-owned lots located to the northeast of Riverside Drive and Old Dollarton Road (“Riverside Site” – see site outlined on Page 3 of this report) to allow a social housing development up to six-storeys in height.
The following bylaws are required for this purpose:

- Bylaw 8538 to rezone the subject properties (Attachment 1); and
- Bylaw 8539 to waive Development Cost Charges (Attachment 2).

The Rezoning Bylaw and DCC Waiver Bylaw are recommended for introduction and the Rezoning Bylaw is recommended for referral to a Public Hearing. A Development Permit would be forwarded to Council for consideration if the rezoning proceeds.

BACKGROUND

Metro Vancouver Housing (MVH) is seeking to build affordable rental housing on municipally-owned lands through partnerships with member jurisdictions. An Expression of Interest (EOI) to identify land for affordable rental housing development was issued on September 20, 2021, with submissions due by December 31, 2021.

On July 26, 2021, Council gave direction to staff to provide information regarding several District-owned properties that could be submitted to MVH for consideration in the development of affordable rental housing.

In response to Council direction from July 26, 2021, staff reviewed and assessed ten District-owned sites. On September 27, 2021 District Council directed staff to proceed with a District-led rezoning process on the Riverside Site. More specifically, Council passed the following motion:

THAT staff are directed to initiate a District-led rezoning process for a District-owned site that would allow up to a six-storey affordable housing development and to seek public input;

AND THAT staff are directed to explore a partnership opportunity with Metro Vancouver Housing for affordable rental housing on the selected Maplewood – Riverside site;

AND THAT actions are undertaken to support project viability, including waiving typical permit fees and applicable Development Cost Charges, contributions to some related off-site costs, supporting a review of possible property tax exemption, expediting development approvals, reviewing parking requirements, and leasing the land at a nominal fee.

Municipally-owned sites with appropriate zoning in place are viewed more favourably by MVH as these sites can benefit from reduced timelines and cost uncertainty, access to funding partners such as CMHC, and greater likelihood of support from senior levels of government.

An application to MVH would be non-binding but would indicate the District’s strong desire to explore partnerships on District-owned land as part of addressing the current
housing affordability crisis. Regardless of the outcome of the EOI, the proposed rezoning would support the use of this site for social housing in the future.

The Staff Report titled Metro Vancouver Expression of Interest for Affordable Housing: District-owned Sites for Consideration and dated September 14, 2021 is included as Attachment 3 for reference.

Site and Surrounding Area

The Riverside Site is located northeast of the intersection of Riverside Drive and Old Dollarton Road in Maplewood Village Centre. It consists of four lots and is approximately 2,492 m² (26,824 sq. ft.) in size. The site is currently undeveloped and consists primarily of second growth forest. Surrounding properties include single-family homes to the south, an undeveloped District road allowance to the north beyond which is Maplewood Park, undeveloped District lands to the east, and low-rise apartments across Riverside Drive to the west.

The site is located next to the undeveloped Maplewood Park. The park currently contains a network of trails and informal paths for recreational use. New active and passive park space and trail connections are envisioned for Maplewood Park in the future, including a potential new Spirit Trail connection adjacent to the site. The Riverside Site is not part of the park.

Transit service is currently provided along Riverside Drive, Old Dollarton Road, and Mount Seymour Parkway, all within a five-minute walk of the site. RapidBus service (15-minute or better service) is anticipated in the future along Dollarton Highway.

EXISTING POLICY

Official Community Plan

The Official Community Plan (OCP) designates the site as “Residential Level 6” (RES6) which envisions medium-rise apartments at a density of up to approximately 2.5 FSR. Some commercial use may also be permitted in this designation. The proposed CD139 zone permits 2.5 FSR in keeping with the OCP designation.
The proposed bylaws addresses a number of OCP goals and policies including:

- 7.1.1 Encourage and facilitate a broad range of housing, including non-market and supportive housing;
- 7.3.7 Consider incentives such as reduced Development Cost Charges to facilitate affordable rental housing; and
- 7.4.4 Consider the use of District land, where appropriate, to contribute towards and leverage other funding for the development of social and affordable housing.

Maplewood Village Centre and Innovation District Implementation Plan & Design Guidelines ("Maplewood Plan")

The site is located within the Maplewood Village centre which is envisioned as a central commercial hub with a diversity of housing, institutional, and mixed-uses. The Maplewood Plan specifies a maximum building height of six-storeys as shown in the Maplewood Plan building height map below (site outlined in red). The scale and density in the proposed CD139 zone is in keeping with the Maplewood Plan.

Provision of social housing in the anticipated form of development on this site would align with the policies and social housing targets (e.g., 300 net new social units) outlined
in the Maplewood Plan. The Maplewood Plan specifically encourages the use of District-owned lands to generate innovative, non-market housing opportunities, where appropriate.

The proposed rezoning has the potential to address a number of other Maplewood Plan policies including to:

- Secure sufficient space to re-locate the I Hope Centre or other community service providers into space with flexible community facilities (e.g. meeting rooms) in Maplewood Village Centre;
- Support the potential provision of a continuum of childcare services in Maplewood Village Centre and Maplewood North Innovation District to include infant/toddlers, age 3-5 and before and after school care; and
- Community amenity spaces should be flexible and should promote physical and social inclusivity, and meet the needs of a variety of user groups (e.g. seniors, youth, families, and the general community).

The site is located outside the Risk Contours established in the Maplewood Plan, which seek to ensure that sensitive land uses are located at a safe distance from heavy industrial activities. There are no restrictions on the type of uses permitted on this site from a chemical risk perspective.

The proposal is consistent with the Official Community Plan (OCP) and the Maplewood Plan. The use of the land for social housing will require rezoning to a new Comprehensive Development (CD) zone and a development permit would be forwarded to Council for consideration, if the rezoning is approved.

**Targeted Official Community Plan Review Action Plan**

The project has been reviewed against the Targeted Official Community Plan Review Action Plan (Action Plan) and addresses the following “Priority Actions”:

**Priority Action 1:** Achieve Town and Village Centres that deliver low-carbon, compact, and diverse housing, transportation choices, and supportive public amenities and employment space.

- The proposed bylaw and resulting development contribute to this action by providing a range of housing options within the Maplewood Village Centre that are well-served by public transit. The proposed bylaw has flexibility to allow for key public amenities such as a childcare facility and social gathering places which all generate opportunities for new employment.

**Priority Action 3:** Prioritize rental, social, and supportive housing projects to increase the range of housing options

- Any resulting development would provide 100% of units as rental, targeting low to moderate income households. The level of affordability would be dependent on funding partners and contributions.
Priority Action 5: *Increase housing diversity to support a range of incomes, household types, and accessibility needs within and close to Town and Village Centres.*
- The site is located in Maplewood Village Centre and the proposed bylaws and resulting development would provide social housing units all of which would meet either “Basic” or “Enhanced” levels of accessibility.

Priority Action #6: *Create a continuous and connected network of walking and cycling routes to encourage more people of all ages and abilities to walk and cycle.*
- A new bicycle lane and improved sidewalks with street tree plantings and streetlight upgrades would be provided along Riverside Drive. New trail connections in Maplewood Park would also be provided.

**Rental and Affordable Housing Strategy**

The proposed bylaws, if adopted, will permit development of the site for a six-storey building with non-market rental housing. This responds to the following goals of the District’s Rental and Affordable Housing Strategy (RAHS):
- Goal 1: Expand the supply and diversity of housing;
- Goal 2: Expand the supply of new rental and affordable housing; and
- Goal 6: Partner with other agencies to help deliver affordable housing.

The RAHS indicates that the 10 year (2016-2026) estimated demand for affordable rental units in the District is 600 to 1,000 units.

**Council Directions, 2019-2022**

The proposed bylaws respond to the following Council Priority Directions to 2022:
- Key Issue 2: Increasing Housing Diversity and Addressing Affordability

A range of actions to support this priority include:
- Increasing the number of social and affordable housing units to fill gaps in the low to moderate income end of the housing continuum;
- Increasing housing diversity; and
- Assessing available District land and its suitability for various housing forms.

**Zoning**

The subject properties are currently zoned “Parks, Recreation, and Open Space” (PRO) and would require rezoning to a comprehensive development (CD) zone in order to accommodate the proposed use and density set out in the OCP.

Bylaw 8538 proposes to create a new “Comprehensive Development Zone 139” (CD139) tailored specifically to this project. The proposed CD139 zone prescribes permitted uses and zoning provisions such as a maximum density of 2.5, height, setbacks, and parking requirements.
ANALYSIS:

Project Description

As directed by Council, staff have drafted Comprehensive Development Zone 139 (CD139) to permit a six-storey social housing building. Should Council adopt the bylaws, the District will explore a partnership opportunity with Metro Vancouver Housing for the development of a social housing project. If that is unsuccessful the District will explore a partnership opportunity for this site with other non-profit housing providers.

In either case, the District will enter into negotiations with a future non-profit housing provider for a long-term ground lease at a nominal rate. Under this arrangement, the District will retain ownership of the land and the social housing will be operated by the non-profit housing provider pursuant to the long-term ground lease.

The proposed CD139 zone also permits “social-gathering use” which would allow socializing and gathering on a not-for-profit basis, and may include but is not limited to the following uses: non-profit clubs, reading rooms, and meeting spaces. This would allow the possibility for organizations such as Thrive Family Centre (formally known as I Hope Centre), North Shore Disability Resource Centre Association and the North Shore Arts Council to occupy some of the space.

The Maplewood Plan and the Child Care Action Plan both identify the need for range of child care services in the Village Centre, and target the approximate area of the Riverside Site as a preferred location given its distance beyond the Risk Contours established in the Maplewood Plan. Childcare is a permitted use in all zones as per the General Regulations section of the Zoning Bylaw and could be incorporated into any future building on this site.

Built Form

It is anticipated that redevelopment would entail a six-storey apartment building with one level of underground parking and a density up to 2.5 FSR, consistent with the OCP and the Maplewood Plan. The adjacent image shows the anticipated building concept in the Village Centre as per the Maplewood Plan, with this site outlined in red.

This form of development could accommodate approximately 60-90 rental units however, the final number would be determined through the land lease and Development Permit process, and will be influenced by factors such as
potential community uses, unit size, layouts, and developable area after accounting for any road dedications, right-of-ways, and setbacks.

**Housing Affordability**

Rents would be established through the lease agreement with a future non-profit housing provider at levels that are appropriate for low to moderate income households with before-tax incomes ranging from $30,001 to $85,170. The unit count and unit mix would also be confirmed through the lease agreement.

Subject to the MVH grant application being successful, it is anticipated that MVH will seek external funding through Provincial and Federal programs and other sources to support project costs. One funding source which has been successful in the District is the Building BC: Community Housing Fund, which requires the following mix of rents and incomes within a single building:

- 30% Affordable housing (moderate income);
- 50% Rent geared to income (Housing Income Limit); and
- 20% Deep subsidy.

**Development Permits**

The subject site is located within the following Development Permit Areas (DPAs):

- Form and Character of Multi-family Development;
- Energy and Water Conservation and Greenhouse Gas Emission Reduction;
- Protection from Creek Hazard;
- Protection of the Natural Environment; and
- Streamside Protection.

A detailed review of development permit issues, outlining the project’s compliance with the applicable development permit guidelines will be required at the development permit stage.

**Advisory Design Panel**

The application will be reviewed by the Advisory Design Panel (ADP) at the Development Permit stage. A detailed review of development permit issues, outlining the project’s compliance with the applicable development permit guidelines will be provided for Council’s consideration should the application proceed through the rezoning process.
Accessibility

The project will be required to fulfill the requirements of the Accessible Design Policy for Multifamily Housing. More specifically, all of the apartment units must meet the ‘Basic Accessible Design’ criteria and at least 5% of the apartment units must meet the ‘Enhanced Accessible Design’ criteria.

Biodiversity and Ecology

The subject site is located in a previously disturbed area and is comprised primarily of mature black cottonwoods and big leaf maples with some western red cedars and western hemlocks. Any development of the site would require tree removal. Tree replacement would be required as part of the site redevelopment.

The site is located outside the environmentally sensitive area identified in the Maplewood Lands Environmental and Hydrogeological Assessment Report.

Green Building Measures

In accordance with the District’s Construction Bylaw, the project will be required to meet either Step Code 4 or Step Code 3 with a Low Carbon Emission System (LCES). Requirements for energy step code would be controlled through the lease agreement.


Vehicle Parking

Parking will be provided in a one-level underground garage. Access to the underground garage is proposed via a new north-south lane from Old Dollarton Road, located near the east side of the property, all as envisioned in the Maplewood Plan.

Parking design would be subject to the flood protection and resilience provisions in the Maplewood Implementation Plan.

In accordance with the District’s Alternative Vehicle Parking Rates Policy, the proposed CD139 zone requires a minimum of:

- 0.50 residential spaces per studio or one-bedroom unit;
- 0.65 residential spaces per two-bedroom unit;
- 1.10 residential spaces per three or more bedroom unit;
- 0.10 visitor spaces per unit; and
- 1 space per 40 m$^2$ of gross floor area for social gathering use.
The District OCP includes statements related to reducing parking requirements including:

- Section 5.1 (8): Consider, where appropriate, reducing vehicle parking requirements for new developments in centres and corridors well served by transit to encourage alternate modes of transportation and increase housing affordability;
- Section 7.2 (8): Support, where appropriate, parking reductions for purpose built market and affordable rental units; and
- Section 7.3 (3): Apply incentives (including, but not limited to density bonusing, pre-zoning and reduced parking requirements) as appropriate, to encourage the development of affordable housing.

All applicable District parking policies and guidelines will be applied to future development on the property.

**Bicycle Parking and Storage**

The proposed CD139 zone requires secured bike storage at rates of one space per studio and one-bedroom units and two spaces per two-bedroom and three-bedroom units.

**Off-site Improvements**

Off-site improvements will be reviewed in detail at the Development Permit stage. It is anticipated that off-site works associated with the construction of the project will include road improvements and utility upgrades.

A 6 m wide dedication along the Riverside Drive frontage of the site would be required for road widening, bike lane, sidewalk, and boulevard improvements. Widening and upgrading the Riverside Drive road frontage could be completed as a separate District capital project. Such frontage improvements would typically be completed at the developer's cost for market housing. In this social housing case, the cost of improvements would be considered in the context of the annual District capital planning process and any applicable grants.

A new north-south lane to the east of the subject property with access via Old Dollarton Road will be required to provide vehicle access to the site. The lane would also be designed to accommodate fire access, garbage removal, and turnaround. New trail connections, undergrounding or relocation of hydro poles, and new streetlights would also be required. Off-site improvements will also include sanitary, water, drainage, and fire protection (new fire hydrant).

The estimated total value of off-site works (engineering and landscaping) is unknown and the full scope and value of required off-site construction will be determined through the detailed design work at the Development Permit and Building Permit stages.
Development Cost Charges

Applicable Development Cost Charges (DCCs) are estimated to be approximately $748,306 (2021 rates). Bylaw 8539 (Attachment 2) establishes the DCC at $0 for the development of not-for-profit rental housing on the property. Finance department staff are preparing a strategy to account for this waiver in order to keep the DCC funds whole.

Community Amenity Contribution

The District’s Community Amenity Contribution (CAC) Policy outlines expectations for projects and includes a list of potential in-kind contributions that can be considered in lieu of a cash CAC including “land for, or provision of, affordable, rental or special needs housing.” As the social housing units represent the in-kind amenity for this project and the rental units will be secured in any future lease agreement, no cash CAC would be anticipated.

Financial Impacts

The District of North Vancouver anticipates supporting this project in the following ways:

• District-led rezoning of land;
• providing 0.23 hectares (0.57 acres) of land at a nominal fee of $10/year (excluding the anticipated road dedication area);
• waiving the typical application fees for the Rezoning and Development Permit (approximately $19,000);
• waiving the Building Permit fees should the rezoning be supported by District Council (approximately $239,000);
• waiving the applicable District Development Cost Charges (estimated to be $748,306);
• consider a property tax exemption (PTE) for the non-profit society operating the units should the housing be considered taxable by BC Assessment; and
• contributing to some off-site road improvements and utility upgrade costs as per Council’s September 27, 2021 motion (details to be confirmed at the detailed design stage).

The District’s Housing Reserve Fund will support the waived fees and charges and one-time costs associated with the project. Staff are reviewing the District’s property tax strategy and will report back on the need for PTE funding. Staff will apply for grant funding to BC Housing to cover capital and operating costs.

Concurrence

The project has been reviewed by staff from the Real Estate and Properties, Environment, Finance, Building and Permits, Legal, Parks, Engineering, Community Planning, Urban Design, Transportation, and Fire departments.
Construction Traffic Management Plan

The site is shown in relation to other residential construction projects and potential development projects in the image on the following page:

Construction traffic management will be key for the development of the site to minimize impacts on the surrounding streets and neighbourhood. A Construction Traffic Management Plan (CTMP) will be required as a condition of a Development Permit.

In particular, the Construction Traffic Management Plan must:
1. Provide safe passage for pedestrians, cyclists, and vehicle traffic;
2. Outline roadway efficiencies (i.e. location of traffic management signs and flaggers);
3. Make provisions for trade vehicle parking which is acceptable to the District and minimizes impacts to neighbourhoods;
4. Provide a point of contact for all calls and concerns;
5. Provide a sequence and schedule of construction activities;
6. Identify methods of sharing construction schedule with other developments in the area;
7. Ascertain a location for truck marshalling;
8. Address silt/dust control and cleaning up from adjacent streets;
9. Provide a plan for litter clean-up and street sweeping adjacent to site; and,
10. Include a communication plan to notify surrounding businesses and residents.

Public Input

In order to meet the MVH Expression of Interest deadline of December 31, 2021, and given that there is no developer applicant for this rezoning proposal, a customized public input process has been established for this project.

Should Council vote in favour of introducing the bylaws, it is proposed to have a virtual PIM immediately following bylaw introduction. Neighbour notification letters will be prepared and mailed to home owners and occupants in an area exceeding a 100 m (328 ft.) radius of the site. Concurrently a virtual PIM webpage will go “live” in order for the public to ask questions and provide their input on the proposal. The virtual PIM will be active for approximately 10 days and will conclude approximately 10 days before the anticipated Public Hearing and staff will be available during this period to respond to questions on the proposal from members of the public. Newspaper advertisements, site signs, and mailed letters to surrounding neighbours are some of the tools that would be used to notify the community and ensure broad awareness of the proposal and information on how to participate.

All typical and statutory timeframes associated with the Public Hearing would apply. Any subsequent lease of District-owned land would involve additional public notification as outlined in the Community Charter.

Implementation

Implementation of this project will require a rezoning bylaw and a bylaw to waive DDC’s, as well as issuance of a Development Permit, registration of legal agreements, and execution of a lease agreement.

Bylaw 8538 (Attachment 1) rezones the subject site from “Parks, Recreation, and Open Space” (PRO) to a new “Comprehensive Development Zone 139” (CD139) which:
- establishes the permitted residential and social-gathering uses;
- establishes the maximum permitted floor area on the site;
- establishes setback and building height regulations; and,
- establishes parking regulations specific to this project.

Bylaw 8539 (Attachment 2) authorizes the District to reduce the DCCs to ‘zero’.

A legal framework will be required to support the project and it is anticipated that the lease agreement will be used to secure items such as the details of off-site servicing,
rent levels, and unit mix. Additional legal documents required for the project will include a subdivision plan to consolidate the site and provide road dedications.

CONCLUSION:

This project assists in implementation of the District’s Official Community Plan objectives and the Maplewood Plan and helps to fulfill District housing objectives. The bylaws are now ready for Council’s consideration.

Options:

The following options are available for Council’s consideration:

1. Introduce Bylaws 8538 and 8539 and refer Bylaw 8538 to a Public Hearing, and authorize staff to waive any additional District fees (staff recommendation); or,

2. Defeat the bylaws at First Reading.

Respectfully submitted,

_R.Hay_

Robyn Hay
Development Planner

Attachments:

1. Bylaw 8538 - Rezoning
2. Bylaw 8539 - DCC Waiver Bylaw
3. Staff Report - Metro Vancouver Expression of Interest for Affordable Housing: District-owned Sites for Consideration dated September 14, 2021
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**External Agencies:**

- Library Board
- NS Health
- RCMP
- NVRC
- Museum & Arch.
- Other:
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The Corporation of the District of North Vancouver

Bylaw 8538

A bylaw to amend District of North Vancouver Zoning Bylaw 3210, 1965

The Council for The Corporation of the District of North Vancouver enacts as follows:

Citation

1. This bylaw may be cited as "District of North Vancouver Rezoning Bylaw 1414 (Bylaw 8538)".

Amendments

2. District of North Vancouver Zoning Bylaw 3210, 1965 is amended as follows:

   (a) Part 2A, Definitions is amended by adding CD139 to the list of zones that Part 2A applies to.

   (b) Section 301 (2) by inserting the following zoning designation:

       "Comprehensive Development Zone 139 CD139"

   (c) Part 4B Comprehensive Development Zone Regulations by inserting the following, inclusive of Schedule B:

       "4B 139 Comprehensive Development Zone 139 CD139

       The CD139 zone is applied to:

       ii) Lot 32 Block 40 District Lot 611 Plan 2353 (PID: 013-881-914); and,
       iii) Lot 33 Block 40 District Lot 611 Plan 2353 (PID: 013-881-922); and,

4B 139 – 1 Intent

The purpose of the CD139 Zone is to permit a medium-density residential rental development which may include social gathering uses.

4B 139 – 2 Permitted Uses

The following principal uses shall be permitted in the CD 139 Zone:
a) Uses Permitted Without Conditions:
   Not applicable

b) Conditional Uses:

   The following principal uses are permitted when the conditions outlined in Section 4B 139-3 Conditions of Use, are met:

   i. residential use; and
   ii. social gathering use

4B 139 – 3 Conditions of Use

a) Residential: residential uses are only permitted when the following condition is met:

   i. balcony enclosures are not permitted

b) Social gathering use: social gathering uses are only permitted when the following condition is met:

   i. must be provided in conjunction with a Residential Use

4B 139 – 4 Accessory Use

a) Accessory uses customarily ancillary to the principal use are permitted;

b) Office purposes related to the operation and use of the building are permitted; and

c) Support services and common area facilities related to the operation of the building are permitted.

4B 139 – 5 Density

a) The maximum permitted density is 2.5 FSR.

b) For the purpose of calculating gross floor area the following is exempted:

   i. Any floor areas below finished grade;

   ii. Above ground residential amenity area up to 3% of the total gross residential floor area or 200 m² (2,153 sq. ft.), whichever is lesser;
iii. Above ground cycling storage and facilities up to a maximum of 90 m² (969 sq.ft.); and

iv. Mechanical rooms located above the flood construction level.

c) For the purposes of calculating FSR the lot area is deemed to be 2,492 m² (26,824 sq. ft.) being the site size at the time of rezoning.

**4B 139 – 6 Setbacks**

a) Buildings shall be set back from property lines to the closest building face (excluding any partially exposed underground parking structure) as established by development permit and in accordance with the following regulations:

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<td>East</td>
<td>3 m (9.8 ft.)</td>
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<tr>
<td>South</td>
<td>3 m (9.8 ft.)</td>
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<tr>
<td>West (Riverside Dr.)</td>
<td>3 m (9.8 ft.)</td>
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**4B 139 – 7 Height**

a) The maximum number of storeys permitted is 6, excluding the parking level; and

b) The maximum permitted height is 21.4 m (70.2 ft.).

**4B 139 – 8 Coverage**

a) Building Coverage: The maximum building coverage is 80%.

b) Site Coverage: The maximum site coverage is 90%.

**4B 139 – 9 Parking and Bicycle Regulations**

a) Parking is required as follows:

<table>
<thead>
<tr>
<th>Use</th>
<th>Minimum Parking Spaces Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studio or one-bedroom dwelling unit</td>
<td>0.50</td>
</tr>
<tr>
<td>Two-bedroom dwelling unit</td>
<td>0.65</td>
</tr>
<tr>
<td>Three or more bedroom dwelling unit</td>
<td>1.10</td>
</tr>
<tr>
<td>Visitor spaces per dwelling unit</td>
<td>0.10</td>
</tr>
<tr>
<td>Social gathering use</td>
<td>1 space per 40 m² of gross floor area</td>
</tr>
</tbody>
</table>
b) One bicycle storage space per studio and one-bedroom unit and two spaces per two-bedroom and three-bedroom unit; and,

c) Except as specifically provided in 4B139 – 9 (a) and (b), parking shall be provided in accordance with Part 10 of this Bylaw."

(d) The Zoning Map is amended in the case of the lands illustrated on the attached map (Schedule A) by rezoning the land from Park, Recreation and Open Space (PRO) to Comprehensive Development Zone 139 (CD139).

READ a first time

PUBLIC HEARING held

READ a second time

READ a third time

ADOPTED

Mayor

Municipal Clerk

Certified a true copy

Municipal Clerk
Schedule A to Bylaw 8538, 2021

BYLAW 8538
District of North Vancouver Rezoning Bylaw 1414 (Bylaw 8538)

PARK, RECREATION, AND OPEN SPACE ZONE (PRO) TO COMPREHENSIVE DEVELOPMENT ZONE (CD139)
The Corporation of the District of North Vancouver

Bylaw 8539

A bylaw to waive Development Cost Charges

The Council for The Corporation of the District of North Vancouver enacts as follows:

Citation

1. This bylaw may be cited as "Riverside Drive Development Cost Charges Waiver Bylaw 8539, 2021".

Waiver

2. Development Cost Charges are hereby waived in relation to the Eligible Development proposed to be constructed on the site as shown outlined in red on the attached map (Schedule A), and the development cost charge rates for the Eligible Development are hereby set at zero.

3. For the purpose of this Bylaw “Eligible Development” means social housing units where the rental rate structure is secured by way of a lease agreement, affordable housing agreement bylaw, restrictive land use covenant or other measure acceptable to the Municipal Solicitor.

READ a first time

READ a second time

READ a third time

ADOPTED

______________________________  ______________________________
Mayor                                      Municipal Clerk

Certified a true copy

______________________________
Municipal Clerk
Schedule A to Bylaw 8539
The District of North Vancouver
REPORT TO COUNCIL

September 14, 2021
File: 13.6530.20/013.000

AUTHOR: Joshua Cairns, Community Planner

SUBJECT: Metro Vancouver Expression of Interest for Affordable Housing: District-owned Sites for Consideration

RECOMMENDATION:
THAT staff are directed to initiate a District-led rezoning process for a District-owned site that would allow up to a six-storey affordable housing development and to seek public input;
AND THAT staff are directed to explore a partnership opportunity with Metro Vancouver Housing for affordable rental housing on the selected site;
AND THAT actions are undertaken to support project viability, including waiving typical permit fees and applicable Development Cost Charges, contributions to some related off-site costs, supporting a review of possible property tax exemption, expediting development approvals, reviewing parking requirements, and leasing the land at a nominal fee.

REASON FOR REPORT:
On July 26, 2021, Council gave direction to staff to provide information regarding several District-owned properties, including recommending a site that may be submitted to Metro Vancouver Housing (MVH) for consideration in the development of affordable rental housing.

SUMMARY:
Metro Vancouver Housing (MVH) is seeking to build more affordable rental housing on municipally-owned lands through partnerships with member jurisdictions. An Expression of Interest (EOI) to identify land for affordable rental housing development will be issued in early fall 2021, with submissions due by December 31, 2021. In response to Council direction on July 26, 2021, staff reviewed and assessed ten District-owned sites as described in this report. Staff’s assessment determined that the four District-owned lots on Riverside Drive appear to be the most suitable for partnership with MVH.

BACKGROUND:
In 2020, Metro Vancouver implemented a new $4 million annual tax requisition to support the development of new affordable rental housing. To facilitate the use of these funds, Metro Vancouver developed an Expression of Interest (EOI) to identify potential properties that
could be leased or sold to Metro Vancouver Housing (MVH) at a nominal cost. Any resulting development would provide 100% of units as non-market, targeting low- and moderate-income households. The level of affordability would be dependent on funding partners and contributions from senior levels of government.

The first EOI was issued in February 2020, to which the District submitted a site for consideration. The District’s submission was unsuccessful, as two sites in the cities of Pitt Meadows and Burnaby were selected for partnership.

Metro Vancouver is now preparing a second round of the EOI for member jurisdictions to submit opportunities, and to continue to improve the amount and equitable distribution of housing services across the region. In response, Council directed staff at the Regular Meeting of Council on July 26, 2021 to explore a partnership opportunity with MVH including any commitments, such as pre-zoning or fee reductions, and to report back.

Staff subsequently met with Metro Vancouver to discuss the District’s previous submission and to learn more about the evaluation criteria to inform a potential upcoming submission. Feedback received suggest that the previous submission was viewed favourably and scored highly in most categories; however, the lack of pre-zoning was deemed a significant impediment. Evaluation criteria for the upcoming EOI have been revised to further emphasize the value of pre-zoning. Sites that are pre-zoned can benefit from reduced timelines and cost uncertainty, access to funding partners such as CMHC, and greater likelihood of support from senior levels of government. In addition, staff learned that a desirable site should be generally capable of providing 60 to 120 units in a 4- or 6-storey wood-frame apartment building form.

Using this information, staff reviewed ten District-owned sites that are concurrently undergoing assessment for future potential affordable housing in response to Council direction at the November 2, 2020 Regular Meeting of Council. Attachment 1 shows the location of the sites considered for a Metro Vancouver affordable housing development. These sites were assessed against Metro Vancouver’s evaluation criteria to determine a recommended site for submission. The analysis is presented in this report.

EXISTING POLICY:
Official Community Plan (2011)
The Official Community Plan (OCP) includes the following goals and policies related to housing:

**Goal 2:** Encourage and enable a diverse mix of housing types and tenure and affordability to accommodate the lifestyles and needs of people at all stages of life;

**Goal 3:** Foster a safe, social inclusive and supportive community that enhances the health and well-being of all residents; and

**Policy 7.4.4:** Consider the use of District land, where appropriate, to contribute towards and leverage other funding for the development of social and affordable housing
OCP Action Plan (2021)
The OCP Action Plan, approved by Council on July 26, 2021 and the result of the Targeted OCP Review, includes the following housing-related priority actions:

**Priority Action 1:** Achieve Town and Village Centres that deliver low-carbon, compact, and diverse housing, transportation choices, and supportive public amenities and employment space

**Priority Action 3:** Prioritize rental, social, and supportive housing projects to increase the range of housing options

**Priority Action 5:** Increase housing diversity to support a range of incomes, household types, and accessibility needs within and close to Town and Village Centres

Rental and Affordable Housing Strategy (2016)
The Rental and Affordable Housing Strategy (RAHS) has a focus on low and moderate-income households and contains the following goals.

**Housing Goal 1:** Expand the supply and diversity of housing in key growth centres

**Housing Goal 2:** Expand the supply of new rental and affordable housing

**Housing Goal 6:** Partner with other agencies to help deliver affordable housing through strategic use of District-owned lands, which may involve a long term lease to leverage senior government funding

Council Directions for 2019 to 2022 include four priority directions, one of them being to set direction on priority projects for rental housing and social housing, and identify District lands available for housing.

Interim Report of the Rental, Social and Affordable Housing Task Force (2020)
The interim report prepared by the Rental, Social and Affordable Housing Task Force and expected final report include several housing-related recommendations to Council, including:

- Continue to increase diverse housing opportunities in town and village centres in accordance with OCP and centre implementation plan policies
- Expand the supply of rental and affordable housing in a manner that is consistent with the OCP
- Explore opportunities to use District-owned land to build affordable housing

ANALYSIS:
Metro Vancouver Evaluation Criteria
Metro Vancouver will use five broad categories of criteria to evaluate submissions from member jurisdictions. These criteria are described in Table 1 on the following page.
Table 1: Metro Vancouver evaluation criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Development Readiness</strong></td>
<td></td>
</tr>
<tr>
<td>Pre-zoned site (or demonstrating progress towards municipal-led rezoning)</td>
<td>20</td>
</tr>
<tr>
<td>Development efficiency (e.g., expedited DP and or BP approval process, parking relaxations, no need for subdivision or variance, etc.)</td>
<td>10</td>
</tr>
<tr>
<td>Site readiness (e.g., bare land, no site hazards or known site constraints that could impact construction time/cost such as high water table, sensitive areas, soil conditions, slope, challenging site access, etc.)</td>
<td>10</td>
</tr>
<tr>
<td><strong>Tenant Livability</strong></td>
<td></td>
</tr>
<tr>
<td>Anticipated number of units</td>
<td>10</td>
</tr>
<tr>
<td>Walking distance to amenities (e.g., parks, schools, groceries, medical centres, community centres, libraries, etc.)</td>
<td>10</td>
</tr>
<tr>
<td>Access to transit (e.g., walking distance to Frequent Transit Network with bus service at least every 15 min)</td>
<td>10</td>
</tr>
<tr>
<td>Opportunities to support tenant relocation from other developments to reduce impacts to tenants (i.e., stay within same neighbourhood)</td>
<td>5</td>
</tr>
<tr>
<td><strong>Local Government Actions to Contribute to Financial Viability</strong></td>
<td></td>
</tr>
<tr>
<td>Fee reductions and financial contributions, (e.g., waiving or reducing municipal DCCs, CACs, and permit application fees, reducing or eliminating off-site servicing requirements or fees, and/or financial grants)</td>
<td>10</td>
</tr>
<tr>
<td><strong>Regional Equity</strong></td>
<td></td>
</tr>
<tr>
<td>Presence of existing MVH housing in community (e.g., higher score for communities with little or no existing housing)</td>
<td>15</td>
</tr>
<tr>
<td><strong>Maximum Score</strong></td>
<td>100</td>
</tr>
</tbody>
</table>

In addition to the above evaluation criteria, a pre-screening criterion requires member jurisdictions to include with their submission a Council resolution clearly stating support to explore a partnership opportunity with MVH, and the local government’s intention to move forward should the site be selected. The resolution should outline any commitments being provided, such as pre-zoning, fee reductions, and lease or fee simple transfer to MVH at nominal cost. The recommendations in this report have been worded to include these intentions.

**Review of Sites**
Ten District-owned sites were reviewed. Information was gathered on each of the sites, including site characteristics, policy and regulatory considerations, servicing, access, mobility, and proximity to services and amenities. Staff used this background information to inform a subsequent scoring of each of the sites based on the criteria that will be used by Metro Vancouver to assess submissions. A summary of the review for each of the ten sites is provided below; the boundaries shown are for exploratory purposes only and would be refined following additional analysis. A more detailed overview of the results of the review are provided in Attachment 2.
Site 1: Maplewood – Riverside site

Opportunities:
- Aligns with current OCP designation (Residential Level 6)
- Located in Town or Village Centre
- Excellent access to amenities and transit
- Generally flat site
- Desired size for scale of project
- Does not require review by Ministry of Transportation & Infrastructure

Considerations:
- Treed site (previously disturbed area; primarily cottonwoods and maples)

Site 2: Maplewood – Old Dollarton (N)

Opportunities:
- Located in Town or Village Centre
- Good-to-excellent access to amenities and transit
- Generally flat site
- Desired size for scale of project (four lots within the area would be identified to provide optimal size)
- Does not require review by Ministry of Transportation & Infrastructure

Considerations:
- Does not align with OCP designation (Light Industrial Artisan)
- Treed site (previously disturbed area)
Site 3: Maplewood – Old Dollarton (W)

Opportunities:
- Located in Town or Village Centre
- Good-to-excellent access to amenities and transit
- Generally flat site
- Desired size for scale of project
- Does not require review by Ministry of Transportation & Infrastructure

Considerations:
- Does not align with OCP designation (Light Industrial Artisan)
- Treed site (previously disturbed area)

Site 4: Maplewood – Old Dollarton (E)

Opportunities:
- Located in Town or Village Centre
- Good-to-excellent access to amenities and transit
- Generally flat site
- Does not require review by Ministry of Transportation & Infrastructure

Considerations:
- Does not align with OCP designation (Light Industrial Artisan)
- Too small for anticipated scale of project
- Treed site (previously disturbed area)
Site 5: Maplewood – Old Dollarton (S)

**Opportunities:**
- Located in Town or Village Centre
- Good-to-excellent access to amenities and transit
- Generally flat site
- Desired size for scale of project (four lots within the identified area would be submitted)
- Does not require review by Ministry of Transportation & Infrastructure

**Considerations:**
- Does not align with OCP designation (Light Industrial Artisan)
- Treed site (previously disturbed area)

Site 6: 900 St Denis Ave

**Opportunities:**
- Moderate-to-good access to amenities and transit
- Generally flat site

**Considerations:**
- Does not align with OCP designation (Institutional)
- Not located in Town or Village Centre
- Large site that may require subdivision and further study, including local area traffic studies
- May require relocation and demolition of buildings
- Requires review and approval by Ministry of Transportation and Infrastructure
Site 7: Lillooet Road (W)

Opportunities:
- Moderate access to amenities and transit

Considerations:
- Does not align with OCP designation (Commercial Residential Mixed Use Level 1)
- Not located in Town or Village Centre
- Sloped site
- Large site that may require subdivision and further study, including local area traffic studies
- Treed site
- Requires review and approval by Ministry of Transportation and Infrastructure

Site 8: Lillooet Road (E)

Opportunities:
- Moderate access to amenities and transit

Considerations:
- Does not align with OCP designation (Commercial Residential Mixed Use Level 1)
- Not located in Town or Village Centre
- Sloped site
- Large site that may require subdivision and further study, including local area traffic studies
- Treed site
- Requires review and approval by Ministry of Transportation and Infrastructure
Site 9: Burr Place (S)

Opportunities:
- May align with current OCP designation depending on density (Residential Level 5)
- Does not require review by Ministry of Transportation and Infrastructure

Considerations:
- Not located in Town or Village Centre
- Low access to amenities and moderate access to transit
- Sloped site with escarpment
- Large site that may require subdivision and further study
- Treed site

Site 10: Mountain Hwy & Hunter St

Opportunities:
- Located in Town or Village Centre
- Excellent access to amenities and transit
- Generally flat site

Considerations:
- Does not align with OCP designation (Commercial Residential Mixed Use Level 3)
- Large and prominent site in Lower Lynn Town Centre “Heart” that may support higher density and mixed-uses—requires further study
- May require relocation and demolition of buildings
- Requires review and approval by Ministry of Transportation and Infrastructure
Riverside Site
Based on the site review summarized above and with consideration for Metro Vancouver’s evaluation criteria and feedback, the four lots on Riverside Drive ("Riverside site") in the Maplewood Village Centre are potentially the most appropriate for submission. The following information for the Riverside site is presented according to the five categories of the Metro Vancouver evaluation criteria.

• **Development readiness:** The site is relatively well-suited for a Metro Vancouver Housing (MVH) development; it is relatively flat with no known contamination issues, and its conventional size and shape would facilitate the construction of a MVH mid-rise building at the desired density and unit count without the need for subdivision.

• **Development potential:** It is anticipated that redevelopment would entail a single 4- to 6-storey mid-rise apartment building with a density up to 2.5 FSR, consistent with the OCP and Maplewood Village Centre and Innovation District Implementation Plan and Guidelines ("Maplewood Plan"). This form of development could provide approximately 80-90 units on this site, aligning with expectations from Metro Vancouver as well as policies and non-market housing targets (e.g., 300 net new non-market units) outlined in the Maplewood Plan.

• **Tenant livability:** The site is in a highly livable and walkable location, with abundant amenities, services, and employment within short walking distance (e.g., Northwoods Village, Ron Andrew’s Community Recreation Centre, and Maplewood Farm). An
inventory of child care spaces from the Child Care Action Plan identifies the Maplewood area as well-equipped, and the site offers a potential expansion opportunity.

Transit service is provided along Riverside Drive, Old Dollarton Road, and Mount Seymour Parkway, all within a five-minute walk of the site. Phibbs Exchange and the R2 Marine RapidBus can be accessed by a 15-minute walk.

- **Local government actions to contribute to financial viability:** Metro Vancouver’s fourth evaluation criteria category considers how the member jurisdiction may further support the financial viability of the project through fee reductions and financial contributions.

To support the strength of the submission, the District may consider the following actions:

- lease the land at a nominal fee;
- waive the typical permit fees;
- waive the applicable Development Cost Charges;
- contribute to some related off-site costs for any atypical servicing;
- support a review of possible property tax exemption;
- expedite development approvals; and,
- review parking requirements.

These potential actions are reflected in the report’s recommendations and could be considered for any District-owned site submitted in response to the EOI. These actions, which are regularly considered to support affordable housing in the District, would be subject to Council approval.

- **Regional equity:** The final evaluation criteria is consideration of existing distribution of MVH developments throughout the region. It is generally expected that any of the ten sites would score highly in this criteria as the District does not have any existing MVH housing. However, as the closest MVH development is located approximately 4.3 km away in Lower Lonsdale in the City of North Vancouver, sites in the Maplewood Village Centre are likely to score higher in this criteria than those located further west.

**Other Considerations**

Metro Vancouver’s upcoming EOI call is a competitive process; as such, there is no guarantee a submission will be successful or will receive access to funding from senior levels of government. However, regardless of the outcome of the EOI, pre-zoning would support the candidacy of the site for affordable housing in the future.

It is expected that development of a District-owned site will require road improvements and utility upgrades. In the case of the Riverside site, if selected, land dedications will be required along Riverside Drive to accommodate planned road improvements including sidewalks and bike facilities. Engineering staff installed delineators along the shoulder to create a safe space of refuge for people walking, rolling, and cycling in the interim. The Riverside Drive frontage also includes BC hydroelectric lines connected to the street light poles as shown in the above image. High voltage transmission lines do not run along the frontage of the site but
are instead located a half block away on Old Dollarton Road. Access to the site is anticipated to be provided from Old Dollarton Road via a new lane designed to accommodate fire access, garbage removal, and turnaround.

It should be noted that due to the nature and timing of this analysis, some development considerations remain unknown. Examples include geotechnical analysis, environmental assessments, contamination report, transportation studies, off-site service upgrades, and estimated costs associated with vehicle and pedestrian infrastructure. If a District site is selected by Metro Vancouver, staff will work to ensure that all required information is obtained.

**Timing/Approval Process:**
The MVH EOI closes on December 31, 2021 and requires interested member jurisdictions to identify a site(s) and provide basic information on the site(s). Subject to Council direction, staff propose initiating a rezoning of a District-owned site with public input and subsequently submitting an application to MVH for consideration. An application would be non-binding but would indicate the District’s strong desire to explore partnerships on District-owned land and help address the current housing affordability crisis. MVH intends to evaluate EOI submissions in early 2022, and complete further due diligence and technical studies upon selection of potential priority sites to confirm feasibility. Following confirmation of feasibility, MVH will proceed with concept planning to align with future funding calls.

**Financial Impacts:**
The District may consider supporting the financial viability of the project in several ways. The District’s Housing Reserve Fund could be used to offset the cost of waiving fees and charges and other one-time costs associated with the project. Further information on cost estimates will be provided at a later date if a site is selected by Metro Vancouver and once specific project details become known.

**Social Policy Implications:**
Rental, social and affordable housing is an essential part of a complete community. It supports the needs of a diverse socio-economic population and helps to ensure the well-being of many District residents.

**Environmental Impact:**
Any potential environmental impact will be assessed once a site is selected for submission to Metro Vancouver. Any subsequent redevelopment would be reviewed against and expected to adhere to applicable District bylaws, policies, and guidelines that relate to the environment.

**Public Input:**
An affordable housing development on any of the sites described in this report would require rezoning. As part of the rezoning process, a Public Hearing would be held and allow opportunities for the community to provide input. Newspaper advertisements, site signs, and mailed letters to surrounding neighbours are some of the tools that would be used to notify the community and ensure broad awareness of the proposal and information on how to
participate. Further, any subsequent lease of District-owned land would involve a public notification process as outlined in the Community Charter.

Conclusion:
The District has an opportunity to facilitate the development of affordable, non-market housing through a potential partnership with Metro Vancouver Housing. Following Council direction in July 2021, staff reviewed ten District-owned sites for consideration. The review identified the four lots located on Riverside Drive in the Maplewood Village Centre as potentially the most suitable site for submission to Metro Vancouver, as the site closely aligns with the criteria outlined in the call for Expressions of Interest, and redevelopment of the site would be generally consistent with existing District plans, policies, strategies, bylaws, and past public input.

Options:
1. THAT staff are directed to initiate a District-led rezoning process for a District-owned site that would allow up to a six-storey affordable housing development and to seek public input;

   AND THAT staff are directed to explore a partnership opportunity with Metro Vancouver Housing for affordable rental housing on the selected site;

   AND THAT actions are undertaken to support project viability, including waiving typical permit fees and applicable Development Cost Charges, contributions to some related off-site costs, supporting a review of possible property tax exemption, expediting development approvals, reviewing parking requirements, and leasing the land at a nominal fee.

   OR

2. THAT Council provide staff with alternative direction.

Respectfully submitted,

Joshua Cairns
Community Planner

Attachment 1: District-owned lands considered in assessment
Attachment 2: Evaluation of District-owned sites
Attachment 3: Staff presentation, "Metro Vancouver Expression of Interest for Affordable Housing: District-owned Sites for Consideration"
**SUBJECT:** Metro Vancouver Expression of Interest for Affordable Housing: District-owned Sites for Consideration

**September 14, 2021**

### REVIEWED WITH:

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<thead>
<tr>
<th>Department/Agency</th>
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<th>External Agencies:</th>
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<td>Library Board</td>
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<td>Development Planning</td>
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<td>Planning</td>
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</table>
The Corporation of the District of North Vancouver

Bylaw 8538

A bylaw to amend District of North Vancouver Zoning Bylaw 3210, 1965

The Council for The Corporation of the District of North Vancouver enacts as follows:

Citation

1. This bylaw may be cited as “District of North Vancouver Rezoning Bylaw 1414 (Bylaw 8538)"

Amendments

2. District of North Vancouver Zoning Bylaw 3210, 1965 is amended as follows:

   (a) Part 2A, Definitions is amended by adding CD139 to the list of zones that Part 2A applies to.

   (b) Section 301 (2) by inserting the following zoning designation:

           “Comprehensive Development Zone 139 CD139"

   (c) Part 4B Comprehensive Development Zone Regulations by inserting the following, inclusive of Schedule B:

           “4B 139 Comprehensive Development Zone 139 CD139"

The CD139 zone is applied to:

   ii) Lot 32 Block 40 District Lot 611 Plan 2353 (PID: 013-881-914);
   iii) Lot 33 Block 40 District Lot 611 Plan 2353 (PID: 013-881-922); and,

4B 139 – 1 Intent

The purpose of the CD139 Zone is to permit a medium-density residential rental development which may include social gathering uses.

4B 139 – 2 Permitted Uses

The following principal uses shall be permitted in the CD 139 Zone:
a) Uses Permitted Without Conditions:

   Not applicable

b) Conditional Uses:

   The following principal uses are permitted when the conditions outlined in Section 4B 139-3 Conditions of Use, are met:

   i. residential use; and
   ii. social gathering use

4B 139 – 3 Conditions of Use

a) Residential: residential uses are only permitted when the following condition is met:

   i. balcony enclosures are not permitted

b) Social gathering use: social gathering uses are only permitted when the following condition is met:

   i. must be provided in conjunction with a Residential Use

4B 139 – 4 Accessory Use

a) Accessory uses customarily ancillary to the principal use are permitted;

b) Office purposes related to the operation and use of the building are permitted; and

c) Support services and common area facilities related to the operation of the building are permitted.

4B 139 – 5 Density

a) The maximum permitted density is 2.5 FSR.

b) For the purpose of calculating gross floor area the following is exempted:

   i. Any floor areas below finished grade;

   ii. Above ground residential amenity area up to 3% of the total gross residential floor area or 200 m² (2,153 sq. ft.), whichever is lesser;
iii. Above ground cycling storage and facilities up to a maximum of 90 m² (969 sq.ft.); and

iv. Mechanical rooms located above the flood construction level.

c) For the purposes of calculating FSR the lot area is deemed to be 2,492 m² (26,824 sq. ft.) being the site size at the time of rezoning.

4B 139 – 6 Setbacks

a) Buildings shall be set back from property lines to the closest building face (excluding any partially exposed underground parking structure) as established by development permit and in accordance with the following regulations:

<table>
<thead>
<tr>
<th>Setback Location</th>
<th>Buildings (Minimum Setback)</th>
</tr>
</thead>
<tbody>
<tr>
<td>North</td>
<td>3 m (9.8 ft.)</td>
</tr>
<tr>
<td>East</td>
<td>3 m (9.8 ft.)</td>
</tr>
<tr>
<td>South</td>
<td>3 m (9.8 ft.)</td>
</tr>
<tr>
<td>West (Riverside Dr.)</td>
<td>3 m (9.8 ft.)</td>
</tr>
</tbody>
</table>

4B 139 – 7 Height

a) The maximum number of storeys permitted is 6, excluding the parking level; and

b) The maximum permitted height is 21.4 m (70.2 ft.).

4B 139 – 8 Coverage

a) Building Coverage: The maximum building coverage is 80%.

b) Site Coverage: The maximum site coverage is 90%.

4B 139 – 9 Parking and Bicycle Regulations

a) Parking is required as follows:

<table>
<thead>
<tr>
<th>Use</th>
<th>Minimum Parking Spaces Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studio or one-bedroom dwelling unit</td>
<td>0.50</td>
</tr>
<tr>
<td>Two-bedroom dwelling unit</td>
<td>0.65</td>
</tr>
<tr>
<td>Three or more bedroom dwelling unit</td>
<td>1.10</td>
</tr>
<tr>
<td>Visitor spaces per dwelling unit</td>
<td>0.10</td>
</tr>
<tr>
<td>Social gathering use</td>
<td>1 space per 40 m² of gross floor area</td>
</tr>
</tbody>
</table>
b) One bicycle storage space per studio and one-bedroom unit and two spaces per two-bedroom and three-bedroom unit; and,

c) Except as specifically provided in 4B139 – 9 (a) and (b), parking shall be provided in accordance with Part 10 of this Bylaw."

d) The Zoning Map is amended in the case of the lands illustrated on the attached map (Schedule A) by rezoning the land from Park, Recreation and Open Space (PRO) to Comprehensive Development Zone 139 (CD139).

READ a first time November 1st, 2021

PUBLIC HEARING held

READ a second time

READ a third time

ADOPTED

Mayor

Municipal Clerk

Certified a true copy

Municipal Clerk
Schedule A to Bylaw 8538, 2021

BYLAW 8538
District of North Vancouver Rezoning Bylaw 1414 (Bylaw 8538)

PARK, RECREATION, AND OPEN SPACE ZONE (PRO) TO COMPREHENSIVE DEVELOPMENT ZONE (CD139)
The Corporation of the District of North Vancouver

Bylaw 8539

A bylaw to waive Development Cost Charges

The Council for The Corporation of the District of North Vancouver enacts as follows:

Citation

1. This bylaw may be cited as “Riverside Drive Development Cost Charges Waiver Bylaw 8539, 2021”.

Waiver

2. Development Cost Charges are hereby waived in relation to the Eligible Development proposed to be constructed on the site as shown outlined in red on the attached map (Schedule A), and the development cost charge rates for the Eligible Development are hereby set at zero.

3. For the purpose of this Bylaw “Eligible Development” means social housing units where the rental rate structure is secured by way of a lease agreement, affordable housing agreement bylaw, restrictive land use covenant or other measure acceptable to the Municipal Solicitor.

READ a first time November 1st, 2021

READ a second time

READ a third time

ADOPTED

Mayor

Municipal Clerk

Certified a true copy

Municipal Clerk
Schedule A to Bylaw 8539
PUBLIC HEARING

Unaddressed Lands East of Riverside Dr, North of Old Dollarton Rd and South of Maplewood Park:

ZONING BYLAW AMENDMENTS

When: Tuesday, November 23, 2021 at 7pm
Where: 355 West Queens Road, North Vancouver, BC
How: The Public Hearing will be held in a hybrid format with a combination of in-person and electronic participation by some or all members of council, staff and the public. The public are invited to attend at the Council Chamber where they will be able to see and hear the entire proceedings. Due to a public health order, face masks are required to be worn at all times by all persons attending the meeting and attendance will be limited to a total of 65 persons in the Council Chamber. Registered in-person speakers will have a reserved seat while observers beyond the maximum capacity will be directed to observe the meeting online. Those wishing to view or to participate in the meeting electronically may do so at https://dnvorg.zoom.us/j/65345321120 or by phone by dialing 1-778-907-2071 and entering Meeting ID: 653 4532 1120

What: A Public Hearing for Bylaw 8538, proposed amendments to the Zoning Bylaw, to allow the creation of a social housing development up to six-storeys in height.

What changes? Bylaw 8538 proposes to amend the District’s Zoning Bylaw by rezoning the subject site from Park, Recreation and Open Space (PRO) to a new Comprehensive Development Zone 139 (CD139). The CD139 Zone addresses permitted and accessory uses and zoning provisions such as density, setbacks, height, building and site coverage, and parking and bicycle regulations.

When and How can I provide input? We welcome your input on November 23, 2021 at 7pm. You may sign up in advance to speak at the hearing by contacting the Municipal Clerk at signup@dnv.org prior to 3pm, Tuesday, November 23, 2021. You may also provide a written submission at any time prior to the close of the public hearing by sending it to the Municipal Clerk at input@dnv.org or by mail to Municipal Clerk, District of North Vancouver, BC, V7N 4N5. After the speakers list has been exhausted, there will be an opportunity for additional speakers who had not signed up in advance to make submissions.

Please note that Council may not receive further submissions from the public concerning this application after the conclusion of the public hearing.

Need more info? Relevant background material and copies of the bylaws are available for review online at DNV.org/public-hearing.

Questions?
Robyn Hay, Development Planner
604-990-2369 or hayr@dnv.org
MAPLEWOOD VILLAGE CENTRE AND INNOVATION DISTRICT IMPLEMENTATION PLAN & DESIGN GUIDELINES

Approved by Council on November 6, 2017
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PART 1: INTRODUCTION AND BACKGROUND

1 INTRODUCTION

1.1 SUMMARY AND PLAN CONTEXT

Identified as a Village Centre in the District of North Vancouver's 2011 Official Community Plan (OCP), Maplewood is one of the four key centres identified for growth in the Network of Centres Concept (see Figure 1). Roughly 1,500 new residential units are planned for, along with capacity for an additional 9,290 square metres (100,000 square feet) of new commercial space by 2030.

There are existing employment lands within, and immediately adjacent to, Maplewood including both heavy and light industries. One of the cornerstones of this plan is to protect and enhance existing employment lands and dramatically expand job-creating land uses in the Maplewood area. This plan aims to capture approximately 4,500 net new jobs and over a million square feet of employment floor area in the District by 2030 through new land use policies and regulations to support wealth-generating investment, create new employment opportunities and increase tax revenue, benefiting the entire community. The resulting mix of land uses will include options for living, working, playing, creating, and learning.

Recognizing the importance of locating good jobs in close proximity to housing options, 900 residential units are contemplated in the Innovation District to provide employee-oriented housing as a supportive use for the dramatic expansion of jobs contemplated in this implementation plan.

From a mobility standpoint, there is currently no standard street grid in Maplewood and cycling and pedestrian routes within the neighbourhood are sporadic and not connected to key destinations. Improvements for traffic and goods movement, circulation, and connectivity for all modes of travel (including, walking, cycling, transit, and driving) are contained in the plan to accommodate the anticipated growth in Maplewood.

Maplewood has significant green spaces within, and surrounding it. This includes the Maplewood Conservation Area, Windridge Park, Hogan’s Pools Park, Maplewood Creek Park and Seymour River Heritage Park. These parks are largely natural areas and currently there is a limited amount of active recreational park space located directly within the community.

This plan aims to expand active recreational park space within the community and protect and enhance green spaces and environmentally sensitive features including steep escarpment slopes, watercourses, remnant forested areas, and riparian and mature forests, which support wildlife and resident and migratory bird species for future generations to experience and appreciate.
1.2 PURPOSE, APPLICATION, AND INTENT

The purpose of this document is to guide development and regulate the design of buildings and public realm improvements in Maplewood in support of the vision, goals, objectives, and principles outlined in the District’s OCP.

The policies and guidelines contained in this document provide recommendations for future development, which should be used to design, review, and approve new developments (built form) and new public realm improvements (streetscape, public open spaces, parks, etc.).

This plan is intended to be used by the community, the District, land-owners, and developers to understand the likely forms and location of new development and public realm improvements that may occur to 2030. The policies and guidelines should be used to guide development in a comprehensive way that helps meet the vision for Maplewood. The District will use this plan when designing civic and public realm improvements.

This plan is neither prescriptive nor exhaustive, but rather illustrates anticipated key directions for Maplewood. It does not represent final decisions. Generally, decisions on specific development applications and civic improvements will be made by District Council, with public input, on a case-by-case basis. As part of the implementation of
the OCP, this document should be used in conjunction with the 2011 OCP Bylaw 7900, as amended, including the Development Permit Areas as described in Schedule B of the OCP.

1.3 Other Relevant Documents

Other existing policies, studies, and regulations that should be reviewed in conjunction with this document:

- Development Servicing Bylaw 8145, as amended (DSB)
- Maplewood Village Centre Transportation Study Update, Urban Systems, 2017
- North Shore Area Transit Plan, TransLink, 2012
- Maplewood Village Seymour River Flood Protection, KWL, 2017
- Maplewood Village Centre Community Needs Assessment, RC Strategies + PERC, 2017

1.4 Organization and Scope

This document is organized as follows:

**Part 1: Introduction and General Planning and Design Considerations** provides the purpose and background for the plan and describes the overall existing context and identity of the area.

**Part 2: Plan and Policies** presents the land use plan and policies for the future of Maplewood that apply to new development.

**Part 3: Design Guidelines** provides detailed urban design guidelines for the exterior of buildings and the public realm.
1.5 **Planning Area**

The Maplewood planning area is approximately 80 hectares (198 acres) in size and is outlined in dashed red in Figure 2. It is bounded by the Seymour River to the west, Mount Seymour Parkway and the Windridge escarpment to the north, Blueridge and McCartney Creeks to the east, and the light industrial areas located on the south side of Dollarton Highway to the south. Each of the three areas identified below has its own character and serves a specific role in achieving the overall vision for Maplewood.

![Figure 2: Planning Area](image)

1.6 **History of the Area**

Maplewood lies in the heart of the Salish Sea where First Nation peoples have lived for thousands of years. In particular, the Maplewood area has a long history of First Nation cultural, spiritual and physical connection with the land. Salmon populations in local creeks and rivers, shellfish from the intertidal wetlands, and other sustenance from the sea were the basis for many spiritual teachings that have been passed down generation to generation by First Nation elders in the area.

In 1917, San Francisco lumberman Robert Dollar, opened the Dollar Mill near the mouth of Indian Arm, which was the focus of the community at Dollarton until it closed in 1942. From the 1940’s to the 1970’s, an informal but cohesive community of squatters lived in a cluster of ramshackle cabins that lined the area’s intertidal zone known as the Maplewood Mudflats. The community attracted an assortment of artists, displaced
loggers, and hippies, many of whom sought out nature and self-sufficiency. Among the most acclaimed residents were the English-born writer Malcolm Lowry, who completed his novel *Under the Volcano* while living here from 1940 to 1954; Dr. Paul Spong, who later led Greenpeace’s “Save the Whales” campaign; and artist Tom Burrows.

In 1975 Maplewood Farm, originally run in the early 1900’s as a dairy farm by Mr. Akiyo Kogo, was opened to the public as a 5-acre farm site. Today the farm is home to over 200 domestic animals and birds and strives to provide a unique experience, incorporating enjoyment, education, and a recollection of the area’s rural heritage. Vancouver’s first fixed connection to the North Shore was provided with the construction of the original Second Narrows Bridge in 1925. In 1960 a much larger six lane bridge was built – today’s Ironworkers Memorial Second Narrows Crossing.

Today this area is emerging as a vibrant community that continues to inspire a respect for nature, creativity and innovation.

### 1.7 Existing Conditions

Maplewood is currently defined by its eclectic mix of land uses and buildings of varying styles and ages set amidst significant natural green spaces. Maplewood has a unique urban structure that reflects its physical location, topography, and history. It is comprised of several distinct areas, each with its own unique characteristics. See Figure 3 for existing features.

1. **Maplewood Village Centre** is characterized by a mix of low rise apartments, purpose built rental townhouses, single family homes, and commercial and mixed-use developments all of varying ages. The area includes an elementary school, iHope family services, North Vancouver Arts Council, and Maplewood Farm. East of Riverside Drive are largely undeveloped lands, predominantly owned by the District.

2. **Maplewood North** is the site of a former gravel pit and is largely undeveloped. It is criss-crossed with informal trails and is where the former International College is located. In the westerly portion there is a former landfill site owned by the District.

3. **Dollar Highway Light Industrial** is a mix of older light-industrial businesses to the west of Amherst Avenue, and more recent business parks east of Amherst Avenue.

4. There are significant green spaces including Maplewood Conservation Area, Windridge Park, Hogan’s Pools Park, Maplewood Creek Park and Seymour River Heritage Park.

5. Currently limited active recreational park space is located directly in Maplewood.

6. Maplewood Farm attracts over 100,000 visitors annually and strives to provide a unique experience - with enjoyment, education, and a recollection of rural heritage.

7. Maplewood does not have significant views as Burrard Inlet is largely obscured by the industrialized waterfront and Maplewood Conservation Area. However, views do exist from the slopes of windridge escarpment and the Maplewood North area towards Burrard Inlet. There is potential for creating views across the Burrard Inlet from taller buildings depending on the height, siting, and orientation of buildings. Views north towards the mountains are also available in some areas.
1.8 IMPLEMENTATION PLANNING AND ENGAGEMENT PROCESS

The implementation planning and public engagement process to create the Maplewood Village Centre and Innovation District Implementation Plan and Design Guidelines followed the adoption of the OCP. Planning included undertaking technical economic, social, environmental, and transportation studies, conducting collaborative, community and stakeholder consultation, establishing planning principles, and developing a detailed concept plan as the basis for the policies and design guidelines. The planning process and timeline is summarized in Figure 4.

**Figure 4: Maplewood Planning Process**
**Phase 1: Opportunities, Principles, and Big Ideas** – invited the public and stakeholders to help identify guiding principles, opportunities, and constraints for the future of Maplewood. A two-week online survey followed to receive public feedback which was then used to provide direction on the Phase 2 concept design.

**Phase 2: Concept Design Development** – conceptual designs were developed based on direction from Phase 1. Concept options included land use, mobility, and open space network ideas, proposed transportation networks and linkages, diagrams, sketches, and photos to illustrate the ideas.

A two-day charrette, followed by an interactive public open house was held. A two-week online survey followed to receive public feedback on the Maplewood community design concept developed through the charrette event.

**Phase 3: Policy and Plan Development** – preparation of a draft plan was based on a review of feedback received on concept options and refinement of a preferred option, which was feasibility tested, i.e., detailed infrastructure, transportation modeling, community needs assessment etc. Key directions in the draft plan were presented at a public open house followed by a two-week online survey to receive public and stakeholder feedback. Refinements to the draft plan were prepared based on feedback received and presented to Council for consideration and then approval.
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PART 2: VISION, PRINCIPLES AND POLICIES

2 MAPLEWOOD LAND USE PLAN AND IMPLEMENTATION POLICIES

2.1 VISION FOR MAPLEWOOD

The Official Community Plan vision for Maplewood Village, developed in consultation with the local community, is that Maplewood will be:

“a complete and balanced community with local jobs equaling the local labour force. In particular, jobs for local people and especially jobs for local young people should be encouraged and this will also have the merit of increasing the municipal tax base. New employment areas will reflect a high environmental standard and will also have high aesthetic standards, reflecting the community’s outstanding natural environment. There will be a variety of housing for all ages and incomes and family circumstances centred on a newly invigorated, walkable Maplewood village centre. Old Dollarton Road will become a key focus of pedestrian activity, a street lined with new retail business with apartments and live/work units above. The Maplewood village centre will be convenient for transit and pedestrians and will be the nerve centre of an extensive system of trails, which wound through the community stretching from the Seymour River to Windridge and from Hogan’s Pool to Burrard Inlet.”

(Schedule A, District Official Community Plan, 2011).
2.2 Guiding Urban Design Principles to Support the Vision

Compact Village Core: the highest development densities and building heights, as specified in this plan, should be located within the village core area and include residential and mixed use residential/commercial uses.

Distinct Neighbourhood Districts: distinct, yet connected precincts within Maplewood, each with its own unique purpose and character, should be fostered.

Connected and Diverse Public Realm and Green Space: unique places should be created to integrate existing parks and trails with a series of interconnected community, and smaller active parks, natural park areas, and plazas within the community.

Strong Commercial Centre and Clustered Community Services: small plaza spaces and a community hub should be integrated within the village core to serve as the primary commercial and service areas for Maplewood Village Centre.

Walkable Community: buildings presenting an attractive face to the street, with architectural details, public art, wayfinding, and site-design elements that are inviting and friendly to people walking. The Village Centre should include a pedestrian-friendly High Street and shared street.

A “Green and Innovative” Character: an authentic sense of place centred on integrating natural elements and places, green infrastructure, green building design, and the support of a sustainable lifestyle (including transit, walkable neighbourhoods, a complete community, and, live-work-recreation) should be fostered.
**Diverse Development and Housing Types:** development at various scales, types and forms should be provided that offers a range of options and tenures. Options for business, car-free development, and housing for a workforce living directly within the community.

**Connect to the Water:** public connections to the waterfront (river or inlet) should be provided where opportunities exist, while respecting and acknowledging river and coastal floodplains in the design of new development.

**Prioritize Environment:** sensitive areas and wildlife corridors should be protected with opportunities for education, programming, and pilot projects such as daylighting of creeks.

**Clear Hierarchy of Streets, Improved Access and Multi-Modal Options:** transportation connections and access for all modes (walking, cycling, transit, and driving), to/from/within the community should be improved, including a strong connection from the Village Centre to Maplewood North following a “complete streets” model.

**Promote Innovative Employment Generation:** new industry, innovative business opportunities, and small scale local start-ups as well as required municipal and protective services should be supported.
2.3 **Area Structure and Scale**

Maplewood is approximately 80 hectares (198 acres) in area. Maplewood Village Centre is compact, with relatively small blocks making access to shopping and community services convenient. Maplewood North is about an 8-minute walk to the Village Centre, for an average person, and currently only connected via Dollarton Highway.

The concept plan for Maplewood illustrates a compact, complete, connected and energy-efficient community that includes a mix of land uses to provide residents with the opportunity to live, work, play, learn and create within their community.

![Maplewood Area Structure and Scale Diagram](image)

*Figure 5: Area Structure & Scale*

To achieve this vision for Maplewood the plan divides the area into three precincts: each with their own unique purpose, character and identity.

1. **Maplewood Village Centre** is the central commercial hub and includes a diversity of multi-family housing, mixed-use commercial/residential, live/work and small-scale artisan industrial housing, as well as institutional uses including a school and local community services.
2. **Maplewood North Innovation District** is a new district offering an innovative mix of employment, educational, recreational and limited residential and community uses in a campus-style structure. This area will be connected to the Village Centre by major arterial routes and an active transportation network. Parks, open space and natural areas are integrated throughout to create a connected network.

3. **Dollarton Highway South** is a strong industrial and employment area with opportunities to intensify as existing and local business expand and provides opportunities for the expansion of business park uses.

*Figure 6: Maplewood Precincts*
Design Concept Highlights

1. Village Heart - mixed-use commercial-residential, mid-rise apartment and live/work
2. Multi-family townhouses and/or low rise apartments
3. Light Industrial - Commercial - Business: Intensification of uses
4. Industrial Live/Work Precinct - artisan manufacturing
5. Innovation District Light Industrial / Commercial Business - with employee dedicated housing
6. Natural Park & Conservation Areas (within the planning area boundary)
7. Innovation District - Light Industrial Commercial-flexible employment area
8. Active Park Spaces
Figure 7: Illustrated Concept Plan for Maplewood
2.4 **Land Use Designations and Densities**

Land use designations and associated densities are cited below:

![Maplewood Land Use Plan](image)

*Figure 8: Maplewood Land Use Plan*
<table>
<thead>
<tr>
<th>Land Use Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential Level 4: Transition Multifamily</td>
<td>Areas designated for transitional multifamily are intended predominantly for multifamily uses within or in close proximity to centres and corridors, or as a transition between higher density sites and adjacent detached and attached residential areas. This designation typically allows for a mix of townhouse and apartment developments up to approximately 1.20 FSR.</td>
</tr>
<tr>
<td>Residential Level 6: Medium Density Apartment</td>
<td>Areas designated for medium density apartment are intended predominantly to provide increased multifamily housing up to approximately 2.50 FSR at strategic locations in centres and corridors. Development in this designation will typically be expressed in medium rise apartments. Some commercial use may also be permitted in this designation.</td>
</tr>
<tr>
<td>Commercial Residential Mixed-Use Level 1</td>
<td>Areas designated for commercial residential mixed-use level 1 are intended predominantly for general commercial purposes, such as retail, service and offices throughout the District. Residential uses above commercial uses at street level are generally encouraged. Development in this designation is permitted up to approximately 1.75 FSR.</td>
</tr>
<tr>
<td>Commercial Residential Mixed-Use Level 2</td>
<td>Areas designated for commercial residential mixed-use level 2 are intended predominantly for medium density general commercial purposes, such as retail, service and offices at limited sites within the District. Residential uses are typically expected to accompany commercial uses. Development in this designation is permitted up to approximately 2.50 FSR.</td>
</tr>
<tr>
<td>Commercial</td>
<td>Areas designated for commercial are intended predominantly for a variety of commercial and service types uses, where residential uses are not generally permitted. Development in this designation is permitted up to approximately 1.0 FSR.</td>
</tr>
<tr>
<td>Institutional</td>
<td>Areas designated for institutional are intended predominantly for a range of public assembly uses, such as schools, churches, recreation centres, and public buildings. Some commercial and accessory residential uses may be permitted.</td>
</tr>
<tr>
<td>Light Industrial Commercial</td>
<td>Areas designated for light industrial commercial are intended predominantly for a mix of industrial, warehouse, office, service, utility and business park type uses. Supportive uses including limited retail and limited residential uses may be permitted.</td>
</tr>
<tr>
<td>Light Industrial Commercial - Innovation District</td>
<td>Areas designated for light industrial commercial mixed-use - innovation district are intended predominantly for a mix of industrial, warehouse, office, service, utility and business park type uses up to approximately 1.10 FSR. Light industrial uses at street level are generally encouraged, and commercial uses, such as retail, service and office, are typically expected above street level. Supportive uses including limited institutional, and limited recreational uses may be permitted.</td>
</tr>
<tr>
<td>Light Industrial Residential Mixed-Use - Innovation District</td>
<td>Areas designated for light industrial residential mixed-use - innovation district are intended predominantly for a mix of industrial, warehouse, office, service, utility, and business park type uses up to approximately 1.10 FSR. Light industrial uses at street level are generally encouraged, and residential uses are typically expected above street level. Supportive uses including limited office, and limited retail uses may be permitted.</td>
</tr>
<tr>
<td>Light Industrial Artisan</td>
<td>Areas designated for light industrial artisan are intended predominantly for a mix of small-scale light industrial, warehouse, service, utility and residential uses up to approximately 2.50 FSR. Light industrial uses at street level are generally encouraged, and residential uses are typically expected above street level. Supportive uses including limited office, and limited retail uses may be permitted.</td>
</tr>
<tr>
<td>Parks, Open Space and Natural Areas</td>
<td>Areas designated for parks, open space and natural areas are intended for a range of public and private uses focused principally on the protection and preservation of ecologically important habitat areas, the regional drinking water supply, or the provision of diverse parks, outdoor recreational, or tourism opportunities.</td>
</tr>
</tbody>
</table>
LAND USE POLICIES

- Require land uses to be in accordance with the Maplewood Land Use Plan (Figure 8).
- Proposals for rezoning of lands should be evaluated relative to the uses identified on the Land Use Plan, the policies of this plan and other District plans and policies.
- Encourage redevelopment in the Village Centre that is consistent with the Land Use Plan and at densities that support local commercial and transit service.
- Support mixed-use, medium-density housing with retail or live/work options at street level along Old Dollarton Road (west of Riverside Drive) and west of Seymour River Place.
- Support mixed-use, medium-density housing with industrial at street level and industrial or office on the second storey along Old Dollarton Road (east of Riverside Drive) where small business owners can live, work and create.
- Support light industrial commercial uses, including intensification of light industrial commercial uses on existing employment lands in Dollarton Highway South.
- Introduce an Innovation District in Maplewood North to encourage a flexible mix of light industrial commercial, institutional, recreational and residential uses within the same area to co-locate people and jobs and provide for the changing nature of employment.
- Promote opportunities for renewable energy technology industries and jobs in the Maplewood area recognizing the growth potential in the renewable energy sector.
- Focus most new local-serving commercial and services in the Village Centre, except a limited amount of small scale services that directly support daily worker needs within the Maplewood North Innovation District.
- Incorporate a new community hub with community services that promote physical and social activity and a diversity of space offerings in the Village Centre.
- Incorporate civic facilities to relocate municipal and protective services, such as a consolidated fire station and fire training centre in the Maplewood North Innovation District area to improve fire response.
- Continue to work with School District 44 to investigate the opportunity to retain the school use at its current location within the Village Centre.
- Provide a community park and neighbourhood park for active recreational opportunities within the Village Centre and improve green space connections within the overall area.
- Develop a cohesive Public Art Master Plan that identifies clear opportunities and priorities for the provision of public art.
- Support alternative forms and tenures of multi-family housing, such as fee simple rowhousing, co-housing and lock-off suites within the Village Centre.
- Support auto repair uses in the light industrial areas, where appropriate and ensure sufficient access, parking and on-site provision for spill and nuisance containment is provided.
- Strongly discourage self storage and auto retail uses as stand-alone uses in developments.
- Enhance and improve designated landscape features, natural and environmentally sensitive areas.

Figure 9: Maplewood Building Heights

2.5 BUILDING HEIGHTS

The concept plan outlines the approximate type and location of potential future buildings and heights to allow enough employment and residential density to create a vibrant community that support local retail activities, allow for improved transit and service over time, and assist in providing a diversity of housing. While building footprints are expected to be refined through the development review process, key urban design principles related to spacing of taller buildings and elevation are important considerations. Heights should maintain a human-scale, low to mid-rise character in the area, minimize shadowing of streets and public spaces and acknowledge views from upslope.

a. Heights should generally comply with the range of building heights shown in Figure 9.
b. Heights for specific buildings shall be determined through the rezoning process and will consider the following:

- Shadowing of public and/semi-public open spaces, such as plaza and parks.
- Impact on views from elsewhere in the District and overlook onto private spaces.
- Appropriate building scale for the area to reflect the quality and character identified for different precincts within the plan.
- Promote ‘human-scaled’ public space at the ground level (i.e. setback of upper storeys).

c. Taller buildings (up to a maximum 12 storeys) may be permitted in the Village Centre on a case by case basis, generally in accordance with the area identified in Figure 9, in order to achieve housing and community amenity objectives identified in this plan. Taller buildings should minimize overshadowing of key public open spaces and be separated from each other by a minimum of 30 m.

2.6 Housing Mix

Maplewood Village Centre has a target of 1,500 net new residential units and an additional 9,290 square metres (100,000 square feet) of new commercial space by 2030. The plan aims to provide a diversity of housing types to accommodate all ages, incomes, and family circumstances including townhouses, co-housing, fee simple row housing, lock-off suites, apartment units, live/work and other innovative forms of housing. In addition, a mix of tenures including fee-simple ownership, strata, rental, purpose-built rental, co-op and non-market housing is encouraged. Maplewood currently has approximately 250 lower end of market purpose-built rental housing units within the Village Centre. The plan includes policies to increase the number of non-market housing units through a mix of strategies outlined in Section 2.7.

The plan includes employee-oriented housing (approximately 900 residential units) in the Maplewood North Innovation District to co-locate jobs and residents. The employee-oriented housing is intended to support employment-generating uses. The plan anticipates these employment lands can capture approximately 4,500 net new jobs in the District by 2030 and over a million square feet of employment floor area.

Policies

- Support a diversity of housing types including townhouses, row houses, co-housing, live/work, and apartments in mixed-use buildings in the Village Centre.
- Encourage residential lock-off units in multi-family developments to provide flexible housing options to fit changing household incomes and family sizes over time.
- Introduce innovative forms of live/work/studio housing in the area designated for Light Industrial Artisan east of Riverside Drive identified in the Land Use Plan.
- Provide opportunities for employee-oriented housing in townhouses, row houses
and apartments in the area designated for Light Industrial Residential Mixed-Use - Innovation District in Maplewood North.

- Encourage new, purpose-built market rental buildings, where appropriate.
- Consider sale restrictions, housing agreements and other methods to ensure housing in the Innovation District supports local employees.

2.7 **Non-Market Housing**

Development in Maplewood should support the District’s *Rental and Affordable Housing Strategy* by providing, where possible, non-market housing secured through a number of innovative approaches including the following policies.

Non-market housing is encouraged in Maplewood Village Centre as well as in the Innovation District. A portion of the roughly 900 residential units anticipated in the Innovation District should be comprised of a mix of non-market rental and below-market ownership.

**Policies**

- Encourage the replacement of the approximately 250 existing purpose-built, market rental units in Maplewood as development occurs.
- Use District-owned lands to generate innovative, non-market housing opportunities, where appropriate.
- Require a portion of non-market rental or price controlled/restricted ownership units, or non-market units as part of new market housing development projects, or require provision of a cash-in-lieu contribution from development projects to the District’s Affordable Housing Fund to be used to establish new non-market housing units, where possible.
- Encourage and incentivize purpose-built non-market rental buildings, where appropriate.
- Consider additional height and density in order to achieve housing objectives, up to a maximum of 12 storeys, as identified on Figure 9 within Maplewood Village Centre.
- Target up to 300 net new non-market housing units in the Maplewood Village Centre.
- Ensure below-market ownership units in the Innovation District are offered to employees in the Innovation District first.
- Ensure non-market employee-oriented rental housing in the Innovation District is offered to employees in the Innovation District first.
- Secure a minimum of 50% of the employee-oriented rental housing units as non-market.
- Secure non-market employee-oriented housing for the life of the buildings.
2.8 Phasing

A significant portion of the overall Industrial/Commercial floor space in the Innovation District should be coordinated with any supporting residential uses to provide housing options for employees needing to locate proximate to their work.

- Ensure a minimum of 50% of the Industrial/Commercial floor space and any accessory or supportive uses to support the vision occurs in the first phase of development.
- Ensure employee-oriented housing occurs concurrent with development of Industrial/Commercial floor space.
- Phase two of Innovation District development should include the remaining Industrial/Commercial uses and be coordinated with the remaining employee-oriented housing.

2.9 Village Centre

Maplewood has an evolving village heart between Old Dollarton Road and Dollarton Highway, west of Riverside Drive. This plan aims to further enhance the village heart as a vibrant, pedestrian-friendly area with a mix of residential, retail and community uses.

Policies

- Create a mix of street level retail or live/work opportunities with residential uses above in mixed-use buildings along Old Dollarton Road, the emerging High Street.
- Create a rhythm of retail storefront widths of 5-10 metre within the village heart.
- Create plazas and gathering places with sun exposure, that are safe, attractive, universally accessible, have a variety of seating opportunities, and include spontaneous play features.
- Create attractive, streetscapes that are universally accessible, safe and comfortable for pedestrians and cyclists and that include places to sit and meet.
- Ensure public spaces promote social connectedness and inclusivity for people of all ages and abilities.
- New public spaces should ensure seniors, as well as people with cognitive or mobility disabilities are comfortable and can easily navigate through the Village Centre.
- Design the new shared street, connecting Old Dollarton Road and Front Street, to be shared between pedestrians and slow-moving cyclists and vehicles.
- Include two plaza spaces at each end of the shared street and ensure the shared street includes infrastructure and multi-use features (e.g. power, water, staging, shelter, and refuge areas) to accommodate community events, street festivals and outdoor markets.
• Encourage retail uses fronting onto plazas and gathering spaces.
• Encourage pedestrian connections within large blocks to promote walkability within the Village Centre.

2.10 Community Amenities

The Maplewood Village Centre Community Needs Assessment (2017) provides a summary of needed community amenity spaces in Maplewood to serve its growing population. Maplewood is currently home to the I Hope Centre and North Vancouver Community Arts Council, both located in an older building on the Maplewood Farm site. Currently, childcare opportunities are limited within the community and will require expansion to meet the needs of a growing population. Community meeting spaces and general programming spaces currently do not exist in the Village Centre.

Policies

• Secure sufficient space to re-locate the I Hope Centre and other community service providers into new multi purpose-built space with flexible community facilities (e.g. meeting rooms) in Maplewood Village Centre.
• Ensure the indoor amenities of the community hub facility include multi-use program rooms and meeting spaces, youth spaces, wellness/fitness facilities and seniors spaces in addition to the family programs and art programs offered by I Hope and the North Vancouver Community Arts Council.
• Community amenity spaces should be flexible and should promote physical and social inclusivity, and meet the needs of a variety of user groups (e.g. seniors, youth, families, and the general community).
• New community amenities should serve the residents and employees of Maplewood Village Centre and the Maplewood North Innovation District, including child care, outdoor play spaces, trails and green spaces, plazas, and gathering spaces.
• Support the provision of a continuum of childcare services in Maplewood Village Centre and Maplewood North Innovation District to include infant/toddlers, age 3-5 and before and after school care.
• Encourage outdoor play structures and opportunities for spontaneous play.
• Provide end of trip facilities for active transportation commuters.
• Incorporate opportunities to grow and buy fresh/locally produced fruits, vegetables and other goods through community gardens and farmers markets.
• Encourage public art installations, where appropriate.
• Incorporate interpretive signage along trail networks into public space planning.
• Improve trails and off-street cycling and pedestrian networks.
2.11 Mobility

Mobility policies aim to improve how people and goods move, circulate and connect to accommodate the anticipated growth in the Maplewood area. Streets should safely accommodate all users - people walking, cycling, taking transit or driving - for a range of uses (such as access to businesses or to accommodate deliveries).

![Map of Maplewood with new streets and lanes](image)

*Figure 10: New Streets and Lanes*

**Policies**

**Streets**

- Extend Berkeley Road, to connect Mount Seymour Parkway with Dollarton Highway to provide an additional north-south connection for all modes and to provide access to the Maplewood North Innovation District.
- Design all streets to be universally accessible, where feasible.
- Connect Seymour River Place south to Front Street to create a unique shared street that can be shared between pedestrians and slow-moving cyclists and vehicles.
- Ensure portions of the shared street can be easily closed to vehicular traffic for local markets and festivals.
- Design Old Dollarton Road as the High Street through Maplewood Village Centre.
- Provide a north-south lane east of Riverside Drive to access the new active park space and areas designated for new residential development.
• Extend the lane north of Kenneth Gordon Maplewood School to improve circulation, as a one-way eastbound connection to improve local circulation, road safety, and to reduce emissions.

• Extend Munster Avenue to Riverside Drive to improve east-west connections.

• Incorporate lanes through the area designated ‘Light Industrial Artisan’ to provide loading, deliveries, and connections to parking areas.

• Ensure that new development provides for electric vehicle charging facilities per the District’s Electric Vehicle Charging Infrastructure policy.

• Encourage transportation demand management measures such as transit, pedestrian, cycling, car-share to reduce motor vehicle trip and parking demand.

Transit

• Continue to work with TransLink to extend the frequent transit network to include the Maplewood area as residential and employment growth occurs.

• Design Old Dollarton Road to accommodate transit stops for B-line service or better including possible future transit station design.

• Continue to work closely with TransLink and Coast Mountain Bus Company (CMBC) to provide high quality transit stops and transit stations along Old Dollarton Road, Riverside Drive, and Dollarton Highway to provide easy access to frequent transit in the village heart.

• Design convenient crossing infrastructure to allow transit users and pedestrians to safely cross the street to access transit.

• Ensure transit stops are designed to improve visibility of those waiting at stops, provide ample weather protection from sun, wind, and rain, and ensure that those using mobility aids and strollers can easily access transit loading platforms.

• Where feasible, integrate transit shelter design into the building design to be consistent with the street and street furniture character and complement the surrounding public realm design.

• Encourage employers to provide public transit vouchers instead of free parking as part of salary packages or incentives such as bonuses to reduce vehicle use outside of work hours.
Walking

- Promote walking through an integrated network that connects all key destinations within the Maplewood area.
- Improve the quality and connectivity of sidewalks, especially along Riverside Drive and Dollarton Highway to allow direct access to shops, school, businesses, and amenities within the village heart and Maplewood North Innovation District.
- Utilize lanes and mid-block connections, where feasible, to provide additional options for those walking.

Urban Trails

- Create two types of trails within Maplewood to serve people walking and cycling: **paved urban trails** to accommodate people of all ages and abilities and **natural (unpaved) urban trails** to connect green spaces while protecting sensitive environmental areas.
- Extend the Spirit Trail alignment along Windridge Drive to complete the central section of the Spirit Trail to connect to Deep Cove.
- Create a continuous all ages and abilities urban trail from the west boundary of Maplewood from the look out over the Seymour River, through the forested natural parks to the trail network around Ron Andrews Community Recreation Centre and the Canlan Ice Sports Arena.
• Extend and improve the natural urban trail connection north-south within Seymour River Heritage Park, with a focus on the Seymour Greenway Trail.

Figure 12: Cycling Connections

Cycling

• Ensure a broad range of cycling needs are met for the safe travel of commuters and recreational users on urban trails and streets.

• Implement a range of cycling facility types, including neighbourhood bikeways and urban trails to provide a well-connected network throughout Maplewood Village Centre and Maplewood North Innovation District.

• Require a separation for cyclists from vehicular travel lanes where vehicle volumes are higher and/or speeds are higher, where feasible.

• Prioritize cycle tracks along Mount Seymour Parkway, Riverside Drive, Old Dollarton Road, Dollarton Highway and Berkley Road, where feasible.

• Make use of neighbourhood bikeways on lower volume streets such as Seymour River Place, Forester Street, and Front Street.

• Provide cyclists of all ages and abilities with slower east-west routes including the urban trail that connects from the lookout over the Seymour River to Canlan Ice Sports Arena or the Spirit Trail.
2.12 Conservation and Ecology - Environmentally Sensitive Areas

Maplewood has significant amounts of green space within and surrounding it including Maplewood Conservation Area, Windridge Park, Hogan’s Pools Park, Maplewood Creek Park and Seymour River Heritage Park. These parks are largely natural areas. Maplewood also has several environmentally sensitive features within it and these areas include steep escarpment slopes, watercourses, and groundwater-fed springs, remnant forested areas, and riparian and mature forests which provide foraging and nesting habitat to wildlife and resident and migratory bird species. The escarpment slopes provide habitat for wildlife, and are also a source of groundwater, feeding watercourses and wetlands.

The Environmentally Sensitive Areas (ESAs) include the most valuable ecological areas including wetlands, watercourses and associated riparian areas, escarpment and escarpment buffer areas and identifies areas to conserve as parks or undeveloped open spaces.

Figure 13: Parks, Open Space, and Environmentally Sensitive Areas
POLICIES

- Protect ESAs by restricting and buffering development.
- Enhance stream flows and wetlands by focusing flows to areas needing more water and managing stormwater through infiltration and surface management.
- Create or protect ecological and recreational connections between key natural areas with recreational trails and wildlife connections.
- Identify opportunities to integrate natural landscape into new development.
- Avoid development in areas where impacts to terrestrial and aquatic resources would be high and/or difficult to replace as compensation for loss of habitat.
- Consider opportunities to enhance ecological function and to restore fish access by removing barriers and re-establishing connections to Burrard Inlet.
- Consider opportunities to enhance or augment stream flows to wetlands in the Maplewood Conservation Area.
- Maintain forested vegetation on steep slopes to provide stability and continuity of forested wildlife habitat and provide for appropriate buffers from development at the toe and top of slope.
- Consider how impacts of development can be minimized on-site and without impacting adjacent habitats.
- Consider ways to maintain or improve the water quality of surface runoff.
- Groundwater should not be discharged or pumped to the municipal storm or sanitary sewer system. A hydrogeological report may be required to demonstrate how the impact to the existing groundwater table is to be mitigated.
- Encourage energy conservation and use of alternative energy sources.
- Enable flexibility in achieving energy efficiency objectives through supporting consideration of on-site or neighbourhood renewable energy generation systems and connections.
- Work with industry partners, large energy consumers, and agencies to facilitate and advance opportunities for alternate, renewable, and sustainable energy sources.
- Promote rainwater collection infrastructure in the design of all new buildings.
2.13 PARKS AND RECREATION

Maplewood is served by the existing Kenneth Gordon Maplewood School play fields, Seymour River Park, Maplewood Farm, Maplewood Conservation Area, Canlan Ice Sports Arena and Ron Andrews Community Recreation Centre. Walking connections to these latter two facilities are somewhat restricted by a lack of formalized trails and the steep Windridge escarpment. This plan aims to expand the parks and recreation system to accommodate the expected population and employment growth in the area.

POLICIES

- Support a variety of park amenities, including active sports fields, passive grass areas for informal use, seating, play spaces (natural and active play), public art, street trees, hard surfaced sport court, lit trails and community gardens.
- Create a community level park on District parkland north of Kenneth Gordon Maplewood School which incorporates the Spirit Trail and provides recreational amenities with natural features.
- Retain and enhance the urban forest along the northerly edge of the community park to create a treed buffer, where possible.
- Work co-operatively with School District 44, through joint user agreements and other means, to retain and upgrade the school field.
- Create a neighbourhood park on District-owned lands east of Riverside Drive providing active parkland opportunities for residents living in this area.
- Provide an additional sportsfield in the neighbourhood park if the current sportsfield located at Kenneth Gordon Maplewood School is decommissioned.
- Connect park spaces with a network of paved and natural urban trails.
- Explore opportunities in the natural parkland areas to incorporate interpretative trails and educational signage and nesting boxes, where appropriate.
- Expand park amenities and provide a park presence at the street for Maplewood farm to optimize vehicular, pedestrian and cycling connections to the farm and optimize parking at the farm.
- Enhance the farm entrance so that it celebrates the farm and includes both typical farm and ranch elements such as gates, public art, where appropriate, and improvements to landscaping.
- Consider a combination of heavy timbers and natural stone or other materials to reference both farm use and natural areas.
2.14 PROXIMITY TO HEAVY INDUSTRY

Industry contributes significantly to the prosperity and success of the District, by providing employment opportunities, goods, and services enjoyed by businesses and residents. Heavy industrial activity does create some risk to nearby areas. In the District, studies and assessments have determined chemical hazard associated to an accidental release of chlorine as a risk having potential off-site impacts to neighbouring or proximate areas. The District’s intention is to manage risk associated with development in these areas through appropriate site planning and building design.

Risk contours have been established for the Maplewood area due to the proximity of hazardous substances potentially used in areas designated for heavy industrial activities. Each risk contour identifies allowable land uses and densities permitted, based on the distance from the risk source.

Figure 14: Risk Contours

POLICIES

- Encourage safety in the location and construction of development.
- Land uses, densities, building design and construction should generally be consistent with the MIACC (Major Industrial Accidents Council of Canada) best practice recommendations for appropriate land uses and densities from the risk source, or any similar, successor or replacement agency that may exist from time to time.
2.15 Flood Protection and Resilience

Maplewood is located within both the coastal and river floodplains and is prone to flood risk from both sea-level rise and the Seymour River. The District’s flood risk management strategy along the Seymour River will help to protect the area from flood hazards including channel avulsion, erosion, bedload deposition, and large woody debris impacts. Properties subject to potential flood risk are identified in the OCP’s Creek Hazard Development Permit Area. Flood Construction Levels (FCLs) have been established for each parcel to ensure floor levels are elevated above street level to mitigate potential flood issues.

Figure 15: Flood Protection Strategy
POLICIES

- Refer to Parts 3 and 4 of Schedule B to the Official Community Plan for applicable policies and guidelines.

- Require Seymour River flood protection in the form of land raising to be integrated with development for an additional 30 metre wide area beyond the riparian setback to produce a continuous, wide platform of fill, where appropriate and possible.

- Ensure established FCLs for Maplewood are incorporated for all residential development to ensure that habitable space is adequately protected from possible flooding.

- Continue to develop the coastal sea-level component of the District’s flood risk management strategy in partnership with other agencies and stakeholders such as Port of Vancouver, CN Rail and local industries.

- Incorporate identified sea-level rise mitigation works within the District’s control to raise the eastern portion of Dollarton Highway to 4.7 metre geodetic elevation.
2.16 **Underground Utilities**

Communication infrastructure for Maplewood is intended to provide a connected broadband fibre optics network for the entire community.

![BROADBAND FIBRE NETWORK](image)

*Figure 16: Broadband Fibre Network*

**Policies**

- Ensure new and renewed water, sewer, drainage, electrical, telecommunications, and broadband infrastructure is provided and paid for by developers in accordance with District bylaws, policies, plans and standards.

- Electrical telecommunications and broadband infrastructure should be undergrounded, where feasible.

- Ensure development projects provide for fibre-optic infrastructure in required off-site civic works and servicing upgrades, where possible.

- Ensure communication duct assets are installed for future fibre optics network builds, where appropriate.

- Allow third party broadband carriers to provide choice of service for residential and business customers in the Maplewood community.
PART 3: MAPLEWOOD DESIGN GUIDELINES

The Maplewood Design Guidelines describe area-wide and precinct-specific design guidelines and strategies to enable the sensitive addition of new built form and public open space to the existing community. The guidelines apply across the entire Maplewood planning area, as well as within each of the unique precincts within Maplewood: the Village Centre, Maplewood North Innovation District, and Dollarton Highway South. As each precinct draws design inspiration from current and historic activities specific to the area, so do the built form and landscape design elements. The combination of area-wide and precinct-specific features and design elements will help maintain a level of consistency throughout Maplewood while allowing a unique character for each precinct to emerge.

The Maplewood Village Centre and Innovation District Implementation Plan and Design Guidelines are intended to augment the Form and Character guidelines in Schedule B of the Official Community Plan (2011), as amended.

Figure 17: Maplewood Precincts
3 AREA-WIDE GUIDELINES

3.1 OVERALL INTENT

Maplewood’s charm lies in the diversity of uses and styles that co-exist within a green and natural setting close to the Burrard Inlet. The intent of these guidelines is to support its emerging “eclectic mixed-use industrial” character. The plan establishes a clear vision for the neighbourhood as a highly sustainable, livable, and unique place that fits within and draws from its context and natural areas.

The overall intent of these guidelines is to create a vibrant, safe and accessible environment, whether urban or more natural, that is well connected, promotes pedestrian activity and comfort, and vibrant street life. This is achieved through supporting active transportation, transit-oriented design, creating a vibrant Village Centre and well-considered residential areas, as well as intensifying industrial commercial uses in Dollarton Highway South and establishing the Maplewood North Innovation District. These overall guidelines apply to all three precincts in the plan.

3.2 ORIENTATION AND SITING CONSIDERATIONS

a. Building design should reflect the natural topography and context, and, to the extent possible, retain existing individual trees and forested areas.

b. Development should avoid ESAs (Figure 13).

c. Ensure new buildings meet energy efficiency standards and performance targets as guided by the BC Energy Step Code and promote the transition to net zero energy ready buildings by 2032.

d. Encourage building energy benchmarking and labelling.

e. For parcels located within the 1 x 10-6 risk contour, new buildings or structures and associated accessory buildings or structures with residential components should incorporate the following measures in their design:

i. HVAC systems that maintain a slight positive pressure inside the building to prevent chlorine from entering.

ii. Toxic gas detectors for chlorine on building HVAC systems to automatically shut down air intake on high chlorine levels.

iii. Adequate exit routes (stair wells, doors, etc.) for evacuation, including battery backup lighting and/or other failsafe means of directional signage and guidance.

iv. Sealable doors at each floor level and/or within floor levels to restrict airflow movement as necessary.

v. Emergency phones for contact with emergency responders and building residents.

vi. Building public address systems for contact and communication with building occupants.

vii. Emergency plans clearly defining for all building occupants what to do to protect themselves should they be asked to evacuate or to shelter inside.
viii. Designated “shelter in place” locations within buildings, where merited.

3.3 **Natural Areas, Parks and Open Space Guidelines**

Plan policies aim to improve pedestrian connections by connecting park spaces with a network of paved and natural urban trails and expand active recreational park opportunities in the community.

**Natural Areas and Passive Parks**

a. Buffer development with natural vegetation and features adjacent to ESAs, where ever possible.

b. Enhance stream flows and health of wetlands by focusing flows to areas needing more water.

c. Manage stormwater through infiltration and surface management.

d. Create or protect ecological and recreational connections between key natural areas with recreational trails and wildlife connections.

e. Explore opportunities in natural parkland areas to incorporate interpretative trails and educational signage.

**Active Parks and Recreation**

a. Support a variety of park amenities, including active sports fields, passive grass areas for informal use, seating, play spaces (natural and active play), public art, street trees, hard surfaced sport court, lit trails, and community gardens.

b. Incorporate the Spirit Trail and recreational amenities with natural features in the community level park on District parkland north of Kenneth Gordon Maplewood School.

c. Retain and enhance the urban forest along the northerly edge of the community park to create a treed buffer, where possible.
d. Create a neighbourhood park on District parklands east of Riverside Drive to provide active parkland for residents living in this area.

e. Provide an additional sportsfield in the neighbourhood park if the current sportsfield located at Kenneth Gordon Maplewood School is decommissioned.

TRAILS

Maplewood’s trail connections should be enhanced and extended to create better access and linkages between the riverfront, Village Centre and the new Maplewood North Innovation District. Two types of cycling networks should be established:

1. On-street (separated cycle tracks, and neighbourhood bikeways), and,

2. Off-street trail network for all ages and abilities

Extend the east-west urban trail along Windridge at the base of the escarpment connecting the riverfront with Canlan Ice Sports Arena across the Maplewood community.

Extend and improve the north-south natural urban trail connection within Seymour River Heritage Park, with a focus on the Seymour Greenway Trail.

Two types of trails should be implemented in Maplewood:

a. Paved urban trails in the village centre that connect through the village core. Ensure pathways are well lit, a minimum 3.5 metre wide (asphalt [or concrete]) surface, and multi-use. Ensure additional space is provided for seating and landscaping. Provide a minimum of 4 metre wide (asphalt [or concrete]) surface for Spirit Trail sections.
b. Natural (unpaved) urban trails outside of the village core through the ESAs. Ensure natural urban trails are, a minimum 3.5 metre wide (gravel [compacted rock dust]), and multi-use. Encourage habitat protection fencing and boardwalks along pathways, as required, to protect ESAs. Provide a minimum of 4 metre wide gravel (compacted rock dust) surface for Spirit Trail sections. Generally, the character and materials of urban trails should fit within the context of the area they are passing through (e.g. compacted rock dust, boardwalk, asphalt, and paving).

3.4 **ACCESSIBILITY**

**INTENT**
To design for pedestrian environments and streets that are safe for all user groups.

a. Avoid changes of grade or gaps in paved surfaces greater than 6 mm, where possible.

b. Provide tactile strips adjacent to crossings and between surfaces, such as at curbs.

c. Avoid pavement slopes greater than 5% in direction of travel and 2% cross slope, where possible.

d. Provide smooth walking surfaces to assist the visually impaired, where feasible.

e. Prioritize the use of sawcut joints over tooled joints, where possible.

f. Ensure that transit stops utilize the new Universally Accessible Bus Stop (UABS) Design Guidelines designed by TransLink.

g. Provide bench pads that are 1.0 metre longer than the proposed bench to accommodate strollers, wheelchairs, scooters and other mobility aids, where space permits.

h. Include audible tones and pedestrian countdown signals at signalized crossings and consider fully accessible pedestrian signals including braille, vibrating plate and audible location identifier.
3.5 Public Realm and Streetscape Guidelines (General)

The street design guidelines are intended to support a high quality public realm and to complement existing street design elements in Maplewood. Included in the relevant precinct sections are guidelines for specific streets including the village High Street (Old Dollarton Road), shared street, Riverside Drive, Dollarton Highway, and Berkeley Road. Where possible, developers should be required to underground any fronting overhead hydro and telecommunications wires at the time of development.

a. Street lighting on new streets, paths, and public realm areas should have a unified character.

b. Locations for street lighting, including pedestrian level lighting for Maplewood Village Centre, Maplewood North Innovation District and Dollarton Highway South are illustrated on Figure 18.

c. Banner brackets are recommended for all street lights on Old Dollarton Road, Seymour River Place (shared street portion), Riverside Drive, and Berkeley Road.

<table>
<thead>
<tr>
<th>LIGHT DISTRIBUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Light fixtures should direct appropriate light levels effectively to desired areas, and avoid glare and light spillage to other areas, particularly residential uses.</td>
</tr>
<tr>
<td>b. Light levels should be consistent within areas of similar use, and should avoid creating bright and dark areas.</td>
</tr>
<tr>
<td>c. Consider including small scale, low level lighting along pedestrian routes, such as under benches, lighting associated with public art, and up-lighting of trees to add character and ambiance to pedestrian areas.</td>
</tr>
<tr>
<td>d. All light fixtures should be energy efficient and night sky compliant.</td>
</tr>
</tbody>
</table>

Figure 18: Maplewood Lighting Strategy
3.6 *Street Trees and Other Vegetation*

**INTENT**
Healthy and attractive trees and plants are an important element of the public realm in Maplewood. The District has developed guidelines for street tree planting to ensure that trees can mature in healthy condition. Natural and environmentally sensitive areas are of particular importance and special care should be given to sensitively integrate new development and avoid the proliferation of invasive plants.

**GENERAL GUIDELINES**

a. Street trees should be planted to optimize health and extend lifespan.

b. Street trees should have a minimum caliper of 7 cm when planted.

c. All street trees should follow BCLNTA (British Columbia Landscape & Nursery Association) and BCSLA (British Columbia Society of Landscape Architects) standards.

d. Best practices for street tree plantings should be used, which may include continuous tree trenches in boulevards, minimum recommended soil volumes, and soil cells and/or structural soil.

e. Landscape lighting should be included in areas of higher pedestrian use.

f. Permeable paving or landscaping should be provided at the base of trees.

g. Natural forms or clusters of trees referencing forest tree groupings should be encouraged along Berkley Road and where appropriate, such as open spaces of the Innovation District, and in and on edges of active parks.

h. Conifers are recommended where space permits (2.5 metre minimum depending on species) and where they do not impede sidewalks and other public spaces.

i. Retention of larger conifers on private property should be encouraged, where possible, in the Innovation District.

j. The following are recommended plant species for public spaces and streetscapes:
<table>
<thead>
<tr>
<th>Plant List</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Street Trees</strong></td>
<td></td>
</tr>
<tr>
<td>Acer rubrum ‘Armstrong’</td>
<td>Red Maple</td>
</tr>
<tr>
<td>Acer rubrum ‘Morgan’</td>
<td>Red Maple</td>
</tr>
<tr>
<td>Acer platanoides ‘Easy Street’</td>
<td>Norway Maple</td>
</tr>
<tr>
<td>Carpinus betulus ‘Frans Fontaine’</td>
<td>Hornbeam</td>
</tr>
<tr>
<td>Fraxinus americana ‘Autumn Applause’</td>
<td>White Ash</td>
</tr>
<tr>
<td>Liquidambar styraciflua ‘Worplesdon’</td>
<td>Worplesdon Sweet Gum</td>
</tr>
<tr>
<td>Zelkova serrata ‘Green Vase’</td>
<td>Japanese Zelkova</td>
</tr>
<tr>
<td>Quercus palustris ‘Green Pillar’</td>
<td>Green Pillar Pin Oak</td>
</tr>
<tr>
<td><strong>Trees and Shrubs for informal groupings and clusters</strong></td>
<td></td>
</tr>
<tr>
<td>Acer circinatum</td>
<td>Vine Maple</td>
</tr>
<tr>
<td>Acer griseum</td>
<td>Paperbark Maple</td>
</tr>
<tr>
<td>Acer glabrum var. douglasii</td>
<td>Douglas Maple</td>
</tr>
<tr>
<td>Amelanchier x grandiflora ‘Autumn Brilliance’</td>
<td>Apple Serviceberry</td>
</tr>
<tr>
<td>Carpinus betulus ‘fastigiata’</td>
<td>Fastigate European Hornbeam</td>
</tr>
<tr>
<td>Cornus nuttallii</td>
<td>Pacific Dogwood</td>
</tr>
<tr>
<td>Cercidiphyllum japonicum</td>
<td>Katsura Tree</td>
</tr>
<tr>
<td>Ginkgo biloba</td>
<td>Ginkgo</td>
</tr>
<tr>
<td>Nyssa sylvatica</td>
<td>Black Gum</td>
</tr>
<tr>
<td>Picea omorika</td>
<td>Serbian Spruce</td>
</tr>
<tr>
<td>Pinus nigra</td>
<td>Black Pine</td>
</tr>
<tr>
<td>Thuja plicata</td>
<td>Western Red Cedar (for natural areas)</td>
</tr>
<tr>
<td>Styrax japonica</td>
<td>Japanese snowbell tree</td>
</tr>
<tr>
<td><strong>Shrubs and Groundcover</strong></td>
<td></td>
</tr>
<tr>
<td>Adiantum pedatum</td>
<td>Northern maidenhair fern</td>
</tr>
<tr>
<td>Amelanchier x ‘grandiflora’</td>
<td>Autumn Brilliance Apple Serviceberry</td>
</tr>
<tr>
<td>Arctostaphylos uva-ursi ‘Vancouver Jade’</td>
<td>Bearberry</td>
</tr>
<tr>
<td>Botanical Name</td>
<td>Common Name</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>Arctostaphylos uva-ursi</td>
<td>Kinnikinnick, Bearberry</td>
</tr>
<tr>
<td>Asarum caudatum</td>
<td>Wild ginger</td>
</tr>
<tr>
<td>Blechnum spicant</td>
<td>Deer Fern</td>
</tr>
<tr>
<td>Calluna vulgaris var.</td>
<td>Heather</td>
</tr>
<tr>
<td>Cornus sericea</td>
<td>Red Twig Dogwood</td>
</tr>
<tr>
<td>Echinacea purpurea ‘Kim’s Knee High’</td>
<td>Dwarf purple coneflower</td>
</tr>
<tr>
<td>Euphorbia myrsinites</td>
<td>Donkey-Tail Spurge</td>
</tr>
<tr>
<td>Festuca glauca</td>
<td>Blue fescue</td>
</tr>
<tr>
<td>Gaultheria shallon</td>
<td>Salal</td>
</tr>
<tr>
<td>Hamamelis virginia</td>
<td>Witchhazel</td>
</tr>
<tr>
<td>Lonicera pileata</td>
<td>Privet Honeysuckle</td>
</tr>
<tr>
<td>Mahonia aquifolium</td>
<td>Oregon Grape</td>
</tr>
<tr>
<td>Mahonia nervosa</td>
<td>Cascade Oregon Grape</td>
</tr>
<tr>
<td>Polystichum munitum</td>
<td>Sword Fern</td>
</tr>
<tr>
<td>Spirea douglasii</td>
<td>Hardhack</td>
</tr>
<tr>
<td>Spirea japonica ‘Walbuma’</td>
<td>Magic Carpet Spirea</td>
</tr>
</tbody>
</table>

**Recommended Plants for Raingardens**

**Areas of periodic or frequent standing or flowing water**

**Emergent Plants**

<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carex aquatilis</td>
<td>Water Sedge</td>
</tr>
<tr>
<td>Carex obnupta</td>
<td>Slough Sedge</td>
</tr>
<tr>
<td>Carex rostrate</td>
<td>Beaked Sedge</td>
</tr>
<tr>
<td>Carex stipata</td>
<td>Sawbeak Sedge</td>
</tr>
<tr>
<td>Eleocharis palustris</td>
<td>Creeping Spikerush</td>
</tr>
<tr>
<td>Iris tenax</td>
<td>Purple Iris</td>
</tr>
<tr>
<td>Juncus acuminatus</td>
<td>Taper tipped Rush</td>
</tr>
<tr>
<td>Juncus ensifolius</td>
<td>Dagger-leaf Rush</td>
</tr>
<tr>
<td>Juncus tenuis</td>
<td>Slender Rush</td>
</tr>
<tr>
<td>Scirpus microcarpus</td>
<td>Small-flower Bulrush</td>
</tr>
</tbody>
</table>

**Shrubs - Deciduous**

<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cornus sericea</td>
<td>Red-Osier Dogwood</td>
</tr>
<tr>
<td>Cornus sericea ‘Kelseyi’</td>
<td>Dwarf red-twig Dogwood</td>
</tr>
<tr>
<td>Cornus sericea ‘Flaviramea’</td>
<td>Yellow Dogwood</td>
</tr>
<tr>
<td>Cornus sanguinea ‘Midwinter Fire’</td>
<td>Blood-twig Dogwood</td>
</tr>
<tr>
<td>Physocarpus capitatus</td>
<td>Pacific ninebark</td>
</tr>
<tr>
<td>Rosa pisocarpa</td>
<td>Clustered Wild Rose</td>
</tr>
<tr>
<td>Common Name</td>
<td>Scientific Name</td>
</tr>
<tr>
<td>------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td><strong>Spirea douglasii</strong></td>
<td><em>Spirea douglasii</em></td>
</tr>
<tr>
<td><strong>Salix purpurea ‘Nana’</strong></td>
<td><em>Salix purpurea</em></td>
</tr>
<tr>
<td><strong>Shrubs - Evergreen</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Myrica californica</strong></td>
<td><em>Myrica californica</em></td>
</tr>
<tr>
<td><strong>Vaccinium ovatum</strong></td>
<td><em>Vaccinium ovatum</em></td>
</tr>
<tr>
<td><strong>Trees/Large Shrubs - Deciduous</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Acer circinatum</strong></td>
<td><em>Acer circinatum</em></td>
</tr>
<tr>
<td><strong>Amelanchier alnifolia</strong></td>
<td><em>Amelanchier alnifolia</em></td>
</tr>
<tr>
<td><strong>Corylus cornuta</strong></td>
<td><em>Corylus cornuta</em></td>
</tr>
<tr>
<td><strong>Rhamnus purshiana</strong></td>
<td><em>Rhamnus purshiana</em></td>
</tr>
<tr>
<td><strong>Areas with dryer soils, infrequently subject to inundation or saturation (e.g. side slopes)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Groundcovers</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Gaultheria shallon</strong></td>
<td><em>Gaultheria shallon</em></td>
</tr>
<tr>
<td><strong>Mahonia repens</strong></td>
<td><em>Mahonia repens</em></td>
</tr>
<tr>
<td><strong>Shrubs – Deciduous</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Holodiscus discolor</strong></td>
<td><em>Holodiscus discolor</em></td>
</tr>
<tr>
<td><strong>Symphoricarpus albus</strong></td>
<td><em>Symphoricarpus albus</em></td>
</tr>
<tr>
<td><strong>Symphoricarpus orbiculatus</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Ribes sanguineum</strong></td>
<td><em>Ribes sanguineum</em></td>
</tr>
<tr>
<td><strong>Rubus parviflorus</strong></td>
<td><em>Rubus parviflorus</em></td>
</tr>
<tr>
<td><strong>Shrubs - Evergreen</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Arbutus unedo ‘Compacta’</strong></td>
<td><em>Arbutus unedo</em></td>
</tr>
<tr>
<td><strong>Mahonia nervosa</strong></td>
<td><em>Mahonia nervosa</em></td>
</tr>
<tr>
<td><strong>Mahonia aquifolium</strong></td>
<td><em>Mahonia aquifolium</em></td>
</tr>
<tr>
<td><strong>Trees/Large Shrubs - Deciduous</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Malus fusca</strong></td>
<td><em>Malus fusca</em></td>
</tr>
<tr>
<td><strong>Perennials/Grasses</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Aquilegia Formosa</strong></td>
<td><em>Aquilegia Formosa</em></td>
</tr>
<tr>
<td><strong>Aster subspicatus</strong></td>
<td><em>Aster subspicatus</em></td>
</tr>
<tr>
<td><strong>Helictotrichon sempervirens</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Hemerocallis var.</strong></td>
<td><em>Hemerocallis var.</em></td>
</tr>
<tr>
<td>Plant Name</td>
<td>Common Name</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td><em>Lupinus officinalis</em></td>
<td>Large Leaved Lupine</td>
</tr>
<tr>
<td><em>Pennisetum alopecuroides</em></td>
<td>Hamelin Dwarf Fountain Grass</td>
</tr>
<tr>
<td><em>Polystichum munitum</em></td>
<td>Western Swordfern</td>
</tr>
<tr>
<td><em>Blechnum spicant</em></td>
<td>Deer Fern</td>
</tr>
<tr>
<td><strong>Recommended Plant Species for Informal Groupings on Private Property and Parks</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Trees (Large)</strong></td>
<td></td>
</tr>
<tr>
<td><em>Acer macrophyllum</em></td>
<td>Big Leaf Maple</td>
</tr>
<tr>
<td><em>Carpinus betulus ‘fastigiata’</em></td>
<td>Fastigiate European Hornbeam</td>
</tr>
<tr>
<td><em>Cercidiphyllum japonicum</em></td>
<td>Katsura Tree</td>
</tr>
<tr>
<td><em>Cornus ‘Eddie’s White Wonder’</em></td>
<td>Dogwood ‘Eddie’s White Wonder’</td>
</tr>
<tr>
<td><em>Ginkgo biloba</em></td>
<td>Gingko</td>
</tr>
<tr>
<td><em>Nyssa sylvatica</em></td>
<td>Black Gum</td>
</tr>
<tr>
<td><em>Pseudotsuga menziesii</em> / Douglas Fir*</td>
<td>Douglas Fir</td>
</tr>
<tr>
<td><em>Thuja plicata / Western Red Cedar</em></td>
<td>Western Red Cedar</td>
</tr>
<tr>
<td><strong>Trees (Medium)</strong></td>
<td></td>
</tr>
<tr>
<td><em>Abies lasiocarpa</em></td>
<td>Subalpine fir</td>
</tr>
<tr>
<td><em>Acer circinatum</em></td>
<td>Vine Maple</td>
</tr>
<tr>
<td><em>Acer griseum</em></td>
<td>Paperbark Maple</td>
</tr>
<tr>
<td><em>Acer glabrum var. douglasii</em></td>
<td>Douglas Maple</td>
</tr>
<tr>
<td><em>Betula platyphylla var. japonica ‘Whitespire’</em></td>
<td>Whitespire Japanese white birch</td>
</tr>
<tr>
<td><em>Chamaecyparis nootkatensis</em></td>
<td>Weeping Alaskan Yellow Cedar</td>
</tr>
<tr>
<td><em>Chamaecyparis nootkatensis</em></td>
<td>Weeping Alaskan Yellow Cedar</td>
</tr>
<tr>
<td><em>Davidia involucrata</em></td>
<td>Dove Tree</td>
</tr>
<tr>
<td><em>Parrotia persica</em></td>
<td>Parrotia</td>
</tr>
<tr>
<td><em>Picea omorika ‘Pendula Bruns’</em></td>
<td>Bruns Weeping Serbian Spruce</td>
</tr>
<tr>
<td><em>Picea glauca ‘Pendula’</em></td>
<td>Weeping White Spruce</td>
</tr>
</tbody>
</table>
Pinus sylvestris ‘Fastigiata’  Scotch pine
Populus tremula ‘Erecta’  Columnar European Aspen
Stewartia pseudocamellia  Japanese Stewartia

**Shrubs and Groundcover**

**Shrubs and groundcover from public spaces may also be included as well as the following:**

Imperata cylindrica ‘Rubra’  Japanese blood grass
Chamaecyparis obtuse ‘Nana Lutea’  Golden Dwarf Hinoki Cypress
Liriope muscari  Lily turf
Pennisetum alopecuroides  Fountain grass
Santolina chamaecyparissus  Lavender Cotton
Sedum ‘Autumn Joy’  Autumn Joy Stonecrop

3.7 **Public Art**

Public art plays an important role in supporting the emerging character of Maplewood, and helps to articulate each precinct’s unique identity. ‘Eye catching’ sculptures along with finer grain elements such as banners and mosaics are encouraged to creatively explore, interpret, and reinforce aspects of the region that people feel connected to and want to celebrate. Artists are encouraged to draw upon Maplewood’s interesting history, its Coast Salish beginnings, industrial innovations, thriving bird sanctuary, bohemian artist community, environmental heroes, and celebrated urban farm. Public art marks gateways, enhances pedestrian streetscapes, and animates public plazas and gathering spaces. Public art reflects and gives expression to local stories while celebrating the character and identity of Maplewood.

a. Encourage the design of interactive public art features to animate the two plazas and gathering spaces in the Village Centre, and at a central location in the Innovation District (See Figure 8).

b. Consider large-scale gateway features at intersections entering Maplewood; Berkley Road, Riverside Drive at Mount Seymour Parkway, and Dollarton Highway at Old Dollarton Road.
c. Integrate pedestrian-scale trail and trail-head markers at key locations on trails.

d. Promote artist-designed banners to reinforce Maplewood’s identity and locate along Dollarton Highway, Mount Seymour Parkway, Berkley Road Old Dollarton Road, and Riverside Drive.

e. Incorporate public art into private and public spaces that are accessible to the public.

f. Encourage multiple forms of public art, from stand alone sculptures, to integrated functional components that can be incorporated into, architecture, streetscape and the public realm.

g. Reflect First Nations history and culture, highlighting their stewardship of precious natural and environmental resources.

h. Celebrate the richness and diversity of the area’s unique ecological heritage: from the social and environmental history of the mudflats to the wetlands.

i. Highlight the area’s urban farming and industrial heritage, using materials and integrating design characteristics that reflect a strong sense of place.

j. Focus on themes of stewardship, sustainability and innovative practices in respect of the natural environment.
3.8 ACCESS, SERVICING AND ON-STREET PARKING

Plan policies aim to ensure developments provide adequate access, servicing and on-street parking for vehicles and bicycles, while minimizing negative impacts on the safety and attractiveness of the public realm.

VEHICLE ACCESS, SERVICING, AND ON-STREET PARKING

a. On-street surface parking should be located to the rear of the building with parking access from the lane or adjacent street with the lowest functional classification.
   i. If not feasible, locate on-street surface parking beside or in front of the building, adjacent to the public sidewalk provided the area is properly screened from the public sidewalk and other active open space areas. Consider the use of landscaping as a screen provided it maintains clear visibility into the parking areas to promote personal safety and security.

b. Where property faces streets with the same functional classification, the following should be considered:
   i. Access should be from the long face of the block.
   ii. Minimal interruption of the public realm and streetscape treatment should be maintained.
   iii. Appropriate surface treatments should be incorporated to denote designated cycle tracks or urban trails.
   iv. Waiting or pick-up/drop-off areas should be located internal to the site and not be located in the public right-of-way.
   v. Not more than one interruption per block face and one curb cut per street should be considered.

c. Underground parking or covered on-street parking should be required for new residential and mixed-use buildings, where possible.

d. Where underground parking is considered, ensure that groundwater is not discharged to the storm sewer or sanitary sewer.

e. Structured underground or “tucked-under” parking should be preferred over on-street surface parking.

f. Provide co-operative car and car sharing parking spaces on-site,and provide these parking spaces at grade and visible from the street, where possible.

g. Any vehicular entrance and its associated components (gates, ramps, etc.), whether from the street or lane, should be architecturally integrated into the building to minimize its exposure.

h. Shared parking and access is encouraged, where feasible.

i. Large parking lots should be discouraged.
j. Ensure that new development provides for electric vehicle charging facilities per the District’s *Electric Vehicle Charging Infrastructure* policy.

k. Explore opportunities for supporting infrastructure that meets the needs of renewably-powered vehicles.

l. Consider reductions in parking requirements for developments that include sufficient Transportation Demand Management (TDM) measures, and discourage excess parking for developments.

**BICYCLE PARKING, SERVICING AND ACCESS**

a. Long-term bicycle parking should be encouraged for multi-family residential and employment-generating uses, where possible.

   i. A minimum of two long-term bicycle parking spaces per residential unit in multi-family residential and employment-generating developments should be encouraged.

   ii. Long-term bicycle parking should be located in a secure bicycle storage facility that is only accessible to residents of the building.

   iii. Secure bicycle storage facilities should consider including waterproof bicycle lockers, and secured bicycle rooms or compounds with bicycle racks within a building.

   iv. Electrical outlets should be provided in all bicycle storage facilities, and bicycle parking spaces should be within 5 metre from an outlet.

b. Short-term bicycle parking should be encouraged throughout the Maplewood community, where feasible and where appropriate.

   i. Bicycle racks located outdoors should follow the design standard identified in this plan (See pages 66 and 76.)

   ii. Explore opportunities to provide weather protection for clusters of outdoor short-term bicycle parking (e.g. under canopies or shelters), where possible.

   iii. Bicycle parking should be located close to building entrances to provide a clear visual connection from the building entrance to the bicycle parking.

c. End-of-trip facilities (i.e. showers, lockers, change rooms, etc.) should be provided with employment-generating uses.
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4 Village Centre

4.1 Overall Intent

The Maplewood Village Centre area is envisioned to be a vibrant, pedestrian-friendly, mixed-use village centre with compact forms of commercial and mixed-use commercial/residential buildings as well as live/work and community uses.

![Maplewood Village Centre Map]

4.2 Built Form Guidelines

Tall Buildings

- Encourage siting, massing, and design of tall buildings (over 6 storeys in height) that minimizes negative impacts on views, privacy, and solar access for individual units, reduces the perceived bulk and minimizes impacts on adjacent public streets and open spaces.
- Identity for the main entrance should be achieved by stepping back the base building (podium) at the primary entrance to allow the tall building to visually connect with the street. Locate primary entrances so that they are clearly visible and directly accessible from the public sidewalk, plaza, or other open space.
- An interesting and varied roof form should be achieved (for example, by incorporating a top-level penthouse or amenity space to conceal appurtenances and mechanical equipment).

![Artist rendering of the Village Centre]

![Artist rendering of the Village Centre]

![Tall buildings should step down to create a gradual transition to lower rise neighbourhoods]
ARCHITECTURAL STYLE AND CHARACTER

Mixed Use and Live/Work

a. Buildings containing live/work uses should be identifiable by the design of frontages.
b. Façades which appear purely residential should be avoided.
c. Options could include differentiating the living zones from the working zones architecturally through façade design and colour.
d. Consider the use of canopies and upper storey step backs to further emphasize this character. This could be a glazed façade portion for artist or live/work studios and corner shop style designs for more traditional design approaches.

West of Riverside and east Artisan Industrial

a. Exterior materials and detailing should reflect the marine and industrial heritage of the site. Natural materials such as wood, architectural metal siding elements, glass, block, brick or concrete are appropriate for portions of mixed-use residential commercial and live/work buildings, for example.
b. Materials and finishes should be detailed and applied to emphasize their simplicity and integrity.
c. Building materials with low environmental impacts should be encouraged. This could include the use of recycled and recyclable materials, materials with recycled content, locally sourced products, and materials with low embodied energy.
BUILDING MATERIALS
Specific Building Materials

The form and character of Village Centre developments should support the “eclectic mixed-use industrial” theme and incorporate elements that reference Maplewood’s natural environment.

a. Natural building materials with bright accent colours are strongly recommended.

b. Building elevations emphasizing one or two natural building materials, in addition to glazing, are strongly encouraged.

c. The use of large timbers and overhangs is encouraged.

d. Well crafted, durable materials that support sustainability and Village Centre themes are expected throughout.

e. Natural building materials including wood, stone, concrete and brick should dominate the expression on lower floors and along the street wall including retaining and garden walls.

f. Materials on upper floors should be consistent with the quality, durability and craftsmanship on the lower levels.

g. Functional screens, shading devices and other passive solar design elements that complement the architecture are highly recommended.

h. Heavy timber and engineered wood elements especially along the base of the building and at entrances are strongly encouraged.

i. Wood elements should be protected from weathering using best building practices and appropriate finishes that preserve the natural colour and texture.
j. Colours should be chosen to complement the palette of natural stone and wood: tones of grey are considered most appropriate.

k. Soffit materials should be consistent with the building’s overall durability and quality (vinyl and perforated materials are discouraged).

l. Wood soffits are preferred where feasible.

m. Clear vision glass is preferred over tinted products.

n. Material transitions should avoid a “wallpaper” look.

o. The use of vinyl or aluminum siding or other materials made to imitate natural finishes is discouraged.

**PREFERRED COLOUR PALETTE**

The use of colour is encouraged. The aim is to achieve a mix of colours and textures, while keeping the materials and colour scheme of each individual project within a cohesive palette.

a. The primary colour palette within the Village references local forest colours and materials.

b. Brighter, complementary accent colours should be used for smaller portions of building façades.

c. “Maple brown” colour, matching the existing street lights is to be used consistently for street lights along Old Dollarton Road (High Street).
5  RESIDENTIAL AREAS

5.1 INTENT
Maplewood’s residential areas, located to the north, west and east within the Village Centre are intended to provide a range of attractive housing types and tenures that support, and are well connected to, a vibrant walkable Village Centre.

5.2 BUILT FORM GUIDELINES

Many of the new residential dwellings in Maplewood will be infill and redevelopment sites, and the aim is to achieve an eclectic mix of colours and textures, while keeping the materials and colour scheme of each individual project within a cohesive palette.

BUILDING MATERIALS
In general, new buildings should incorporate natural building materials into façades to avoid a “thin veneer” look and feel. These can be incorporated with more contemporary treatments, including glass curtain walls (e.g. for live-work artist studio buildings).

Recommended:

a. Large dimension timber
b. Natural wood materials, including:
   Milled and un-milled timbers, window and door trim, canopy structures, signage
c. Brick masonry, stone
d. Glazed tiles, flat profile “slate” concrete tiles
e. Concrete
f. Wood and aluminum for windows
g. Powder-coated steel for exterior staircases, balconies and railings
h. Standing seam metal roofing
i. Corrugated metal siding/roofing

Acceptable:
a. Pre-finished metal, non-corrugated type, emphasizing either vertical or horizontal arrangements
b. Limited amounts of stucco in combination with other materials

Discouraged:
a. Vinyl siding
b. Large expanses of stucco
c. Vinyl window frames

COLOUR PALETTE
The use of colour is encouraged to achieve a mix of colours and textures, while still reflecting a cohesive palette.
6 LIGHT INDUSTRIAL ARTISAN GUIDELINES

6.1 INTENT
Artisan-Industrial/Live-Work use along Old Dollarton Road east of Riverside Drive will allow for small manufacturers and craftspeople to live and work in a vibrant, pedestrian-friendly environment. Residential buildings integrated with small manufacturing/office functions need particular design attention. The design of these buildings must balance dual purposes. Their office and light industrial spaces define the public realm and should contribute to its scale and vitality.

6.2 BUILT FORM GUIDELINES

BUILDING HEIGHT AND MASSING

a. First and second storeys are dedicated to small manufacturing and office use, and upper storeys dedicated to residential use.

b. Upper residential storeys should be set back to optimize sunlight penetration, accommodate residential balconies, and reduce massing impacts.

c. First storey working spaces should have taller ceilings than typical residential floors.
COMPATIBILITY OF USES

a. Buildings should be designed to be compatible and use design features to mitigate negative impacts of employment uses on residential uses, including: noxious fumes, dust, lighting, vibration, sounds, and smells.

b. Residential entrances should be separate from light industrial employment uses.

RELATIONSHIP WITH STREET

a. Mixed-use artisan industrial buildings should be built close to the property line, while including space for outdoor displays.

b. Buildings should be designed to express the “industrial or manufacturing nature” of the first and second floor office/industrial uses.

c. Individuality within a unified appearance is encouraged for buildings with multiple units and uses which could be expressed through colour, materials and articulation of architectural elements.

CHARACTER AND MATERIALS

a. Small scale light industrial use with residential uses above should be expressed in character, colour, and materials of buildings.

b. Emphasize the “industrial/workshop” look and feel of this special use by encouraging the use of roll up doors and frames and higher ceilings in working areas.
c. Materials such as corrugated metal siding/roofing, different types of flat metal siding, galvanized powder coated steel, fiber cement siding are suitable.

d. Large expanses of stucco are not desirable.

**PREFERRED COLOUR PALETTE**

a. The bold use of accent colours is encouraged. This can be expressed in cladding materials, window/door frames and accessory elements.

b. Various tones of industrial greys and browns are encouraged to make up the primary colour palette.
6.3 **Public Realm and Streetscape Guidelines**

**HIGH STREET (Old Dollarton Road)**

**Intent**
To create a high quality pedestrian-oriented street through the centre of the Village with places to shop, live, work and create. The character of Old Dollarton Road will change from a village heart character west of Riverside Drive to a grittier artisan industrial character east of Riverside Drive.

**HIGH STREET**
(Old Dollarton Road – west of Riverside Drive)

This section of Old Dollarton Road should be an attractive pedestrian-oriented street with wide sidewalks, street trees, special street furniture and lights with banners. The High Street should accommodate on-street parking pockets where feasible, and is intended to be a possible future B-line route for transit.

*Artist rendering of the High Street*

*Old Dollarton Road - Seymour Pl to Riverside Dr (west segment mid-block)*
**Riverside Drive to Cul-de-Sac**

Old Dollarton Road transitions to an artisan industrial grittier character east of Riverside Drive. This street should be flush with unique paving materials to encourage a seamless integration of users moving across the street. Businesses should be encouraged to display their goods to create a shared sense of place along this street.

- Separated cycle tracks will be denoted by a smooth surface to ensure an accessible and enjoyable riding experience.

- The street should be designed to allow for weekend markets. Alternative access for loading and delivery and parkades through the use of lanes ensures a pedestrian-oriented environment through the centre of the artisan industrial space.

- Abbotsford Standard Series ‘Charcoal’ herringbone concrete pavers are recommended for travel lanes and on-street parking.

- Use a smooth surface to provide pleasant riding conditions for those who wish to cycle to the artisan industrial businesses, to adjacent amenities or for those travelling through.

- Street furniture selections should reflect the artisan industrial character, and highlight the uniqueness of this node from adjacent areas.

- Design the street to be easily closed off to vehicles from the mid-block lane to Forester Street to allow for weekend markets and festivals, while still providing access to the lane for parking, delivery access, and to the fire hall site.

- Street frontages should be designed to provide adequate weather protection from wind, sun, and rain, to encourage people to stop and visit local businesses.

- Provide separation between cycle tracks and vehicle parking.

---

Old Dollarton Road - Riverside Dr to Cul-de-Sac (mid-block)
**SHARED STREET (OLD DOLLARTON ROAD – FRONT STREET)**

The shared street runs north/south and joins Old Dollarton Road to Front Street. It should be designed as a flexible shared space, providing gathering spaces, plazas, and local markets - a vibrant, pedestrian oriented-street lined by mixed use commercial and multi-family residences. Pedestrians share the space with cyclists and slow moving vehicles.

a. Abbotsford Standard Series ‘Charcoal’ herringbone concrete pavers are recommended for travel lanes and on-street parking.

b. Infrastructure including structural support, electricity, water supply, and removable bollards (to accommodate seasonal and/or community events including the ability to close off portions of the street to vehicles, should be integrated).

c. Incorporate street trees in groupings alternating with on-street parking.

d. Flush curbs/concrete bands that incorporate trench drains with decorative covers are recommended for enhanced pedestrian mobility.

e. Consider incorporating public art in the plazas at the entrances to this street.

f. Provide a variety of seating opportunities.

*Image: Artist rendering of the shared street*

*Seymour River Place - Front St to Old Dollarton Rd (mid-block) * Parking lane and boulevard alternate sides.*
RIVERSIDE DRIVE

Riverside Drive is the key north-south street in the Village Centre. It connects Mount Seymour Parkway and Dollarton Highway and provides direct access to key amenities within the village. Due to its proximity to the High Street, natural and active parkland, Kenneth Gordon play field and to local businesses, this street should be designed as the central spine through the Village Centre.

Intent

To create a high quality street through the centre of the village that is comfortable for all users with ample sidewalk space, separated cycling connections, and treed boulevards, where possible.

a. Create a multi-modal street that provides separated space for walking and cycling while still accommodating the efficient movement of goods and those who choose to drive and take transit.

b. Design boulevards to provide an ample buffer between those who are cycling and those who walking or driving, where feasible.

c. Provide safe and convenient pedestrian and cycling crossings for those crossing Riverside Drive to access the natural and active parks, the school as well as the urban and natural trails through Maplewood Park and on Windridge Drive.

Riverside Drive - Old Dollarton to Windridge
PUBLIC PLAZAS
Two public plazas should be located at each end of the shared street in the village, at the intersections of Old Dollarton Road and Seymour River Place and Seymour River Place and Front Street (See Figure 8). These plazas should be positioned to benefit from sunlight during the day. Together they are intended to form gateways to the central gathering area within the Village Centre.

a. A variety of seating opportunities should be provided in locations that receive direct sun during the day and in places that have rain protection.

b. Plazas should provide universal access to people of all ages and abilities and offer spaces for informal play and rest.

c. Seating should be designed to be integral to the design concept and use materials that complement the material palette of adjacent buildings.

d. Coordinate site furnishings (e.g. garbage containers, bike racks, lighting, tables and seating) with streetscape furnishings.

e. Paving should be compatible with the streetscape materials palette and patterned to both respond to surrounding building architecture (entrances, pilasters, etc.) and merge seamlessly into the overall paving pattern of adjacent sidewalks.

f. Ensure a clear visual connection between the transit stop on Old Dollarton Road and the plaza.

g. Public art should be incorporated as either free-standing elements to enhance the gateway function of these plazas, or integrated into benches, storm grates, etc.

h. Facilities such as power and water should be considered to support future plaza programming opportunities.
STREET FURNITURE

Intent
Maplewood Village Centre furnishings are decorative and should continue the character already established with the Northwoods Village, a mixed-use development including benches, bollards, litter bins, and bike racks. In addition, special designs relating to Maplewood's character are encouraged throughout the Village Centre including public art and artist-designed elements. Street furniture including street lights along Old Dollarton Road should be finished with brown (PROTEC 1672-4 Maple Brown) to match new street lights (See Appendix for additional details). Street furniture in other parts of the village and local streets should be finished black (e.g. Philipp Lumec textured black BKTX).

Street Lights

a. The pole and luminaire should be continued along all streets as identified on the Maplewood Lighting Strategy in Figure 17.

Street Lighting Types and Details
Maplewood Village Centre furnishings are decorative and should continue the character already established with the Northwoods Village development including benches, bollards, trash receptacles, and bike racks).

Maplewood Village Centre Furnishings - Pole and Luminaire
PROTEC 1672-4 Maple Brown.

Benches

a. Refer to adjacent images for preferred benches and seating designs.

b. Benches, litter bins and recycling containers should be part of the same product line to ensure visual consistency.

c. Pads for benches not within the boulevard should be 1.0 metre longer than the proposed bench of the same material as the sidewalk.
Bicycle racks

a. Bike racks should support the bicycle by the frame, not only by the wheels.

b. Bike racks should be selected to address the anticipated usage at locations throughout the Village Centre.

c. Explore the possibility of using bike racks as public art.

d. Individual rings or U-shaped racks offer the possibility to be placed in small or larger quantities as needed.

e. Consider covered bike racks for weather protection, and include outlets for e-bike charging where appropriate.

Water fountains

a. Use models that meet requirements for access by people in wheelchairs.

b. Seek opportunities for integrating public art into these elements.

c. Ensure that water fountains include drinking facilities for pets.

Utility covers

a. Should reflect Maplewood's character.

b. Consider local art competitions to develop custom designs for covers.
7  **Maplewood North Innovation District**

7.1 **INTENT**

The Maplewood North Innovation District is one of three areas with a distinct character, purpose and identity. It will be a neighbourhood where high tech mixes with a beautiful natural setting while offering combinations of working and living that are new to this region. It will include educational institutions and local serving commercial uses. The goal of these guidelines is to support the creation of a physically-compact, visually diverse, transit-accessible and technically-wired neighbourhood with a campus-like character that respects the existing environment and promotes an active and healthy lifestyle.

![Maplewood North Innovation District area](image)

7.2 **Built Form Guidelines**

**CHARACTER**

The built form and public realm of the Innovation District should work together to achieve an integrated, mixed-use neighbourhood that displays excellence in design and a commitment to sustainable development. This new neighbourhood should have its own identity recognizable in built form, public realm and public art. It should feature buildings sited within a campus-like setting, with a generous amount of landscaping around buildings, and should reflect

![A diversity of roof forms, façade designs and materials provide visual interest and express different uses of buildings](image)
Maplewood’s cultural heritage and history while embracing new contemporary uses.

In general, developments should:

a. Be contemporary in appearance and expressive of building functions.

b. Buildings should express individuality with unique and distinct designs.

c. Express innovation in form with massing and detailing.

d. Provide daylighting by utilizing methods such as limiting building depths or providing atrium elements.

e. Provide end-of-trip facilities to support active modes of transportation (including showers, change rooms, lockers).

f. Provide retail and community uses at ground level where appropriate.

**HEIGHT AND MASSING**

a. Heights should range from 2-8 storeys and should be applied to achieve an appropriate response to the size, shape and orientation of the site.

b. Achieve height and massing that creates variety between separate developments.

c. Provide more prominent massing and architectural treatments on corner and other important sites.

**RELATIONSHIP TO STREET**

a. Avoid continuous unarticulated façades of over 45 metre in length.

b. Provide active façades that promote passive surveillance.
BUILDING MATERIALS

a. Building elevations incorporating one natural building material, in addition to glazing, are strongly recommended.

b. The use of innovative materials, and contemporary use of traditional materials is encouraged.

c. Well crafted, durable materials that support sustainability and Innovation District themes are expected throughout.

d. The nature of materials is derived from the rich historic and future innovative uses of the site.

e. Exterior materials and detailing should reflect the innovative nature of the development and be contemporary in expression.

f. Façade materials should be robust and durable and resist deterioration and fading.

g. Chose materials that minimize the need for cleaning and recoating.

h. Incorporate a range of materials, for example, ribbed or corrugated steel, cladding, panelised cladding (expressed joints), polycarbonate sheeting, glass, timber and louvre screening.

i. Avoid rendered finishes and large expanses of flat pre-finished steel cladding.

j. Sun-shading is an important component in the performance and comfort of buildings. Sun-shading should be integral to the design of the building.

k. Weather protection and overhangs are expected at building entrances, and along pedestrian walkways.
PREFERRED COLOUR PALETTE

a. The use of vivid accent colours is encouraged and can reference building uses and/or the forest environment theme.
7.3 PUBLIC REALM AND STREETSCAPE GUIDELINES

BERKLEY ROAD EXTENSION

The Berkley Road extension will provide direct access from Mount Seymour Parkway to Dollarton Highway for all users.

INTENT

To create a high quality street through the Maplewood North Innovation District that is comfortable for all users with ample sidewalk space, separated cycling connections, treed boulevards wherever possible and considers buffers to environmentally sensitive areas, where appropriate.

a. Design the Berkley Road extension as a key north-south connector for all modes of travel.

b. Encourage movement of goods on Berkley Road to shift heavy vehicle traffic away from Riverside Drive while still providing a pleasant experience along Berkley Road for pedestrians and cyclists.

c. Ensure Berkley Road maintains a grade that does not exceed 8%, and slopes for 30 metre on all sides of intersections should not exceed 4%.

d. Berkley Road should have no more than two intersections (including the existing Burr Place) between Dollarton Highway and Mount Seymour Parkway, with minimum intersection spacing of 200 metre. Up to three intersections may be considered.

e. Steeper segments for walking and cycling along this corridor should be minimized and should allow for resting platforms approximately every 100 metre.

f. Accommodate transit stops and transit-supportive features bus pull outs, shelters and benches as necessary.

g. Provide boulevard separated cycle tracks for the full length of the corridor.

h. Ensure the walking experience is enhanced by providing clear connections to properties, trails and other recreational amenities.

i. Provide clear links from adjacent trails to walking and cycling facilities on Berkley Road to improve access to amenities such as Ron Andrews Recreation Centre and Canlan Ice Sports Arena.

j. Provide a minimum 5 metre wide bioswale along Berkley Road adjacent to wildlife corridors and environmentally sensitive areas.

k. Incorporate boulevards and treed landscaped medians to create a more pleasant environment for those walking, cycling, driving and using transit.

l. Access points onto Berkley Road should be consistent with the planned intersections to preserve its mobility function for those walking, cycling, driving and using transit and to mitigate potential conflicts.
“ROAD A” – MAPLEWOOD NORTH INNOVATION DISTRICT

“Road A” should provide access and connectivity for those who choose to walk, cycle, or drive from their work or home to other key destinations.

a. Connect existing urban trails with walking and cycling facilities located on the road network.

b. Use clear signage and paint markings to denote where driveways intersect with walking and cycling facilities.

c. Use landscaped boulevards to create a welcoming and pleasant walking, cycling and driving environment through the industrial and residential areas in Maplewood North.

d. Ensure “Road A” intersects with Berkley Road east of the open space corridor. “Road A” should intersect with Dollarton Highway at the Pacific Environmental Science Centre.
RELATIONSHIP TO THE FOREST EDGE:

a. Provide a visual and ecological extension of the forest into the private and public realms through appropriate retention of existing trees, replanting displaced trees and/or naturalized landscape design.

b. Retain clusters of trees, where possible.

c. Maintain adequate buffer zones and development setbacks to respect and protect the natural forest edge.

EXISTING WETLANDS AND RUNOFF MANAGEMENT

a. Preserve, enhance, and incorporate existing wetland areas into the design of the Innovation District.

b. Development within the areas designated as environmentally sensitive (ESA) is not permitted.

c. Ensure adequate buffer zones and development setbacks respect and protect ESAs as per the streamside DPA guidelines.

d. Employ best practices and, specifically, low-impact development techniques for street and landscape design to integrate runoff management, including quality and quantity considerations, and where appropriate, xeri-scaping for planted medians and boulevards.

MAPLEWOOD NORTH PLAZAS AND OPEN SPACES

A central plaza or series of plazas should be incorporated in the Innovation District.

a. Provide a variety of quality open space types: active and passive catering to all ages and abilities.
b. Ensure the location, distribution and organization of open space complements the built form arrangement.

c. Encourage opportunities for social interaction and play and a variety of seating opportunities in the design of outdoor spaces.

d. Provide barrier-free access to private and semi-private outdoor spaces.

e. Provide covered outdoor areas to increase livability and opportunities for social interaction during rainy months, including ground floor patios and covered, at-grade bike parking, where possible.

f. Offer connections to existing open space and recreational community infrastructure. Provide habitat protection fencing and native planting along edges of parks and environmentally sensitive areas.

g. Ensure materials are durable and easily maintained so the design remains attractive and flexible as the planting matures with time.

h. Maximize biodiversity throughout the area.

**LARGER PLAZAS WITHIN THE INNOVATION DISTRICT**

a. Plazas should be flexible, multi-purpose spaces designed with informal gatherings, programming of local events and celebrations in mind: food trucks, markets, seasonal ice skating, musical performances (e.g. temporary stage), shows, etc.

b. Plazas should be surrounded by active building edges and provide opportunities for outdoor eating in good weather.
c. Designs and orientation should take advantage of solar aspects and provide ample seating opportunities in both shaded and sunny areas, and weather protection along building façades.

d. Consider the incorporation of both hard and soft landscape surfaces, such as wood, lawn, paving (preferably single unit pavers of concrete or natural stone).

e. Large expanses of in situ concrete should be avoided. Concrete banding is acceptable.

f. Use shade trees and other vegetation to soften to provide shade, texture and seasonal changes.

g. Consider the inclusion of water fountains and surface water jets as additional attraction.

h. Ensure that the plaza is universally accessible.

i. Incorporate newest technologies to manage runoff, e.g. pervious paving, rain gardens and swales.
SITE FURNISHINGS AND LIGHTING

Site furnishings and lighting in the Innovation District should support the innovative contemporary character of the area and express the “District in the forest” theme through use of materials such as wood.

Poles and Luminaires

a. TANDEM Pole by Structura, model Ortho or Tilt depending on situation - Pole colour: Silver.
   Side Panel colour: Titanium (to match site furnishings). See Appendix for more specifications.

b. Luminaire: Lineal by Structura. Colour to match pole colour.

Benches

a. Bancal Bench from Landscape Forms in a variety of configurations. Always with arm rests.

b. Suggested colour: Titanium.

Bollard

a. Annapolis from Landscape Forms.

b. Suggested colour to match benches (Titanium).

Litter & Recycling Receptacle

a. Plexus from Landscape Forms.

b. Side Opening (20” x 40” x 30 Gal.)

c. Suggested colour to match bench frame (titanium). Liner colour: Black.

Bike Rack

a. Ring from Landscape Forms.

b. Colour: match benches (Titanium).
8 DOLLARTON HIGHWAY SOUTH

8.1 INTENT

The area south of Dollarton Highway will continue to be focused on light industrial uses. The intent is to allow intensification of this area over time to create more employment opportunities. Multi-storey buildings with smaller units are encouraged as long as parking requirements can be met.

8.2 BUILT FORM GUIDELINES

HEIGHTS AND MASSING

a. Additional storeys should be visually differentiated while complementing the existing building.

b. The use of materials should be consistent on all elevations.

c. Steel, metal, glass, manufactured or natural stone, and concrete are preferred materials.

d. Where materials on an office portion cannot be the same as on a plant portion, the materials should be compatible and designed in a unified manner.
PARKING

Intensification will require innovative approaches to parking to ensure sufficient supply is achieved on site while not using large surface areas of land.

a. Explore parking under buildings.
b. Explore rooftop parking.
c. Consider the potential for shared parking including sharing of parking where time of day usage applies.
d. Consider a parkade.
8.3 Public Realm and Streetscape Guidelines

Dollarton Highway

Dollarton Highway from the Seymour River to Forester Street acts as a gateway into Maplewood. Recognize this character by including a wide, treed and landscaped median and boulevard with walking and cycling facilities on either side to maintain this unique gateway characteristic.

Intent

Continue the streetscape established for Dollarton Highway and improve walking and cycling connections from Forester Street to Ellis Street.

a. Improve walking and cycling connections from the existing urban trail to separated facilities along Dollarton Highway from Forester Street to Ellis Street.

b. Allocate adequate separations between walking and cycling facilities.

c. Ensure the connections are appropriately signed for users transitioning from the existing urban trail to separated facilities in a manner that is safe and easy to understand.

d. Provide a safe and convenient transition from the separated cycling facilities on Old Dollarton Road to Dollarton Highway.

e. Collect data and monitor urban trail usage along Dollarton Highway for additional separation between people walking and cycling.

Dollarton Highway - Forester Street to Ellis Street (mid-block)
# Appendix

## Lighting Standards and Specifications

<table>
<thead>
<tr>
<th>Maplewood Village Centre Street Lighting Specifications*</th>
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<td>Pole and luminaire colour</td>
<td>Protec 1672-4 Maple Brown</td>
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<tr>
<td>Pole type</td>
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| Pole base cover                                          | Type A: Nova Maplewood NSR059/16-30'  
Type B: Nova Maplewood NSR059/16-25' |
| Pole height                                              | Type A: 30'  
Type B: 25' |
| Concrete base                                            | Round sonotube / type B >343mm diameter |
| Luminaire and mounting arm – upper                       | Lumca CPGL0418 with CFMD12815 |
| Luminaire and mounting arm – lower                       | Type A: Lumca CPL0418 with CF50  
Type B: n/a |
| Banner arms                                              | Lumca BEN-5 x 2 |
| Lamp type and colour temperature                         | LED 4000K |

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<tr>
<th>Innovation District Street Lighting Specifications</th>
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<td>Lamp type and colour temperature</td>
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| Dollarton Highway South Lighting Specifications**         | All lighting standards for the Dollarton Highway South precinct should meet District Lighting Standards |

*NOTE: Type A and Type B reference standards for specific streets.  
Type A: Old Dollarton Road, Riverside Drive, Shared Street, Berkley Road  
Type B: Seymour River Place, Front Street, Windridge Drive, Heritage Park Lane, Forester Street, Bridge Street  

**NOTE: Lighting for Dollarton Highway South also applies to Mount Seymour Parkway, Dollarton Highway, and Windridge Drive east of the Maplewood Village Centre Boundary
MAPLEWOOD VILLAGE CENTRE STANDARD: TYPE B
Configure Tandem to uniquely respond to your project’s needs. Mount street side luminaires high allowing for greater distance between poles and better light distribution. Mount low-wattage pedestrian scale luminaires at lower heights to bring a more human scale to public spaces.
MAPLEWOOD INNOVATION DISTRICT: POLE SPECIFICATIONS

ELEVATION DRAWINGS

A Elevation

B Elevation

Side Elevation

- 12" arm shown on side A with rear arm extension
- Fixture Side B No Fixture
- 2" x 4" 10G or 25" Thick Aluminum Poles
- Side panels (specify material and finish)

A Side | B Side

Pole Height

Fixture Mounting Height

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MAPLEWOOD INNOVATION DISTRICT: LUMINAIRE SPECIFICATIONS

### Ordering Guide: Example: LIN-M2150-UNV-L30-3-C4-L5-P-WC-M5/1.3-STD

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1. Contact factory for alternative output options.
2. Step down transformer required and only available with Structure supplied pole.
3. Contact factory for other color temperature options.
4. Contact factory for other distribution options.
5. Structure pole specification sheet must be completed showing mounting locations and quantities as a separate item.
6. Specify shed pole on page 138 as separate item.
7. Synapse Wireless sun/gateway controller must be ordered separately. Please contact factory for design assistance.
8. Specify coverage pattern (see page 137 for detail).
9. 20KA surge suppressor is only available when pole is supplied by Structure. 10KA surge suppressor supplied as standard in the future.

Product specification sheets subject to change.
ST  Straight Square Steel Pole

**FEATURES:**
- Heights available from 10 to 40’
- Galvanized then polyester powder coat painted (AAAMA 2600-1 standard)
- Supplied with a two piece casted aluminum base cover
- Multiple mounting options

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**ORDERING GUIDE:** EXAMPLE: ST-20-BLK-A20-B12-STD

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Maplewood Lands
Environmental and Hydrogeological
Assessment Report

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Executive Summary

The District of North Vancouver’s official community plan identifies the Maplewood Village Centre as one of four key centres for community growth. The Maplewood area comprises Maplewood Village, the light industrial lands south of Dollarton Highway and the District Lands and Maplewood North Lands. Maplewood Village East, District Lands and Maplewood North Lands comprised the Study Area for this report and are referred to here as the Maplewood Lands.

This environmental and hydrogeological assessment report identifies the important environmentally sensitive features and hydrological characteristics of the area and identifies the potential constraints and possibilities in the development of these lands. Key environmental features examined included vegetation and wildlife habitat, wildlife corridors, streamside and wetland setbacks, steep slopes and surface and ground water hydrology. Sensitive environmental features included steep escarpment slopes, watercourses that are fish-bearing or potentially fish-bearing, remnant forested areas that have been identified as provincially designated ecosystems at risk, and wetland and wildlife habitat including important riparian and mature forests, located in the Study Area, which provide foraging and nesting habitat to wildlife and resident and migratory bird species.

In the absence of environmentally sensitive development and environmental impact mitigation, potential direct environmental impacts of development include permanent loss of wildlife habitat, loss of surface water resources to fish-bearing habitat, and loss of wetlands and wetland habitat. Potential permanent impacts of development of the Study Area can be mitigated by avoidance of building on those areas in which impacts to terrestrial and aquatic resources would be high and/or difficult to replace in the form of compensation for loss of habitat.

The escarpment slopes are a source of surface water seeps feeding watercourses and wetlands. These slopes also provide vegetative cover for wildlife and have been identified as unstable in areas. Recommendations include: 1) maintaining forested vegetation on those steep slopes to provide for slope stability and continuity of forested habitat for wildlife access and 2) the use of appropriate buffers or setbacks from development at the base or top of slope. Development restrictions in the Study Area include 1) maintaining riparian setbacks along watercourses that are important sources of water for the wetlands and for downstream aquatic habitat in the Maplewood Conservation Area and 2) retaining wetlands, such as W1 and W2, which provide important habitat for wildlife and fish and are difficult to replace through development of compensatory habitat that would be required under the provincial Water Sustainability Act and the federal Fisheries Act.

Retention and protection of wetlands W1 and W2 and their associated permanent and ephemeral sources of water are recommended to maintain water resources to the habitat downstream in the MCA. These wetlands and riparian areas provide natural corridors of vegetation cover for the movement of wildlife from through the area and from the MCA. Other ephemeral watercourses may be reconfigured and consolidated, with approvals obtained under the Water Sustainability Act, to provide additional water resources to increase the ecological functioning of the retained watercourses and wetlands. Fish habitat enhancements may be possible within the Study area with the removal of fish passage barriers to improve access from the MCA. Augmentation (through the use of pumps and wells) of water flow and enhancement of habitat will increase the ecological function of the wetlands and watercourses.

Development may occur in areas of lower environmental sensitivity where potential impacts to water resources and wildlife habitat can be minimized on site and without impacting adjacent habitats.
Indirect impacts of development within the Study Area include the potential for disturbance of nesting birds protected under legislation as follows: a) birds and their nests protected under the *Migratory Birds Convention Act* and b) birds and their nests protected under the provincial *Wildlife Act* Section 34. While the nests and nest trees of some bird species are protected all year round, most mitigations include avoidance of noise disturbance of actively breeding birds. Noise disturbance can be mitigated through application of best management practices such as placing buffers around trees with active nests, scheduling construction outside of the bird breeding season near active nests, and avoidance of damage to trees containing nests protected under these two Acts.

The hydrogeological conditions, surficial geology and groundwater occurrences in the Study Area were also investigated. Potential impacts of development within the Study Area on groundwater conditions of surrounding sites such as Hogan's Pools Park and the Maplewood Conservation Area (MCA) were assessed. The assessment involved a review of previous reporting and historical information, monitoring well construction and ground water level monitoring over one year. Salient findings of the hydrogeological study included determination of the character of sediments underlying Hogan's Pools Park. These appear to be hydraulically separated from sediments at the Study Area by a layer of dense till. Development within the Study Area is not likely to impact groundwater conditions at Hogan's Pools Park. Sediments underlying much of the Maplewood North Lands consist of dense till and development there is unlikely to have a strong impact on groundwater conditions on site or in the MCA. Conversely, sediments covering most of the Maplewood Village East area are permeable, and while there is the potential for development to impact groundwater conditions on site and in the MCA, the impacts can be easily mitigated by incorporating storm water infiltration features within the development. Avoidance of deep building foundations in the Maplewood Village East area where the soils are permeable and the groundwater elevations close to the surface is recommended.
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B Hydrogeological Study – Grain Size Analysis
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1. Introduction

McElhanney Consulting Services Ltd. (McElhanney) was retained by the District of North Vancouver (DNV or the District) to provide an environmental and hydrogeological assessment to inform the District’s conceptual land use planning for the Maplewood Lands (the Study Area). The location of the Study Area within the District is indicated with a gold star in Figure 1. Piteau and Associates provided hydrogeotechnical expertise.

![Figure 1. Location of Study Area in the District of North Vancouver, BC](image)

The Study Area is comprised of those areas of land designated as Maplewood Village East, District Lands and the Maplewood North Lands (Figure 2). The Study Area is a relatively undeveloped portion of the Maplewood Area. A school (former International College) lies at the centre of this undeveloped area. Riverside Drive and McCartney Creek ravine mark the west and east boundaries of the study area, respectively. An escarpment roughly marks the northern boundary while Dollarton Highway borders the south side of the study Area.

The Study Area is bordered by several large parks and greenspaces including the Maplewood Conservation Area (MCA) to the south, Windridge Park to the north and east and Hogan’s Pools Park to the northwest (Figure 1). These protected green spaces provide important wildlife habitat connecting mountain and shoreline areas. The Study Area lies directly north of the MCA, a protected wildlife habitat area. The District and the Vancouver Port Authority set aside the MCA due to its regional ecological value as an important bird sanctuary, particularly for migratory birds (BIEAP 2002). Historically, some of the lands within the Study Area have been disturbed by past industrial or other activities. Previous land use and activities area discussed in the Section 3.1 of this report.
The goals of the environmental and hydrological studies were to:

- Identify environmental resources in the Study Area highlighting areas to be conserved with respect to environmental values,
- Identify and assess the hydrogeological conditions underlying the Study Area
- Assess resource values and sensitivity in the Study Area
- Recommend sensitive environmental areas requiring protection or that are not developable
- Identify areas suitable for development in the Study Area
- Recommend mitigations and best practices for development to minimize environmental impacts and retain ecological functions.

Previous environmentally related studies have reviewed the Maplewood Area. The information in these reports and collection of supplemental field assessment information were intended to identify and confirm environmentally sensitive features at the Study Area and provide guidance in the early land use planning stages in order to mitigate environmental impacts of potential development.

The results of the current environmental and hydrological field studies are presented under Section 3, environmental sensitivities and potential impacts on environmental and hydrological resources are presented in Section 4 and 7 and recommendations for development provided in Section 8.

2. **Assessment Methods**

2.1. **Environmental Assessment**

This Environmental Assessment (EA) was comprised of a desktop database study, review of previous environmental reporting and supplemental field studies to complete an analysis of possible impacts of potential development on the Study Area and to inform land use planning.

The desktop study was comprised of reviews of previous studies, the gathering of local knowledge from stewardship groups, and obtaining information from the government databases for environmental data was conducted prior to field investigations. Field investigations were conducted to confirm and expand on the known data for the Study Area and are ongoing to assess seasonal changes.

Specific environmental resources investigated included:

- Location of watercourses, wetlands and other surface water flow.
- Terrestrial vegetation resources.
- Terrestrial wildlife and wildlife habitat features including wildlife trees and wildlife corridors for birds, mammals- and amphibians.
- Presence of habitat of endangered, threatened or vulnerable species provincially or federally designated.
2.1.1. Literature Review

A comprehensive literature review included a review of the following environmental and hydrological studies reports prepared for the District (and others) between 1991 and 2015.

- Biophysical Assessment Maplewood North Property, Dollarton Highway, North Vancouver, BC (2015a), prepared by Keystone Environmental
- Biophysical Assessment (Draft #1) Maplewood North Property, Dollarton Highway, North Vancouver, BC (2014), prepared by Keystone Environmental
- Maplewood Environmental Strategy, Dillon Consulting (2012)
- Forest Ecosystem Mapping and a Framework for Ecosystem-Based Management (2009), BA Blackwell and Associates (Andrew and Green)
- Geotechnical Assessment, Dollarton Highway Realignment, Preliminary Design Stage (1999), AGRA Earth and Environmental
- Environmental Evaluation Hogan's Pools (1993), Triton Environmental Consultants Ltd.
- Environmental Assessment of the Maplewood Area and Proposed Maplewood Business Park (1992), Tera Planning Limited
- Environmental Science Centre and Wildlife Conservation Area Maplewood South Environmental Screening Report (1992), Public works Canada, Architecture and Engineering
- Preliminary Geotechnical / Hydrologic Assessment of the Proposed Maplewood Business Park (1991), Hardy BBT Limited

2.1.2. Stakeholder Workshop

Personnel from the Wild Bird Trust (WBT), who manage public education programs and provide operation and maintenance for the Maplewood Conservation Area were engaged in discussions to determine their organizations concerns and needs associated with the planning and potential impacts of development in the Study Area. A stakeholder meeting was held on June 29, 2016 with representatives from the following organizations:

- North Vancouver Arts Council
- Maplewood Farm
- Advisory Committee on Disability Issues)
- Parks and Natural Environment Committee
- Wild Bird Trust
- Save Our Shores
- North Shore Mountain Biking Association
- Transportation Consultation Committee and HUB
- North Shore Streamkeepers
- Parkgate Community Services Society
- North Shore Black Bear Society
- Nature Vancouver

Environmental and hydrological sensitivities of the local area were among the topics discussed and stakeholder concerns were summarized in the DNV Maplewood Area Plan Summary of Engagement -Phase 1; Maplewood
Stakeholder Engagement (DNV 2016a). Conservation and protection of wetlands and watercourses were items of interest which have been incorporated in the environmental protection and mitigations recommended in this report.

2.1.3. Soils and Terrain

Surficial geology maps for the North Vancouver area published by the Geological Survey of Canada (Canada 1960, Bednarski 2014) were reviewed. Soil coring for ground water level monitoring also provided information on the characteristics of the surficial soils and their derivation.

2.1.4. Vegetation

Vegetation assessments were conducted by field observation. Dominant species in the canopy and understory were noted. Ecosystems were identified through observations of vegetation assemblages throughout the Study Area during the site visit. Provincial vegetation resource inventory (VRI) mapping and other provincial resources listed below were used to supplement data analysis. Wetland vegetation and classified according to the biogeoclimatic and vegetation determined based on potential climax species and soil moisture regimes as identified in Green and Klinka (1994). Wetland classification was conducted according to MacKenzie and Moran (Ministry of Forests (MOF) 2004).

Vegetation Resources

The ecological databases reviewed in the assessment of vegetation resources included the following:

- Biogeoclimatic Ecosystem Classification Subzone / Variant Map for the Chilliwack Forest District (Coast Forest Region) (MOFR 2008),
- A Guide to Site Identification and Interpretations for the Vancouver Forest Region. Land Management Handbook Number 28, British Columbia Ministry of Forests (Green and Klinka 1994),
- VRI Forest Vegetation Composite Polygons (MFLNRO 2016)
- BC Conservation Data Centre (CDC 2016a) iMapBC 2 database of provincially listed plant species including information from the federal Species at Risk Act (Canada 2002) and the Committee on the Status of Endangered Wildlife in Canada [COSEWIC],
- BC Species and Ecosystems Explorer (CDC 2016b),
- E-Flora BC: Electronic Atlas of the Plants of British Columbia (E-Flora BC 2015),
- Non-native invasive plant species (as listed in the Weed Control Act (BC 1996a),
- Field Guide to Noxious and Other Selected Weeds of British Columbia (Cranston et al. 2014),
- Provicially-listed ecological communities at risk (as defined in the BC Species and Ecosystem Explorer) (CDC 2016b).

The BC Conservation Data Center (CDC 2015b), iMapBC 2.0 (2016) and the BC Species and Ecosystems Explorer (CDC 2015a) databases were queried for known at risk ecological communities, vascular plant and non-vascular plant species associated with the Coastal Western Hemlock dry maritime (CWHdm) biogeoclimatic zone. The 'Field Manual for Describing Terrestrial Ecosystems' (MELP 1998) assisted in confirming vegetation assemblages on site. Invasive plant species were also noted.
Listed Species / Ecosystem Designations

The CDC compiles and maintains information on wildlife and plant populations in BC. As part of this system, the CDC assigns a provincial rank or listing that ascribes to each species a ‘red’, ‘blue’ or ‘yellow’ designation based on its population status within BC (CDC 2015a,b). The rankings, described below, highlight the wildlife and plant species as well as natural plant communities that are at risk:

- Red – any indigenous species, subspecies or ecological community that is extirpated (X), endangered (E), or threatened (T) in BC.
- Blue – any indigenous species, subspecies or ecological community considered to be vulnerable or of special concern in BC. Blue-listed elements are at risk, but are not extirpated, endangered, or threatened.
- Yellow – any indigenous species, subspecies or ecological communities that are apparently secure and not at risk.

These designations were used in this report to indicate the status of species and ecosystems observed relative to the provincial and federal listings of species at risk.

2.1.5. Terrestrial Wildlife Resources

A desktop literature review was completed to describe wildlife habitat conditions in terms of habitat suitability, wildlife movement, and/or level of disturbance. The web based databases considered in the assessment of wildlife use of the area and wildlife habitat include the following:

- CDC database of provincially listed wildlife species (CDC 2015a, b), as well as species listed under the federal Species at Risk Act (Canada 2002) and COSEWIC.
- BC Species and Ecosystems Explorer (CDC 2015a).

The Study Area was reviewed for evidence of wildlife including nests, scat, tracks and burrows during field visits for listed and common species. Wildlife and wildlife habitat was assessed for listed mammals, amphibians, reptiles, and terrestrial birds. Species occurrence in this area was determined utilizing procedures outlined in Resources Inventory Standards Committee (RISC) biodiversity inventory methods for presence detection (MELP 1999b). Inventory Methods for Raptors (SRM 2001), Inventory Methods for Owl Surveys (MOE 2006), Inventory Methods for Pond-breeding Amphibians and Painted Turtle (MELP 1998c), and Inventory methods for Forest and Grassland Songbirds (MELP 1999) were reviewed. Modified inventory methodologies were employed to assist in determining presence and habitat use of the site by these various animal groups. Call-playback methods were utilized to detect raptors. Songbirds were identified by their song or by visual identification as encountered along transects. Amphibians were surveyed by nocturnal song and by scraping of upland forest debris adjacent to wetlands. Presence / not detected surveys were conducted to ground-truth potential or known occurrences and to supplement findings of previous studies.

Field procedures included the following:

- The Study Area was reviewed for evidence of wildlife including nests, scat, tracks and burrows during the site visit by visual sweeps along transects. Wildlife and wildlife habitat was assessed for mammals, amphibians, fish, reptiles, and birds and listed species at risk.
- Surveys took place at different times during the active breeding season and at different times of day to account for diurnal variation in wildlife activity.
Locations of wildlife trees, active dens, nests, or wildlife houses identified during the field assessment were georeferenced.

Wildlife habitat conditions were assessed in terms of habitat suitability, wildlife movement, and/or level of disturbance. Observations were completed in a way as to not elicit a response from an individual or alter wildlife behavior.

Seasonal sampling was undertaken to capture seasonal variation in site use. Field work was conducted in March for watercourse delineation and raptor inventory during their active breeding season and in June and July to capture other bird activity on the site and potential amphibian and small mammal use of the site.

Field studies were conducted with respect to seasonal timing anticipated to provide the greatest likelihood of observations. Wildlife and vegetation studies were conducted during the breeding season for birds from the beginning of March to the end of August (MOE 2014). The first field study was conducted on May 5, 2016 providing early morning call-play back for local owls and for a Cooper’s Hawk (*Accipiter cooperi*) known to have been in the area in previous years. Wildlife observations were conducted between dawn and 9 am in the morning when wildlife tend to be most active.

Identification guides were utilized to identify animal scat, markings and remains. Identification of bear tracks and scat, deer tracks and droppings were accomplished through a review of published web information and photos (Cabrera 2016).

**Species at Risk**

Database queries for the known provincially mapped locations for species at risk were conducted to determine if known species at risk were located within the Study Area (iMapBC 2016).

The BC Species and Ecosystems Explorer database was accessed to determine vertebrate and invertebrate at risk species in the Study Area. Habitat preferences were noted for each listed species within the database for the Coastal Mountain Hemlock zone, Metro Vancouver Region (CDC 2015 a,b, E-Fauna BC 2015, E-Flora 2015). During the field investigations, the Study Area was assessed for the presence of habitat for regionally identified federally and provincially listed species at risk.

**2.1.6. Watercourses and Wetlands**

A review of iMapBC 2.0 (2016) and District Geoweb (DNV 2016b) was conducted to determine known mapped drainages and potential water features in the Study Area. Keystone (2014, 2015a) had conducted field surveys within the Maplewood North Land sites for watercourses and wetlands. These watercourses and wetlands were confirmed and identified during site visits.

Watercourses were identified by channel scour, indications of rafted vegetative material and observed water flow. Wetlands were determined by indicator vegetation and soil characteristics. Wetlands include a broad range of ecosystem types from permanently flooded with open water to forested sites with wet soils. Wetlands were identified at the Study Area as areas that are inundated with surface or groundwater at such a frequency and duration that they support vegetation adapted to saturated soil conditions (MOF 2004). Wetlands retain their wetland characteristics even during dry periods of the summer when there may be no water present. Wetlands were identified by the following characteristics: 1) presence of gleying or mottling (determined by augering soil cores to look for prominent grey colour or mottles within 30 cm of the surface in sandy soils (MacKenzie and
Moran 2004)), presence of characteristic wetland vegetation (such as rushes and sedges), and the presence of water. Wetland areas can dry up during the summer and still maintain characteristics. Man made watercourses were mapped as ditches as they are usually straight, of even depth and width, and often border roadways or fencelines.

The provincial Riparian Areas Regulation (RAR) was enacted to protect the integrity of watercourses, water quality and the stream conditions that support fish life processes. Streamside protection and environment areas (SPEA), establish riparian setbacks from development to facilitate the protection of the water quality and riparian conditions that support fish life processes. Watercourses, wetlands and ditches that convey water to fish habitat were surveyed in the Study Area and the riparian assessment methodology was applied. The province enables each municipality, under the Municipal Act, to adopt development policy and bylaws that meet or beat the protective setbacks from watercourses required under the provincial regulation. The District’s OCP Schedule B: Streamside Protection DPA requires a minimum of 15 m streamside protection buffer (setback) though application of the provincial regulations may have prescribed a lesser setback. Determination of fish passage barriers were determined by observations of connections to fish bearing waters, barriers to passage such as blocked culverts, and physical stream characteristics.

2.2. Hydrogeological Assessment

In assessing the hydrogeology and groundwater conditions in the Study Area, numerous investigative techniques were used. Methodologies for each are described in this section.

2.2.1. Literature Review

Previous reports containing information pertaining to geology or groundwater conditions in or around the Study Area were reviewed (see Section 2.1.1) including:


Other sources of information included topographic maps and geology maps of the local area. Information about subsurface conditions was obtained from construction logs for water wells that were historically drilled near the Study area. These well logs were obtained from the BC Ministry of Environment, and the locations of these nearby wells are shown on Figure 3, identified by their respective Well Tag Numbers.

2.2.2. Field Investigations and Data Collection

Two field visits to the Study Area and surrounds were completed by a Piteau hydrogeologist to order to reconnoiter the area and map features pertinent to groundwater and surficial geology.
Subsurface sediments were investigated by drilling six boreholes at the locations mapped in Figure 3. The boreholes were drilled on April 20 and 21, 2016 using a track-mounted environmental drilling rig equipped with a sonic drillhead. This type of drilling applies a high-frequency vibration combined with downward hydraulic pressure to advance a rotating casing. A continuous core of the intersected sediments was collected within an inner core tube for retrieval to the ground surface. Logs showing well construction and sediments encountered are included in Appendix A. Samples of the sediments recovered from the boreholes were collected, and grain size analyses were completed with selected samples. The results of the grain size analyses are included in Appendix B, and these were used to estimate hydraulic properties of the sediments.

![Figure 3. Location of water level monitoring wells throughout the Study Area.](image)

To facilitate measurement of the depth to the water table, the boreholes were converted to monitoring wells by installing standpipes consisting of 2" diameter PVC with slotted lower sections. Washed silica sand was installed around the screened sections and bentonite chips were introduced from the surface to form seals above the sand filters. The monitoring wells were covered with flush-mount well caps seated in concrete at ground surface. The elevation of the top of each flush-mount well cap was surveyed using a surveyor's total station. Elevations were also obtained for three existing monitoring wells.

Manual water level measurements were made using a water level sounding tape, using surveyed well cap as the datum point. These measurements were augmented by deploying transducer-dataloggers in selected wells. The dataloggers were programmed to measure water levels at an hourly interval. The three wells previously installed under a different study, located in the Maplewood North Lands area, were included in the monitoring program.
2.2.3. Data Analysis

Water level measurement data were collated and the results used to prepare two types of mapping: a) maps of lines showing equal depths to groundwater are presented to show how deep the groundwater occurs with respect to the ground surface and b) maps showing groundwater elevations feature contour lines that connect points of equal groundwater elevation (equipotential lines).

Six time-series hydrographs were prepared to illustrate vertical rises and falls of the water table in each of the monitoring wells. In these, differences in water level response can be used to interpret hydraulic characteristics of the sediments. The data were also integrated with observations from the reconnaissance and the literature review to prepare a water balance. This study accounts for surface water and groundwater passing through the Study Area, to estimate potential impacts that may result from physical changes to the land as the Study Area is developed.

2.3. Timing of Studies

2.3.1. Environmental Studies

Field studies were conducted on several dates with respect to seasonal timing anticipated to provide the greatest likelihood of species observations. General observations were made of the relative canopy and understory composition (type and general abundance), along with other observations including but was not limited to watercourses and wetlands, wildlife trees, bird and raptor nests, and wildlife and their habitat.

Watercourse and wetland identification and survey were conducted on March 10, 11 and 14th, 2016, prior to canopy overstory canopy closure, following each drainage using an RTK GPS unit run by a professional surveyor. A Qualified Environmental Professional (QEP) made notes on riparian and watercourse characteristics.

Wildlife and vegetation studies were begun during the bird breeding season. The first field study was conducted on May 5, 2016 providing early morning call-play back for local owls and for a Cooper's Hawk known to have been in the area in previous years. Wildlife observations were conducted early mornings. Site visits also occurred on May 26 and July 29, 2016.

2.3.2. Hydrological Studies

Groundwater level monitoring will continue for a full year to account for potential variation associated with changing seasons. The monitoring wells were installed April 20, 2016. Data from the data loggers are collected quarterly.

3. Description of Existing Environment

3.1. Land Use and Terrain

The Study Area was bounded on the north and east by steep slopes due to the presence of an escarpment (locally known as the Windridge Escarpment). A review of historical aerial photographs indicated that within the Maplewood North Lands, below the escarpment, much of the local topography of the Study Area landscape was
altered by past gravel pit mining. The Maplewood Area was logged in the 1920’s and gravel extraction from the Maplewood North Lands area (once called Dollarton Pit) began in 1929 and continued to the early 1970’s. Once gravel extraction was completed, much of the pit was regraded with undifferentiated fill (described in surficial geology section). A landfill was located on the District owned lands (Figure 2).

The Study Area is mostly undeveloped land but is located in an urban environment. The center of the Study Area has been developed for school grounds (formerly International College). The upper portions of the escarpment have been designated for use as a Municipal Park (Windridge Park) with numerous trails existing along the ridge and down its steep slopes (Figure 2).

3.2. Vegetation

3.2.1. Species Assemblage

Individual plant species observed throughout the Study Area during the May and July 2016 site visits are presented in Table 1. Most of these species are dominant native species in the canopy and understory. Invasive species found in the Study Area are presented in Table 2.

Black cottonwood (Populus trichocarpa) was the most common tree species on site. It is a pioneer species (a species first to establish on disturbed moist sites) and an indicator of high light availability and moist to very moist well aerated soil conditions and its dominance in the forest canopy across the Study Area is an indicator of the high moisture availability in the area. While red alder (Alnus rubra) is also a pioneer species on disturbed moist sites, it has a relatively short life of 70 to 80 years compared to black cottonwood which has a minimum longevity of 200 years (Niemiec et al. 1995).

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Type of Plant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grand fir</td>
<td>Abies grandis</td>
<td>Conifer tree</td>
</tr>
<tr>
<td>Sitka spruce</td>
<td>Picea sitchensis</td>
<td>Conifer tree</td>
</tr>
<tr>
<td>Douglas Fir</td>
<td>Pseudotsuga menziesii</td>
<td>Conifer tree</td>
</tr>
<tr>
<td>Western red cedar</td>
<td>Thuja plicata</td>
<td>Conifer tree</td>
</tr>
<tr>
<td>Western hemlock</td>
<td>Tsuga heterophylla</td>
<td>Conifer tree</td>
</tr>
<tr>
<td>Vine Maple</td>
<td>Acer circinatum</td>
<td>Deciduous tree</td>
</tr>
<tr>
<td>Big leaf maple</td>
<td>Acer macrophyllum</td>
<td>Deciduous tree</td>
</tr>
<tr>
<td>Red alder</td>
<td>Alnus rubra</td>
<td>Deciduous tree</td>
</tr>
<tr>
<td>Black cottonwood</td>
<td>Populus trichocarpa</td>
<td>Deciduous tree</td>
</tr>
<tr>
<td>Bitter cherry</td>
<td>Prunus emarinata</td>
<td>Deciduous tree</td>
</tr>
<tr>
<td>Red-osier dogwood</td>
<td>Cornus stolonifera</td>
<td>Shrub</td>
</tr>
<tr>
<td>Salal</td>
<td>Gaultheria shallon</td>
<td>Shrub</td>
</tr>
<tr>
<td>Dull Oregon-grape</td>
<td>Mahonia nervosa</td>
<td>Shrub</td>
</tr>
<tr>
<td>Indian plum</td>
<td>Oemleria cerasiformis</td>
<td>Shrub</td>
</tr>
<tr>
<td>Common Name</td>
<td>Scientific Name</td>
<td>Type of Plant</td>
</tr>
<tr>
<td>--------------------------</td>
<td>----------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Thimbleberry</td>
<td><em>Rubus parviflorus</em></td>
<td>Shrub</td>
</tr>
<tr>
<td>Salmonberry</td>
<td><em>Rubus spectabilis</em></td>
<td>Shrub</td>
</tr>
<tr>
<td>Trailing blackberry</td>
<td><em>Rubus ursinus</em></td>
<td>Shrub</td>
</tr>
<tr>
<td>Willow species</td>
<td><em>Salix spp</em></td>
<td>Shrub</td>
</tr>
<tr>
<td>Red elderberry</td>
<td><em>Sambucus racemosa</em></td>
<td>Shrub</td>
</tr>
<tr>
<td>European mountain-ash</td>
<td><em>Sorbus aucuparia</em></td>
<td>Shrub</td>
</tr>
<tr>
<td>Common snowberry</td>
<td><em>Symphoricarpos albus</em></td>
<td>Shrub</td>
</tr>
<tr>
<td>Red huckleberry</td>
<td><em>Vaccinium parvifolium</em></td>
<td>Shrub</td>
</tr>
<tr>
<td>Skunk cabbage</td>
<td><em>Lysichiton americanus</em></td>
<td>Herbaceous</td>
</tr>
<tr>
<td>Horsetail</td>
<td><em>Equisetum arvense</em></td>
<td>Herbaceous</td>
</tr>
<tr>
<td>Sweet scented bedstraw</td>
<td><em>Galium trifolium</em></td>
<td>Herbaceous</td>
</tr>
<tr>
<td>Tall blue lettuce</td>
<td><em>Lactuca biennis</em></td>
<td>Herbaceous</td>
</tr>
<tr>
<td>Common rush</td>
<td><em>Juncus effusus</em></td>
<td>Herbaceous</td>
</tr>
<tr>
<td>False Lily of the Valley</td>
<td><em>Maianthemum dilatatum</em></td>
<td>Herbaceous</td>
</tr>
<tr>
<td>False Solomon's seal</td>
<td><em>Maianthemum stellatnum</em></td>
<td>Herbaceous</td>
</tr>
<tr>
<td>Reed canarygrass</td>
<td><em>Phalaris arundinacea</em></td>
<td>Herbaceous</td>
</tr>
<tr>
<td>Creeping buttercup</td>
<td><em>Ranunculus repens</em></td>
<td>Herbaceous</td>
</tr>
<tr>
<td>Black gooseberry</td>
<td><em>Ribes divaricatum</em></td>
<td>Herbaceous</td>
</tr>
<tr>
<td>Soft-stemmed bulrush</td>
<td><em>Schoenoplectus tabernaemontani</em></td>
<td>Herbaceous</td>
</tr>
<tr>
<td>Hardhack (Douglas spirea)</td>
<td><em>Spiraea douglasii</em></td>
<td>Herbaceous</td>
</tr>
<tr>
<td>Foam flower</td>
<td><em>Tiarella trifoliata</em></td>
<td>Herbaceous</td>
</tr>
<tr>
<td>Piggyback plant</td>
<td><em>Tolmiea menziesii</em></td>
<td>Herbaceous</td>
</tr>
<tr>
<td>Cattail</td>
<td><em>Typha latifolia</em></td>
<td>Herbaceous</td>
</tr>
<tr>
<td>Lady fern</td>
<td><em>Athyrium filis- femina</em></td>
<td>Fern</td>
</tr>
<tr>
<td>Deer fern</td>
<td><em>Blechnum spicant</em></td>
<td>Fern</td>
</tr>
<tr>
<td>Sword fern</td>
<td><em>Polystichum munitum</em></td>
<td>Fern</td>
</tr>
<tr>
<td>Bracken fern</td>
<td><em>Pteridium aquilinum</em></td>
<td>Fern</td>
</tr>
<tr>
<td>Fowl bluegrass</td>
<td><em>Poa palustris</em></td>
<td>Grass</td>
</tr>
<tr>
<td>Step moss</td>
<td><em>Hylocomium splendens</em></td>
<td>Moss</td>
</tr>
<tr>
<td>Flat moss</td>
<td><em>Plagiothecium undulatum</em></td>
<td>Moss</td>
</tr>
<tr>
<td>Red-stemmed feather moss</td>
<td><em>Pleurozium schreberi</em></td>
<td>Moss</td>
</tr>
<tr>
<td>Lanky moss</td>
<td><em>Rhytidadelphus loreus</em></td>
<td>Moss</td>
</tr>
<tr>
<td>Contorted pogonatum moss</td>
<td><em>Pogonatum contortum</em></td>
<td>Moss</td>
</tr>
</tbody>
</table>
Historical disturbances associated with forest clearing, gravel extraction and other anthropogenic activities have contributed to the presence and continued stand development of invasive plant species.

Table 2. Invasive plant species observed in the Study Area

<table>
<thead>
<tr>
<th>Common</th>
<th>Scientific Name</th>
<th>Type of Plant</th>
</tr>
</thead>
<tbody>
<tr>
<td>English holly</td>
<td><em>Ilex aquifolium</em></td>
<td>Shrub</td>
</tr>
<tr>
<td>English ivy</td>
<td><em>Hedera helix</em></td>
<td>Herbaceous</td>
</tr>
<tr>
<td>Himalayan</td>
<td><em>Rubus armeniacus</em></td>
<td>Shrub</td>
</tr>
<tr>
<td>Japanese</td>
<td><em>Fallopia japonica</em></td>
<td>Shrub</td>
</tr>
<tr>
<td>Periwinkle</td>
<td><em>Vinca major</em></td>
<td>Herbaceous</td>
</tr>
<tr>
<td>Reed</td>
<td><em>Phalaris arundinaceae</em></td>
<td>Grass</td>
</tr>
</tbody>
</table>

Japanese knotweed has been declared a noxious weed under the provincial *Weed Control Act* (2011). The Act imposes a duty on land owners to control noxious weeds on their property.

3.2.2. Plant Species at Risk

The CDC database was reviewed for occurrences of plant species at risk in the Study Area (CDC 2015a). The provincial database does not list plant species at risk for the Study Area. No provincially or federally listed plant species at risk were observed within the Study Area during field reviews.

3.2.3. Ecosystems

The Study Area lies in the Coastal Western Hemlock dry maritime (CWHdm) biogeoclimatic zone. Logging, landslides, gravel extraction activities, ATV recreation and various other sources of soil and vegetation disturbance over decades have contributed to the development of differently aged forest types within the Study Area. These forests have been mapped using terrestrial ecosystem modelling (TEM) by Andrew and Green (2009) and evaluated for the presence of sensitive ecosystems by Meidinger et al. (2012). A descriptive mapping for the forest vegetation found in the Study Area is presented in Figure 4.

Much of the Maplewood North Lands and the District Owned Lands have been disturbed and now comprise an early-stage forest ecosystem dominated by black cottonwood, red alder, bigleaf maple and sparsely vegetated in the mid canopy by coniferous species such as western redcedar. Sensitive Ecosystem Inventory (SEI) mapping conducted by Meidinger et al. 2012 for this Study Area indicated that much of the forest was comprised of a young stand less than 50 years old and was considered a non-sensitive ecosystem.
Figure 4 Vegetation map: Forest types in the Study Area.
The following are descriptions of the forest types classified and outlined in *Figure 4.*

**Area 1 (Mixed forest deciduous)** was comprised of a mature deciduous overstory of black cottonwood and bigleaf maple in the overstory, western red cedar and western hemlock in the lower and mid canopy and a healthy understory of patches of salmonberry or sword fern or false lily of the valley. This area was mapped by Andrew and Green (2009) as a blue listed ecosystem CWHdm/07 Western redcedar/three-leaved foamflower though the climax status of this forested area is not yet expressed in the current vegetation.

**Area 2 (Mature forest conifer)** was comprised of a very moist mature conifer forest dominated by a stand of primarily western red cedar with a sword/fern understory adjacent to a wetland. This mature forest area exhibited the vegetative characteristics of two provincially red-listed ecosystems; exhibited the characteristics of the red-listed ecosystems CWHdm/05 (western redcedar / sword fern ) and CWHdm/13 (western redcedar / salmonberry ecosystem) (see Section 3.2.4).

**Area 3 (Mixed forest)** occur mostly along the escarpment slopes. These drier steep slopes of the escarpment comprise a mature mixed forest of western hemlock and Douglas fir mixed with mature trees of bigleaf maple and black cottonwood with an understory shrub and herb layer that help to stabilize the soils on the slope. This area was mapped by Andrew and Green (2009) as a blue listed ecosystem CWHdm/07 Western redcedar/three-leaved foamflower though the climax status of this forested area is not yet expressed in the current vegetation. There is also a small area of moist mixed cottonwood and western redcedar forest along Dollarton highway that has been set aside by the District as parkland. This small area is heavily impacted by invasive plants such as Himalayan blackberry.

**Area 4** was a treed swamp fed with water from seeps of the escarpment. Willows (*Salix* sp.) and cottonwood dominate the canopy, and various shrub species typical of wetland areas such as red-osier dogwood, salmonberry, skunk cabbage, and horsetail.

**Areas 5 a, b, c (Young forest)** area of more recent disturbance characterized by a young stand of black cottonwood and some red alder. The understory of 5a (on District landfill) was mostly comprised of Himalayan blackberry with some saplings of western hemlock. This area was mapped by Andrew and Green (2009) as a blue listed ecosystem CWHdm/07 Western redcedar/three-leaved foamflower though the climax status of this forested area (upon which the ecosystem classification is based) is not yet expressed in the current vegetation. Area 5b was a very young stand of black cottonwood with an understory of fowl bluegrass in an understory gradually filling in with blackberry and salmonberry. Area 5c was a maturing black cottonwood forest with occasional saplings to mid canopy conifer species of western hemlock and western red cedar in the understory. The understory was fairly open except in areas of wet soils where hard hack and common reed dominate. Individuals of various invasive species could be seen throughout the area including Scotch broom, English holly and Japanese knotweed.

**Area 6** was a wetland area (treed swamp) with many hummocks (raised portion of ground drier than surrounding depressions) that support mature mixed forest vegetation such as Sitka spruce, western hemlock, and western red cedar as well as wetland indicator species of willows, red-osier dogwood and hard hack.

**Area 7 (Mid-aged deciduous forest)** was a deciduous forest that has developed after gravel extraction operations had seized. A predominantly black cottonwood and big leaf maple forest has developed from the disturbed soils. Salmonberry and Indian plum are common throughout the shrub layer. Occasional saplings of western hemlock and western red cedar are found mid-canopy.

**Area 8** was transitional mixed conifer – deciduous forest contiguous with the riparian area of lower McCartney Creek. Vegetation species included a variety of tree and shrub species such as cottonwood, big leaf maple, red...
alder, red elderberry and salmonberry. This mixed forest was dominated by mature conifers included western hemlock with lesser amounts of grand fir, western red cedar, Sitka spruce and big leaf maple. Understory vegetation was dominated by a mix of sword fern and bracken fern. Other species of note were trailing blackberry, salmonberry, dull Oregon-grape and snowberry.

Of these forest types, the forest assemblages of species that have developed to maturity can be evaluated as ecosystems and classified based on the Ministry of Forests Biogeoclimatic Ecosystem Classification (BEC) system. This classification system is helpful in providing descriptive dominant vegetation and site characteristics. The Province uses this system to identify ecosystems at risk in the province.

### 3.2.4. Ecosystems at Risk

Some ecosystems found in the CWHdm biogeoclimatic zone have been provincially blue and red-listed as ecosystems at risk. Though small in area, some remnants of these sensitive terrestrial ecosystems were mapped by Andrew and Green (2009) in this Study Area. Our site reviews found evidence of these ecosystems though we did not formally identify or map them. The ecosystems at risk within the Study Area are included in Table 3.

**Table 3. Ecosystems at Risk – Forest ecosystems (CWHdm*) observed in the Study Area.**

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>English Name</th>
<th>Site Series as per BEC</th>
<th>BC List</th>
<th>Ecosystem Group</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thuja plicata / Polystichum munitum Very Dry Maritime</td>
<td>western redcedar / sword fern</td>
<td>CWHdm / 05</td>
<td>Red</td>
<td>Terrestrial - Forest: Coniferous - mesic</td>
<td>Slightly dry to fresh / nutrient rich site</td>
</tr>
<tr>
<td>Tsuga heterophylla - Thuja plicata / Blechnum spicant</td>
<td>western hemlock - western redcedar / deer fern</td>
<td>CWHdm / 06</td>
<td>Red</td>
<td>Terrestrial - Forest: Coniferous - moist / wet</td>
<td>Moist to very moist / nutrient poor to medium sites</td>
</tr>
<tr>
<td>Thuja plicata / Tiarella trifoliata Dry maritime</td>
<td>Western redcedar / three-leaved foamflower Dry maritime</td>
<td>CWHdm / 07</td>
<td>Blue</td>
<td>Terrestrial - Forest: Coniferous - moist / wet</td>
<td>Moist to very moist / nutrient rich sites</td>
</tr>
<tr>
<td>Populus trichocarpa - Alnus rubra / Rubus spectabilis</td>
<td>black cottonwood - red alder / salmonberry</td>
<td>CWHdm / 09</td>
<td>Blue</td>
<td>Terrestrial - Flood: Terrestrial - Forest: Broadleaf – moist / wet</td>
<td>Moist to wet, nutrient rich sites</td>
</tr>
<tr>
<td>Thuja plicata / Rubus spectabilis</td>
<td>western redcedar / salmonberry</td>
<td>CWHdm / 13</td>
<td>Red</td>
<td>Terrestrial - Forest: Coniferous - moist / wet</td>
<td>Sites with strongly fluctuating water tables.</td>
</tr>
</tbody>
</table>

** Biogeoclimatic Ecosystem Classification (BEC) (Green and Klinka 1994)
*** Andrew and Green (2009), describes soil moisture and nutrients.

Throughout the District, Andrew and Green (2009) had mapped ecosystem site series (listed in Table 3) as per the BEC system as follows: 425.1 ha of CWHdm / 05, and 13.1 ha of CWHdm / 06, 218 ha of CWHdm / 07 and 8.9 ha of CWHdm / 09. Within the Study Area we also identified areas adjacent to or transitional to a wetland (W2) that exhibited the characteristics of the red-listed ecosystems CWHdm/05 and CWHdm/13 in Area 2: Mature Conifer Forest of Figure 4. Andrew and Green (2009) had also mapped the site series CWHdm/07 in the Study Area though the climax vegetation that would represent this ecosystem had not yet developed here. Though the
ecosystems listed in Table 3 are provincially blue and red-listed as threatened or vulnerable ecosystems, these ecosystems are not protected under provincial legislation but are designated as sensitive ecological areas.

3.3. Terrestrial Wildlife Resources

The Study Area, though located within an urban environment, is connected to greenways, parklands and natural riparian corridors which promote wildlife use and passage. The adjacent Blueridge Creek and McCartney Creek ravines provide a natural corridor for many mammals, birds, fish and other animal species access from shoreline to upstream habitats. Observations of wildlife during the field review for this project were restricted to observable evidence of habitat use or modification. Wildlife trees were defined as trees that had visible signs of nesting or foraging activity located within or very close to the Study Area. Wildlife observations are mapped on Figure 5.

3.3.1. Mammals

Larger mammals typically present in North Vancouver area include black-tailed deer (Odocoileus hemionus), black bear (Ursus americanus), and cougar (Puma concolor) (Green and Klinka 1994). Scat provided evidence of the presence of black bear within Wetland 2 (W2) and Wetland 4 (W4) (See Section 3.6). A check of the list of species observed in the MCA, on the regularly updated post board of the Wild Bird Trust, indicated that a black bear had been seen in the area on June 24, 2016. Other scat observed included that of deer and coyote (Canis latrans). Footprint traces of deer and raccoon (Procyon lotor) were commonly seen in the mud of the wetlands at the study site. No other observations were made of mammals during the field review for this project.

3.3.2. Birds

Bird nesting and foraging activity was observed throughout the Study Area. Field observations included identification of bird calls, observations of bird nests, presence of bird droppings at tree perches, pecking and foraging activity on trees, and observations of flying and foraging within the Study Area. Most birds observed were common to woodlands and forested areas. A raptor kill was observed in the North Lands area. During the nesting season several active nests were observed. Bird calls, nests and other bird observations are mapped on Figure 6.

A pair of Mallard ducks (Anas platyrhynchos), were observed on several occasions swimming in the watercourse fed by seeps on the District owned lands.

Numerous passerines were observed during the field review nesting and foraging. Most commonly heard and observed during site visits were the American Robin (Turdus migratorius), Northern Flicker (Colaptes auratus), Swainson’s Thrush (Catharus ustulatus), Pacific Wren (Troglodytes pacificus), Spotted Towhee (Pipilo maculatus) and the Black-capped Chickadee (Poecile atricapillus). Osprey (Pandion haliaetus), Bald Eagle (Haliaeetus leucocephalus) and Turkey Vulture (Cathartes aura) were observed flying overhead. A feather of a northern harrier (Circus cyaneus) was found within the Study Area though the WBT lists this raptor as rare in the area.

Several other birds observed during the field visits and those known to frequent the area are listed in Table 4 below. None of these species are provincially listed species at risk.
Table 4. Other bird species common to woodlands and forests observed in the Maplewood Area, April through July 2016

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great homed owl</td>
<td><em>Bubo virginianus</em></td>
</tr>
<tr>
<td>Brown creeper</td>
<td><em>Certhia americana</em></td>
</tr>
<tr>
<td>Evening grosbeak</td>
<td><em>Coccothraustes vespertinus</em></td>
</tr>
<tr>
<td>Rock pigeon</td>
<td><em>Columba livia</em></td>
</tr>
<tr>
<td>Northwestern crow</td>
<td><em>Corvus caurinus</em></td>
</tr>
<tr>
<td>Common raven</td>
<td><em>Corvus corax</em></td>
</tr>
<tr>
<td>Stellar's jay</td>
<td><em>Cyanocitta stelleri</em></td>
</tr>
<tr>
<td>Common yellowthroat</td>
<td><em>Geothlypis trichas</em></td>
</tr>
<tr>
<td>Pileated woodpecker</td>
<td><em>Hylatomus pileatus</em></td>
</tr>
<tr>
<td>Varied thrush</td>
<td><em>Ixoreus naevius</em></td>
</tr>
<tr>
<td>Dark-eyed junco</td>
<td><em>Junco hyemalis</em></td>
</tr>
<tr>
<td>California gull</td>
<td><em>Larus californicus</em></td>
</tr>
<tr>
<td>Hairy woodpecker</td>
<td><em>Leuconotopicus villosus</em></td>
</tr>
<tr>
<td>Song sparrow</td>
<td><em>Melospiza melodia</em></td>
</tr>
<tr>
<td>Downy woodpecker</td>
<td><em>Picoides pubescens</em></td>
</tr>
<tr>
<td>Bushtit</td>
<td><em>Psaltriparus minimus</em></td>
</tr>
<tr>
<td>Black throated gray warbler</td>
<td><em>Setophaga nigrescens</em></td>
</tr>
<tr>
<td>Red-breasted sapsucker</td>
<td><em>Sphyrapicus ruber</em></td>
</tr>
<tr>
<td>American goldfinch</td>
<td><em>Spinus tristis</em></td>
</tr>
<tr>
<td>Barred owl</td>
<td><em>Strix varia</em></td>
</tr>
<tr>
<td>Bewick’s wren</td>
<td><em>Thryomanes bewickii</em></td>
</tr>
<tr>
<td>Golden-crowned sparrow</td>
<td><em>Zonotrichia atricapilla</em></td>
</tr>
</tbody>
</table>

3.3.3. **Wildlife Trees**

Many wildlife trees were observed throughout the Study Area. Most wildlife trees showed signs of woodpecker, sapsucker, or Northern Flicker foraging activities. Several trees contained American robins actively nesting. A few wildlife trees had large enough holes that might accommodate a Northern Flicker nest but no such activity was observed around these holes.
3.3.4. Wildlife Species at Risk

The CDC database was reviewed for occurrences of wildlife species at risk in the Study Area (CDC 2015a). The provincial database does not report wildlife species at risk for the Study Area. No federally listed wildlife species at risk were observed within the Study Area during field reviews. However, one individual of the provincially blue-listed Northern Red-legged Frog was observed in the area of watercourse CR7 (see Figures 5 and 6).

A broader search was completed using the CDC BC Species and Ecosystem Explorer (CDC 2015a, b) for species at risk in the Coastal Western Hemlock biogeoclimatic zone of Metro Vancouver area that utilized forested, riparian and wetland habitat. Provincially listed wildlife species that may potentially utilize habitats within Study Area, based on the presence of suitable habitat conditions are listed in Table 5. These species were not observed within the Study Area during the site visit and likelihood is based on habitat subtype availability on-site. However, the Maplewood Lands may provide suitable habitat to listed species in the region as suggested in previous studies (Dillon 2015).

*Table 5. Provincially listed wildlife species at risk potentially occurring in the Study Area based on habitat conditions.*

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Latin Name</th>
<th>Class of Animal</th>
<th>Likelihood of presence in Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Listed Species (extirpated, endangered or threatened):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Johnson’s Hairstreak</td>
<td>Callophrys johnsoni</td>
<td>Insect</td>
<td>Low</td>
</tr>
<tr>
<td>Western Painted Turtle - Pacific Coast Population</td>
<td>Chrysemys picta pop. 1</td>
<td>Turtle</td>
<td>Low</td>
</tr>
<tr>
<td>Keen’s Myotis</td>
<td>Myotis keenii</td>
<td>Mammal</td>
<td>Low</td>
</tr>
<tr>
<td>Pacific Water Shrew</td>
<td>Sorex bendirii</td>
<td>Mammal</td>
<td>Moderate</td>
</tr>
<tr>
<td>Southern Red-backed Vole (occidentalis ssp.)</td>
<td>Myodes gapperi occidentalis</td>
<td>Mammal</td>
<td>Moderate</td>
</tr>
<tr>
<td>Blue Listed Species (Special Concern):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black Gloss</td>
<td>Zonitoides nitidus</td>
<td>Insect</td>
<td>High</td>
</tr>
<tr>
<td>Monarch</td>
<td>Danaus plexippus</td>
<td>Insect</td>
<td>Low</td>
</tr>
<tr>
<td>Northern Red-legged Frog</td>
<td>Rana aurora</td>
<td>Amphibian</td>
<td>High (Observed)</td>
</tr>
<tr>
<td>Pacific Sideband</td>
<td>Monadenia fidelis</td>
<td>Snail</td>
<td>Moderate</td>
</tr>
<tr>
<td>Pacific Tailed Frog</td>
<td>Asaphus Truei</td>
<td>Amphibian</td>
<td>Low</td>
</tr>
<tr>
<td>Scarletback Taildropper</td>
<td>Prophysaon vanatta</td>
<td>Insect</td>
<td>Moderate</td>
</tr>
<tr>
<td>Townsend’s Big-eared Bat</td>
<td>Corynorhinus townsendii</td>
<td>Mammal</td>
<td>Moderate</td>
</tr>
<tr>
<td>Trowbridge’s Shrew</td>
<td>Sorex trowbridgii</td>
<td>Mammal</td>
<td>Moderate</td>
</tr>
<tr>
<td>Western Pine Elfin, sheltonensis subspecies</td>
<td>Callophrys eryphon sheltonensis</td>
<td>Insect</td>
<td>Low</td>
</tr>
<tr>
<td>Common Name</td>
<td>Latin Name</td>
<td>Class of Animal</td>
<td>Likelihood of presence in Study Area</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------------</td>
<td>-----------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>Western Thorn</td>
<td>Carychium occidentale</td>
<td>Insect</td>
<td>Moderate</td>
</tr>
<tr>
<td>Western Toad</td>
<td>Anaxyrus boreas</td>
<td>Amphibian</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

**Protected Nests Under Wildlife Act 34b**

Bald eagle and Osprey are among the species for which their nests are protected all year round under the provincial *Wildlife Act 34b* (BC 1996b). These species are known to nest nearby in the MCA.

### 3.3.5. Other Species

Incidental sightings of the common garter snake (*Thamophis sirtalis*) and invertebrates such as grovesnail (*Cepaea nemoralis*) and chocolate Arion (*Arion rufus*) were recorded and mapped. Amphibian species were surveyed for their presence around the wetland areas. While there appeared an abundance of chorus frog (*Pseudacris regilla*) across Dollarton Highway at the MCA, no chorus frog were heard or observed around the wetlands on the northside of the highway. As mentioned in the wildlife species at risk section of this report, one individual of Northern Red-legged frog was observed near CR7.

### 3.4. Wildlife Connective Corridors

The MCA provides a variety of marine shoreline, fresh and salt water marsh and wooded upland habitats for a variety of birds, as well as other wildlife. The MCA and adjacent parks and green spaces such as the McCartney Creek / Blueridge Creek ravine and Windridge Park act as corridors allowing for the movement of wildlife through the area. Potential wildlife corridors that were observed and are recommended for retention are mapped in *Figure 5*.

### 3.5. Aquatic Species

An incidental observation was made of one coho fry (*Oncorhynchus kisutch*) (*Figure 5.* ) within the watercourse (CR7 on *Figure 6*) adjacent to the escarpment.
Figure 5: Fish and wildlife observations May to July 2016 around the Study Area.
3.6. Watercourses and Wetlands

The impermeable till layer that underlies much of the Maplewood Northlands contributes to higher surface runoff than in the Maplewood Village East area where the surface soils are most permeable. This is discussed in detail in the Section 3.7.2 on Surficial Geology. Past land use as a gravel quarry has also impacted the Maplewood Northlands hydrology and altered the natural drainage patterns. Field observations of channels and drainages throughout the Study Area are of developing watercourses and wetlands that follow pathways associated with old roads, paths, bulldozer and equipment marks and man-made alterations to the topography of the site (Photo 1). These watercourses and wetlands were located and characterized.

Previous studies noted that stormwater drainage ditches collect water from some of the land area on the north side of Dollarton Highway and pass water through culverts to the south side of the highway to flow west towards the Park Street Marsh in the MCA. An assessment of water flows towards the Park Street marsh (Keystone 2007) determined that there was not enough water flow to the marsh during dry periods in the summer months to maintain marsh integrity. As a result a water supply well was developed to artificially supply fresh water to the marsh through the summer months (Keystone 2007). This well was observed in use by MCA in 2016.

Field surveys for wetlands and watercourses in our 2016 survey on the Maplewood North Lands yielded several more watercourses than originally identified in previous environmental assessment reports written in 1992, 2014 and 2015. The watercourses within the Maplewood North Lands were ephemeral, resulting from the gradual collection of upslope overland flow during rainfall events, particularly in winter, and lack of soil permeability to water.

Natural seeps were expected at the base of the slope of the escarpment on the north side of the Study Area, however only one seep was observed to be permanent. This seep was located directly north of the fill site on the District owned lands (Figure 6). The Hardy geotechnical report (Hardy 1991) identified this seep which was observed to be flowing during visits to the Study Area. This seep is considered a permanent source of water providing water to watercourses and wetlands downstream.

General watercourse and wetland characteristics are outlined in Tables 6 and 7. Blueridge and McCartney Creek ravines immediately east of the Study Area tend to maintain flows most of the year to the Burrard Inlet. An estimate of base flow in McCartney Creek is 23 m³/s in winter and 0.16 m³/s in summer (Tera 1992).
Table 6. Watercourses identified and their characteristics as mapped in Figure 6

<table>
<thead>
<tr>
<th>Watercourse/ Ditch Identification Number</th>
<th>Channel Type</th>
<th>Average Channel Width (bank full width (m))</th>
<th>Average Channel Depth (m)</th>
<th>Slope</th>
<th>Watercourse bed composition</th>
<th>Watercourse Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR1</td>
<td>Step Pool (in ravine)</td>
<td>1.0</td>
<td>1.12</td>
<td>Variable 2 to 11 %</td>
<td>Pebble / Cobble</td>
<td>Ephemeral watercourse starts from cross slope ditch (D4) at top of the escarpment. Enters portion of Wetland 4 then flows to Dollarton Highway Ditch culverted to Barge Inlet. Potentially fish-bearing with the removal of barriers and habitat enhancement.</td>
</tr>
<tr>
<td>CR1a</td>
<td>Step Pool (in ravine)</td>
<td>1.55</td>
<td>0.7</td>
<td>12 %</td>
<td>Pebble / Cobble</td>
<td>Ephemeral tributary to ephemeral watercourse (CR 1) from base of escarpment</td>
</tr>
<tr>
<td>CR2</td>
<td>Step Pool</td>
<td>0.5</td>
<td>0.2</td>
<td>20%</td>
<td>Pebble</td>
<td>Ephemeral tributary with a vEery narrow channel starting as an erosional channel from an old quarry road and entering into watercourse (CR1).</td>
</tr>
<tr>
<td>CR3</td>
<td>Step-Pool</td>
<td>1.0</td>
<td>0.4</td>
<td>8 %</td>
<td>Gravel</td>
<td>Ephemeral tributary to watercourse (CR 1)</td>
</tr>
<tr>
<td>CR4</td>
<td>Step-pool / Cascade Pool / Riffle pool</td>
<td>0.35</td>
<td>0.2</td>
<td>Slope varies between 24% at near top of slope, 9.2% mid slope, and 2.8% at the lower slope. Average: 12%</td>
<td>Pebbles, gravel with some silt and organics</td>
<td>Ephemeral watercourse enters Wetland 4 (W4) flows to Dollarton Ditch (D3)</td>
</tr>
<tr>
<td>CR5</td>
<td>Cascade pool / Step pool</td>
<td>1.15</td>
<td>.2</td>
<td>1 to 8 %</td>
<td>Pebbles, gravel with some silt and organics</td>
<td>Ephemeral watercourse enters Wetland 4 (W4) and flows to Dollarton Ditch (D3)</td>
</tr>
<tr>
<td>CR6</td>
<td>Riffle pool</td>
<td>0.5</td>
<td>0.2</td>
<td>2 to 8%</td>
<td>Small gravels</td>
<td>Ephemeral and relatively undefined watercourse in places following gravel pit scars from equipment, marked by wet ground, presence of hardhack and other indicators of moist soils, development of a deep organic horizon in the soil and presence of rafted material.</td>
</tr>
<tr>
<td>Watercourse/ Ditch Identification Number</td>
<td>Channel Type</td>
<td>Average Channel Width (bank full width (m))</td>
<td>Average Channel Depth (m)</td>
<td>Slope</td>
<td>Watercourse bed composition</td>
<td>Watercourse Connections</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>-------------------------------------------</td>
<td>---------------------------------------------</td>
<td>---------------------------</td>
<td>-------------</td>
<td>-----------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>CR7</td>
<td>Riffle Pool</td>
<td>3 to 4 m</td>
<td>0.3 to 1.0</td>
<td>1 to 2%</td>
<td>Silt</td>
<td>Permanent watercourse derived from a seep and influenced by placement of fill. Enters on the northside of wetland 1 (W1). Fish were found here.</td>
</tr>
<tr>
<td>CR8</td>
<td>Partial shallow channelization / Step pool</td>
<td>1.2</td>
<td>0.05-0.15</td>
<td>5 to 25%</td>
<td>Pebbles and small gravels</td>
<td>Ephemeral watercourse starts at the base of escarpment and flows along scars of gravel pit activity, flows to ditch (D2)</td>
</tr>
<tr>
<td>CR9</td>
<td>Partial channelization / Step pool</td>
<td>Variable 1 to 3 m</td>
<td>0.1 to 0.2</td>
<td>5 to 10%</td>
<td>Pebbles and small gravels / organic accumulations along flatter slopes</td>
<td>Ephemeral watercourse starts at base of escarpment and flows along scars of gravel pit activity, flows to ditch (D2)</td>
</tr>
<tr>
<td>CR10</td>
<td>Step-pool / Riffle-pool</td>
<td>0.87</td>
<td>0.17</td>
<td>Slopes above W2: 13% Slopes below W2: 2.5%</td>
<td>Pebbles, gravel with some silt and organics</td>
<td>Ephemeral watercourse enters wetland (W2) flows into wetland (W1) and continues into the wetland culvert to Dollarton Ditch (D1)</td>
</tr>
<tr>
<td>D1</td>
<td>Channelized</td>
<td>2.0 to 2.5</td>
<td>0.5</td>
<td>2</td>
<td>Silt</td>
<td>Ditch leaves wetland (W1) along Old Dollarton Highway as a constructed ditch and conveys flow from the wetland through culverts to W2</td>
</tr>
<tr>
<td>D2</td>
<td>Channelized</td>
<td>0.5 to 1.0</td>
<td>0.2 to 0.4</td>
<td>2- 5 %</td>
<td>Silt</td>
<td>Ditch follows asphalt path north of the school and enters stormwater system</td>
</tr>
<tr>
<td>D3</td>
<td>Channelized</td>
<td>1.0</td>
<td>0.5</td>
<td>1 to 2%</td>
<td>Grass / Silt</td>
<td>Collects stream water and overland flow from the broad slope of the Maplewood North Lands along Dollarton Highway and flows from this ditch are culverted to discharge into the Barge Inlet</td>
</tr>
<tr>
<td>D4</td>
<td>Channelized</td>
<td>2.0</td>
<td>1.0 to 1.5</td>
<td>1 to 2 %</td>
<td>Small gravels / Silts</td>
<td>Ditch created on the north side of an old gravel pit roadway which follows the north property line of the Study Area</td>
</tr>
</tbody>
</table>
Table 7. Characteristics of wetlands observed in the Study Area.

<table>
<thead>
<tr>
<th>Wetland Number</th>
<th>Type</th>
<th>Area (m²)</th>
<th>Topographic position Elevation (m)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Treed Swamp</td>
<td>14,825 m²</td>
<td>5 m (base of escarpment)</td>
<td>Water source from seep from the escarpment area along watercourse CR7 (permanent due to seep source of water)</td>
</tr>
<tr>
<td>2</td>
<td>Treed Swamp</td>
<td>4,885 m²</td>
<td>&lt; 5 m (near flats)</td>
<td>Water source from W1 through culverts along Dollarton Highway and from ephemeral watercourse CR10</td>
</tr>
<tr>
<td>3</td>
<td>Rush and Horsetail Wetland</td>
<td>424 m²</td>
<td>9 m to 14 m (base of upland slope)</td>
<td>Potentially man made wetland which is naturalizing, water source from ephemeral watercourse CR10</td>
</tr>
<tr>
<td>4</td>
<td>Rush Wetland</td>
<td>403 m²</td>
<td>5 to 7 m (lower slope)</td>
<td>Developing in a topographic flat, this developing wetland receives ephemeral water from CR1, CR2, CR3, and CR4 and floods in the winter</td>
</tr>
</tbody>
</table>

The source of surface water and the size of the wetlands found in the Study Area is described in Table 7. W1 and W2 appeared relatively undisturbed in historical aerial photography and seem to have been part of the landscape for many decades. W2 receives ephemeral flow from CR10 and is becoming a naturalized feature within the Study Area. W3 appears to be a manmade feature, rectangular in nature and may have been created during the construction of the Metro Vancouver Sewer line. W4 appears to have been developed from an old gravel road scar during the time that the area was a gravel quarry. However, W4 is now naturalized and receives water upslope from watercourse CR1, CR2, CR3 and CR4 before they dry up in the spring and summer. During the rainy season W4 conveys water to the Dollarton Highway ditch which conveys water through a culvert to the Barge Inlet.

CR1 is connected by a culvert under Dollarton Highway to fish bearing tidal waters. There is currently a barrier to fish movement from this culvert upslope due to depositional fill along the northside of the highway which has become a berm. Also, a few meters upslope of the highway there is another culvert (for an access road) that is partially buried and conveys CR1 from upslope.

A Coho fry was found in CR7. CR7 lies north of W1 and provides water to W1. For a fish to be found at CR7, the route of fish passage must have been through the Park Street Marsh through the culvert under Dollarton Highway into W2, through the culverts and ditches of Old Dollarton Highway into and through W1 to CR7. In the summer most of this route is entirely dry except within the immediate vicinity of the seep and CR7. This suggests that winter time water levels are substantial enough to allow fish passage along this route. However, the apparent seasonal drying and low volume of water from the permanent seep that is the source of CR7, in late spring through summer, may leave fish stranded in remaining pools.
3.7. **Groundwater Hydrology**

3.7.1. **Geomorphology**

Geomorphology is the study of the shape of the land surface and the five main geomorphological units (land features) occurring in the vicinity of the Study Area are described in this section, and their locations are depicted by shaded polygons on *Figure 7*. Relating the land features to surficial geology and groundwater occurrences helps interpret how groundwater moves through an area. The mapping was completed by a combination of field observations made during site visits and topographic maps.

**Escarpment**

The western two-thirds of the northern margin of the Study Area features a steep escarpment, depicted on *Figure 7* as a tan-coloured strip. The topographic gradient is about 60%, with an elevation drop of up to 35m.

**Broad Slope (mostly in the area of the Maplewood North Lands)**

In the eastern portion of the Study Area, the escarpment gives way to a broad slope with a gentle (10%) gradient to the south. A large part of the slope area is a former gravel pit.

**Plain (Maplewood Village East area)**

The west side of the Study Area consists of a broad plain having a low (<5%) topographic gradient.

**Closed Landfill (District owned lands)**

The central portion of the plain is occupied by a closed landfill that rises about 9m above the plain. It is mapped on *Figure 7* as a pink polygon near the centre of the Study Area. The sides of the landfill are steep (about 50 to 70% gradient) while the top surface has gentle slopes.

**Blueridge Creek Valley**

Blueridge Creek flows along a valley outside the eastern Study Area boundary before converging with McCartney Creek. The valley is steeply incised into the sediments, in places up to 8m below the surrounding topography.
Figure 7. Location map of geomorphological units within the Study Area and location of cross sectional lines for subsurface water depth analysis.
3.7.2. Surficial Geology

Surficial geology of North Vancouver was mapped by the Geological Survey of Canada (Canada 1960m, Bednarksi 2014) and is presented in Figure 8. The Study Area is underlain by thick terraced deposits of sand and gravel belonging to the Capilano Sediment lithic group that were deposited by glacial rivers (deltaic outwash and glacial till) during glaciation (Armstrong and Brown 1957). These have been redistributed by postglacial rivers, forming deposits belonging to the Salish Sediment group. River-deposited sand and gravel are permeable, meaning that groundwater can seep through rapidly. These sediments form today’s aquifers. The Salish Sediments also include layers of silty sand and gravel that have been compressed beneath the continental ice sheet. The dense, silty material is called till and groundwater can only seep through it slowly.

Soils derived from these deposits are characterized by medium sand to cobble gravels up to 15 m thick deposited by proglacial streams and commonly underlain by silt to silt clay loam. The area is also designated as a known area of landslides (Armstrong and Hicock 1976). The soil stratigraphy of the area is primarily derived from these glacial deposits of sand, gravel and silts.

Subsurface investigations by Piteau and others (Hardy, 1991; Keystone 2015b, Agra 1999) have confirmed the presence of loose coarse sand and gravel sediments beneath the plain in the western portion of the Study Area to a depth of more than 10m (Photo 2). Occasional interbeds of dense silty sand and gravel (glacial till) or silty sediment are present, but since these constitute a minor component of the sediments, groundwater seepage beneath the plain is generally rapid.

Surficial sediments in the broad slope area consist of dense till, and as a result groundwater seepage in this area is slow.

The upland area lying northeast of the Study Area consists of thick till deposits (Salish) and glacio-marine sediments (Capilano) consisting of sand and silt strata. Till is exposed in the incised Blueridge Creek valley immediately east of the Study Area (Photo 3).

A former landfill was situated in the central portion of the Study Area, identified on Figure 8 as the pink polygon labeled “AN U”. A 1991 assessment (Hardy, 1991) of the subsurface in the landfill indicated the presence of compact sandy soils with roots, stumps, logs, slabs of concrete and asphalt, construction or vegetation debris, organic soil, metal, gravel, cobble, and boulders.
Figure 8. Surficial geology of the Study Area. (from Bednarski 2014).
An historic context to the surficial geology is presented on Figure 9. This figure shows the surficial geology map superimposed on a nautical chart from 1930. A gravel pit is shown on the historic chart, with a dredged barge channel accessing tidewater south of the pit. A small area west of the barge channel was identified as "Sand Dump" in 1930. Since then the filled area has expanded to a 21 Ha portion of the historic intertidal area west of the barge channel.
3.7.3. Hydrological Connectivity

One of the Districts’ objectives for the EA was to identify locations that will likely be sensitive to development at the Study Area. Of particular concern were local areas known to host wildlife and/or provide freshwater aquatic habitat. This study included an assessment of the hydraulic connectivity between the Study Area and nearby Hogan’s Pools and the MCA as analyzed from the following hydrostratigraphic cross-sections.

Hydrostratigraphic cross-sections show the depth of the surface geology across the landscape. Cross sections are used to illustrate subsurface conditions, including the spatial relationships of sediments beneath the ground surface. Rather than a vertical map view, cross sections provide a horizontal view toward imaginary section lines. The three cross-section lines in black shown on Figure 7 are diagramed on Figures 10 and 11 with the ends of each cross-section line labeled by capital letters, for example A-A’.

Section A-A’ on Figure 10 shows sand and gravel deposits, in places cobbly, covering the western portion of the Study Area to a depth of about 22 m. Lenses of dense glacial till are present within sediments beneath portions of the Study Area, but the sand and gravel is present beneath. Hogan’s Pools Park is near the left side of section A-A’, underlain by till.

Section B-B’ on Figure 10 shows the steep escarpment along the northern Study Area boundary (the left side of the red line marked “STUDY AREA”). Glacial till and marine sediments are present in the escarpment, and a layer of till covers underlying sand and gravel in the Study Area.

Section C-C’ shows dense till underlying the broad slope in the western portion of the Study Area to a depth of over 8m at MW15-6 (Figure 11). Buried peat deposits are present in the central portion of the cross section.

Hogan’s Pools Park

Hogan’s Pools Park is situated north of Mt. Seymour Parkway, near the northern end of cross section A-A’ on Figure 10. It is a groundwater discharge area that supports a network of wetlands forming the headwaters of Maplewood Creek (Triton 1993). Most of the stream flows are sourced from groundwater, particularly in late summer. After a long interval with little precipitation, the stream flow is sourced entirely from groundwater discharging in seeps or springs issuing from permeable sand and gravel deposits. This is called a stream’s baseflow, which for some streams is sensitive to competing groundwater users.

Triton (1993) tested sediments in ten auger test holes, and infer the sediments beneath Hogan’s Pools Park to include a layer of dense, till at a shallow depth. This till layer is restrictive to downward groundwater seepage (impermeable), allowing groundwater perched on this layer to maintain its elevation until it discharges in springs to support the baseflow in the watercourses and pools. This till layers also prevents water from ponds and stream channels from rapidly seeping down into the sediments. As depicted on section A-A’ (Figure 10), the till layer presents a hydraulic barrier between Hogan’s Pools Park and the Study Area, allowing water to remain in the pools year-round at a much higher elevation than groundwater within the Study Area.

Maplewood Conservation Area (MCA)

The MCA lies south of Dollarton Highway, along the southern portion of cross section B-B’ (Figure 10). The MCA includes ponds and bird habitat managed by the Wild Bird Trust of British Columbia. A water well (“72330” on Figure 7) is operated seasonally to augment the flow of surface water in watercourses and ponds at the MCA. Beneath the filled areas, surficial geology appears contiguous in the Study Area with the surficial geology at the MCA.
Figure 10. Hydrostratigraphic cross-sections showing subsurface features for lines A-A’ and B-B’ located on Figure 7.
Figure 11. Hydrostratigraphic cross-sections showing subsurface features for line C-C' located on Figure 7.
**Blueridge Creek**

As depicted on section C-C' (Figure 11), sediments exposed in the Blueridge Creek valley include dense till that is restrictive to downward seepage. Where groundwater perched on the till daylights (seeps) in the valley, it contributes to the stream flow.

### 3.7.4. Groundwater Resources and Hydrogeology

**Aquifer Mapping and Water Wells**

Aquifer mapping by the BC Ministry of Environment (MOE) (Kreye et al. 1998) indicates that Aquifer 67 (Seymour River / Lynn Creek Aquifer) lies immediately west of the Study Area. The aquifer is not mapped beneath the Study Area because no wells were present from which to obtain information. The aquifer likely extends east beneath the plain in the western portion of the Study Area. Well logs indicate that the aquifer extends to a depth of 23m in places outside the Study Area.

Locations of water wells are shown by blue symbols on Figure 8, identified by their respective MOE Well Tag Numbers. Driller’s estimated yield estimates for these wells range from 1 to 19 L / s (15 to 300 USgpm).

Sediments beneath the broad slope in the eastern portion of the Study Area comprise dense glacial till having low permeability. These have been explored to a depth of 8.8m in MW15-6. It is not known whether a sand / gravel aquifer is present at greater depths.

Sources of recharge to saturated sediments at the Study Area include precipitation (rain and melting snow), and seepage from up-gradient lithologic units to the north.

**Water Table Mapping**

Data from the monitoring wells were used to map subsurface sediments and measure the depth to groundwater on April 26 and August 4, 2016. The water level data are summarized in Table 8. Relative locations of surficial geology formations and groundwater occurrences at the Study Area are depicted in the cross sections for April 26 and August 4, 2016 on Figures 10 and 11, respectively.

Depth to the water table is presented in Figures 12 and 13 with equal depths to ground water connected by contour lines (equipotential lines). These maps are useful for planning as they identify zones in which the water table is near surface. The water table is shallowest within the 1m contour north and west of the former landfill. Near MW16-02, groundwater flows to the ground surface as a series of springs along the base of the escarpment. The depth to water rapidly increases northward, as the topography of the escarpment rises more steeply than the water table. This relatively steep gradient is indicated by the close spacing of the contour lines. Comparison of Figures 12 and 13 show an increase in the depth to water of about 0.3m to 0.5m across the Study Area.
Table 8. Monitoring well information and water level measurements

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<th>Monitoring Well ID</th>
<th>UTM East</th>
<th>UTM North</th>
<th>Top of Casing Elevation (m-asl)</th>
<th>Depth to bottom (m-btoc)</th>
<th>Date of Data Collection</th>
<th>Depth to Water (m-btoc)</th>
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</table>

Notes:

1 From total station survey by McElhanney (m-asl - metres above sea level).

2 m-btoc – metres below top of casing

Equipotential lines for April 26 and August 4, 2016 are presented on Figures 14 and 15. These show the water levels converted to elevations and the contours of the water table. These maps are useful for interpreting the direction of groundwater seepage, which is always perpendicular to the equipotential lines (from high to low elevation).
Figure 12. Black lines indicate equal depths to ground water derived from monitoring well data taken on April 26, 2016.

Figure 13. Black lines indicate equal depths to ground water derived from monitoring well data taken on August 4, 2016.
The interpreted groundwater seepage direction is generally toward the south and southwest. Comparison of the April and August equipotential maps (Figures 14 and 15) shows that equipotential lines have migrated northward during that interval. The corresponding drop in water table elevation is between 0.2 and 1.0m across the Study Area.

Figure 14. Ground water elevations mapped for April 26, 2016.
Figure 15. Groundwater elevations mapped for August 4, 2016
The ground water levels also appear as blue lines on the cross sections on Figures 10 and 11. On the cross sections the depths to water and hydraulic gradients can be visualized. For example, beneath the plain (right side of Section A-A’ on Figure 10) where gravelly sediments have a high hydraulic conductivity, the corresponding hydraulic gradient is low. Conversely, in till with a low hydraulic gradient (left side of Section A-A’), higher gradients are maintained. The symbol marked “SPRING” on Section B-B’ (Figure 10) denotes an area where the water table intersects the ground surface, and groundwater seeps to the surface.

### 3.7.5. Groundwater Levels

Transducer-data loggers were deployed in six monitoring wells at the Study Area to measure and record water table levels at hourly intervals. The data are presented as a series of hydrographs in Figures 16 and 17.

The water level response to precipitation and tidal events provides some indication of aquifer permeability and confinement. For example, the screened section of MW15-6 is within dense till, and in the corresponding hydrograph (Figure 16), precipitation events do not correspond to water level variations. This indicates that the till unit acts as a confining layer, hydraulically separating the ground surface from saturated sediments at depth. In the current state (undeveloped), the infiltration rate into these sediments is low.

Conversely, the water level in MW16-03 (Figure 17) responds rapidly to precipitation events, confirming that no confining till cover is present in this area. MW16-03 is completed in gravelly sediments that appear to form part of Aquifer 67. Rainfall in this area can readily seep into the soil (infiltrate) to replenish groundwater stores in the aquifer.

In MW16-03 a rapid water level rise of 0.4m occurred in response to a 0.06m rainfall on May 28 and-29, 2016. Assuming all the precipitation infiltrated into the ground, a 0.4m water level rise would require an unrealistically low sediment porosity of 0.15. Porosity is a measure of the void space between sediment grains, and a normal range is 0.2 to 0.3. Accordingly, it can be interpreted that rain water was concentrated in this area, possibly having been transported along the Dollarton Highway ditch system, or running off low-permeability sediments covering the old landfill. This should be taken into account when selecting areas for stormwater infiltration.

MW16-01 is situated in the MCA and its screen is completed in gravelly sediments presumed to be the southeast extension of a nearby provincially mapped aquifer (Aquifer 67). Tidal influence is obvious in the water level record for this monitoring well. The lag time in tidal swings between Burrard Inlet and MW16-01 is 80 minutes. This relatively short lag time indicates high sediment permeability.

The hydrograph for MW16-06 (Figure 17), at the northwestern corner of Maplewood Village East, shows a dampened response to precipitation events, indicating that the 0.7m thick silt layer encountered above the aquifer in this borehole is sufficiently extensive to attenuate the response from the rainfall event.

### 3.7.6. Aquifer Hydraulics

The generally coarse sediments (sand and gravel) encountered in boreholes in the plain (in and around Maplewood Village East) of the Study Area indicate that relatively rapid groundwater seepage rates can be expected. Grain size analyses completed with samples of sediment collected from borehole cuttings are included as Appendix B. The samples were collected from depths between 2.4 and 8.2m below ground level, and hydraulic conductivity (K) values for these sediments were estimated using the Hazen formula. The geometric mean for the nine K values was $9 \times 10^{-2}$ m / s, which is consistent with a coarse, permeable and free draining material.
Figure 16. Hydrograph data (water levels) for three monitoring wells located in the MCA and northward in and around the District owned lands.
Figure 17. Hydrograph data (water levels) for three monitoring wells located in and around the west side of the Study Area in the Maplewood Village East.
3.7.7. Groundwater Flow Modelling

The rate at which groundwater seeps through sediments is controlled by the hydraulic gradient and hydraulic conductivity. The hydraulic gradient is the ratio of the difference in water table elevation to the distance between two points. If the water table is very flat, this means the gradient is low. Hydraulic conductivity is a measure of how easily water can seep through sediments. Sand and gravel have high hydraulic conductivity, whereas silt and clay have low hydraulic conductivity. For a given hydraulic gradient, more water will seep through sediments having a high hydraulic conductivity than through sediments with a low hydraulic conductivity.

Groundwater generally seeps toward the Study Area from the upland to the north. The higher hydraulic gradient in sediments north of the Study Area results from the presence of glacial till and marine deposits, both having relatively low hydraulic conductivities, within upland sediments. In sediments beneath the plain in the western portion of the Study Area, the hydraulic conductivity is very high, allowing seepage from upgradient sediments to be accommodated, even at a lower hydraulic gradient.

Groundwater seeping south from the Study Area passes beneath the MCA. This seepage from north to south represents an important source of recharge to the aquifer underlying the MCA. The aquifer, in turn, is the water source for the MCA augmentation well.

At the base of the slope near MW16-02, groundwater discharging from a series of seeps and springs feeds small watercourses. During the summer months, the watercourse draining west of the landfill has no surface outlet, indicating that the water not consumed by evapotranspiration is re-infiltrated into sandy sediments in the flat area south of the escarpment.

The largest source of recharge to the aquifer underlying the Study Area is seepage from upgradient sediments north of the Study Area. A secondary source of recharge is precipitation. The hydrographs in Figures 10 and 11 indicate that across the plain in the western portion of the Study Area (Maplewood Village East area), infiltration is rapid. Conversely, infiltration rates in the broad slope area in the eastern part of the Study Area (Maplewood North Lands) are low.

3.7.8. Water Balance

A water balance that accounts for groundwater and surface water flows passing through the Study Area is presented as Tables 10 and 11 in Appendix C. Table 10 models the fate of precipitation at the Study Area, accounting for soil moisture and losses through evapotranspiration and runoff. Table 11 incorporates these results, in addition to seepage through the aquifer and monthly storage within it.

An estimate of the seasonal water level fluctuation was required to estimate monthly volumes of groundwater moving into and out of storage in the aquifer. This was obtained from the water level trend, which indicated the rate of water level recession at MW16-03 during July was 0.0050 m / day. This rate of decline extrapolated for a 120-day interval is 0.60m, and this was used to calibrate the seasonal storage factor in the water balance.

The balance indicates groundwater is continuously seeping beneath the Study Area at a rate ranging from about 62 L/s (985 USgpm) to 137 L/s (2180 USgpm). This flow seeps under Dollarton Highway and south to discharge into Burrard Inlet.
4. Environmentally Sensitive Resources

A variety of environmentally valuable resources were assessed in this EA including, but not limited, to vegetation, ecosystems, wildlife and habitat, sources of water and presence of watercourses, and fish habitat. Environmentally sensitive features have special attributes worthy of retention or special management attention to protect their value. Criteria considered in the identification of potentially environmentally sensitive features mapped for the Study Area in Figure 18 included: 1) disturbance regime of the biotic communities observed including minimally disturbed areas and/or areas with diversity for a specific habitat type. These biotic communities may contain elements of conservation concern including species at risk and/or ecosystems at risk, wetlands or riparian areas; 2) ecological functioning needed to maintain a healthy ecosystem including provision of habitat, biodiversity, water supply, or corridor for wildlife within the system, 3) habitat or ecosystem providing representative habitat for wildlife of recognized significance and 4) presence of wetlands and watercourses including key areas that contribute to water quality, water quantity, and biological connectivity (MOE 2014).

The environmentally sensitive features map presented here (Figure 18) incorporates the above mentioned considerations together with the District’s development permit guidelines and environmental protection legislation. The District has DPA guidelines for locating development away from a) habitat for species at risk, b) mature stands of trees, c) raptor’s nesting sites, d) wetlands, and e) wildlife corridors.

Sensitive features found within the Study Area and discussed below include: steep forested slopes, wetlands, watercourses and riparian areas, mature forested ecosystems- at- risk, and wildlife habitat and raptors nests within 100 m of the Study Area.

Steep Slopes of the Escarpment

- The escarpment provides water seeps that flow to wetlands and provide wildlife habitat. We recommend the use of appropriate buffers from development at the base or top of slope (20 m as per the OCP or more as directed by a geotechnical expert) and maintaining forested vegetation on those steep slopes to provide stability and continuity of forested habitat for wildlife access.

Vegetation Resources/ Forest Ecosystems

- Area 2 on the vegetation mapping (Figure 4) comprises a mature forest with the features of two provincially red-listed ecosystems at risk. This area is designated as a non-developable area due to its unique nature in the landscape, its immediate connectivity to wetlands (W1) and watercourses (CR7) and use as wildlife habitat and corridor and is designated as an ESA feature (Figure 18). No buffer has been placed on this forest ecosystem on the ESA mapping but it is bordered on three sides by other buffered sensitive features (steep slopes, wetlands, and watercourses).

Terrestrial Wildlife Resources

- Suitable habitat was observed for a variety of wildlife adapted to urban forests. Evidence of the presence of black-tailed deer, black bear and smaller animals such as raccoons left evidence of tracks in the wetlands within the Study Area.

- The forested and riparian areas provide nesting and foraging habitat for numerous bird species both resident and migratory.
• Bald Eagles and Osprey nest along the shores of the MCA. An known eagles’ nest lies within 100 m of the Maplewood North Lands outside of the Study Area.

• Wildlife trees were observed throughout the area including nest trees and trees with obvious foraging marks.

• Provincially listed wildlife species may potentially utilize the Study Area due to the presence of suitable habitat conditions.

• Wildlife habitat connectivity (corridors) exist as the Study Area is bordered by several large greenspaces including the MCA, Windridge Park and the Blueridge Creek/ McCartney Creek ravine to the north and east and Hogan’s Pool Park to the north west. These protected green spaces provide wildlife habitat and creation of greenways or habitat corridors along riparian areas within the Study Area, as recommended in Figure 5, will facilitate habitat linkage from the coastline to the mountains.

**Water/Aquatic Resources and Habitat**

• W1 and W2 are not readily replaceable as fish and wildlife habitat and are designated in this study as non-developable areas (Figure 18).

• An apparent permanent seep coming from the escarpment provides water to CR7 and W1. This escarpment provides a water source for downstream systems and the riparian area of CR7 and the wetland are a natural wildlife corridor. This riparian corridor has as 15 m protective buffer on both sides as per the OCP DPA guidelines.

• Habitat for salmonids was found for W1 and W2. CR1 is expected to provide habitat for salmonids but culvert passage may be blocked or partially blocked. Access and habitat improvements would be required to provide improved habitat functionality particularly with respect to blocked culverts.

• Consolidation and reconfiguration of existing drainages to enhance seasonal flows into retained watercourses CR1 and CR10.

• Listed wildlife species, such as the Northern Red-legged Frog, may potentially utilize the wetlands, watercourse and other suitable habitat within the Study Area.
5. Regulatory Considerations for Development

Several environmental statutes, regulations, and bylaws were reviewed for applicability in order to determine potential environmental protections that may be applicable to this Study Area and its future development. These are discussed and referenced with respect to potential impacts of development and mitigations. These include the following:

5.1.1. Federal

- The federal *Migratory Birds Convention Act* (MBCA) (Canada 1994) protects migratory birds and their nests during the bird breeding season. This Act prohibits the disturbance, destruction, or possession of migratory birds, their nests, or eggs. In addition, migratory bird habitat is protected under the MBCA which prohibits the deposit of oil, oily waters, or other substances harmful to migratory birds in any areas that they frequent.
- The federal *Fisheries Act* (Canada 1985, amended 2013) protects fish and fish habitat. The *Fisheries Act* and supporting policies aim to protect and manage fish habitats that support freshwater and marine fisheries associated with commercial, recreational or Aboriginal fisheries. The *Fisheries Act* regulates activities that affect fish or fish habitat including permanent alteration or destruction of habitat and deposition of deleterious substances into fish-bearing waters. Recent amendments to the *Fisheries Act* in 2012 shifted Fisheries and Oceans Canada’s (DFO) emphasis from a broad-based protection of fish habitat to one that prevents serious harm to fish that are part of a fishery or to fish that support such a fishery. If a project cannot avoid serious harm to fish through mitigation measures, a DFO authorization is required. A DFO project review request can be submitted to the agency for determination if the project is deemed to require an authorization under Paragraph 35(2)(b) of the *Fisheries Act*. Under Paragraph 35(2)(b) of the *Fisheries Act*, the Minister of Fisheries and Oceans Canada may issue an authorization with terms and conditions in relation to a proposed work, undertaking or activity that may result in serious harm to fish. Habitat offsetting (development of new habitat) or compensation would be required to obtain a DFO authorization for such a project.
- The federal *Species at Risk Act* (Canada 2002) protects wildlife and wildlife habitat listed as threatened or endangered on federal lands. Federal lands are subject to the protection of species listed under Schedule 1 of SARA as extirpated, endangered or threatened (Canada 2002). It is an offence to kill, harm, harass, capture or take an individual, and that species has legal protection related to the species’ residence and critical habitat as specified in SARA.

5.1.2. Provincial

- The provincial *Wildlife Act* (BC 1996a), Section 34, protects birds and their nests during the bird breeding season as well as the nests, nest trees and eggs of certain species of raptors all year. The provincial *Wildlife Act* Designation and Exemption Regulation (BC 2014), which indicates exemptions from permitting required under the *Wildlife Act* for nuisance wildlife.
- The provincial *Water Sustainability Act* (BC 2015), which governs works in or about a stream, surface water use, and diversions of water
- The *BC Weed Control Act* and Weed Control Regulations which require control of designated noxious plants (MOA 2013).
- The provincial *Riparian Area Regulation* B.C. Reg. 376 / 2004 (Section 12 of the *Fish Protection Act*), establishes protective riparian areas or streamside protection areas to support fish life processes. The province requires local governments to protect streamside areas from development activities through adherence to the provincial requirements, at a minimum, at a local level.
5.1.3. Municipal

- *District of North Vancouver OCP* (DNV 2014) guides planning and decision making for development within the District. As a municipal bylaw, it establishes policy and requirements concerning protection of the natural environment which is outlined in the OCP Schedule B Development Permit Areas. The DNV OCP outlines development permit areas for hazard lands and areas of environmental sensitivity such as streamside protection. The DNV OCP Schedule B policy concerning development around steep slopes is to avoid building a minimum of 20m setback from the base of a steep slope (>36% slope) (DNV 2014). On a site by site basis a geotechnical engineer’s evaluation of a development setback beyond the minimum 20m from the toe of slope is required.

Schedule B also provides guidelines that apply towards the protection of the natural environment DPA which locates development away from wildlife species at risk habitat, mature stands of trees, raptor nesting sites, wetlands, and wildlife corridors. The Streamside Protection DPA, which regulates development activities in and near watercourse to protect the aquatic environment, requires a 10m, 15m or 30 m streamside protected area from top of bank of a watercourse. For this study, a minimum 15m streamside protection buffer (setback) from the top of bank of retained watercourses is recommended.

All development plans must be compliant to municipal, provincial and federal legislation for the protection of the environment. Approvals, permits and authorizations must be obtained to for potential impacts to or modification to environmental resources that are protected under this legislation.

6. Potential Impacts of Development

6.1. On Environmental and Biological Resources

Potential impacts of development on environmental features include:

- Loss of contributions of the escarpment to water resources and wildlife habitat
- Loss of surface water flow to wetlands and fish habitat
- Loss of potential fish rearing habitat
- Loss of remnant forest (ecosystem at risk) that is important wildlife habitat (species at risk)
- Potential to spread invasive plant species existing on site.

6.2. On Hydrological Resources

Potential impacts on stream flows and aquifer recharge that could result from the proposed development include:

- Alteration of the groundwater flow regime;
- Impacts on water quality by urban stormwater being discharged to local watercourses;
- Increased stream peak flows resulting from surface hardening;
- Lower aquifer water levels and reduced stream base flows due to diversion of water that would have recharged aquifers.
7. Environmental and Hydrogeological Considerations for Development

The developable areas of the ESA map (Figure 18) are the unmarked areas of the map after applying protective buffers (or setbacks) to the identified ESA’s that may be expected under provincial legislation or as District development permit requirements (DNV 2014). Though these areas may be identified as developable in this report, they contain vegetation, water and wildlife habitat resources requiring permits and approvals from regulatory agencies in order to be modified or otherwise altered or removed. Proposed or planned development must take into account risks associated with proximity to steep slopes (potential for landslide), the surface drainage and groundwater characteristics, and the wildlife and fish habitat that was present in the Study Area.

7.1. Environmental Considerations

7.1.1. Surface Water Resources

All of the watercourses within the Study Area were ephemeral (with the exception of CR7 which is fed from a groundwater seep). Important groundwater and drainage features within the Study Area include the seepage site and the drainage channels which have become ephemeral watercourses. These features convey water flow to marshes and fish bearing habitat in the MCA, particularly in the winter wet period. Water quality and quantity of water leaving the Study Area to this sensitive habitat must be maintained or improved. The quality of water entering fish bearing habitat is regulated under the federal Fisheries Act and the provincial Water Sustainability Act.

Development setbacks to protect watercourses and their riparian areas from development are recommended for CR7, CR10 and CR1 and for the wetlands, W1 and W2. The District’s OCP Schedule B: Streamside Protection DPA requires a minimum streamside protection buffer which, for this study, was determined to be 15m from the top of bank on either side of a watercourse. These buffers from development are included on Figure 18 as riparian buffers for the Study Area. Under the Water Sustainability Act approvals can be obtained from the Ministry of Forest, Lands, and Natural Resource Operations (FLNRO) to divert or move watercourses, particularly with respect to stormwater management around development. Habitat offsets or compensated area can be developed under the approvals and conditions set by FLNRO and DFO (if fish habitat is impacted). Watercourses and riparian buffer areas can be crossed by roads using culverts or bridges with approval from FLNRO.

As fresh water and fresh water habitat are under the jurisdiction of the Province, alterations to watercourses (diversion, piping) and wetlands (infill, diversion, rehabilitation) requires approvals from FLNRO and the Ministry of Environment. As wetlands provide habitat for variety of species of mammals, birds, amphibians and invertebrates, approvals to alter or infill (with compensation for lost habitat) may be obtained through applications to the Ministry of Environment and the Fish and Wildlife branch of FLNRO.

7.1.2. Fish and Wildlife Resources

Impacts to wildlife and wildlife habitat are legislated under the provincial Wildlife Act and the federal Species at Risk Act (SARA). No legislation exists to protect wildlife trees or wildlife habitat for unlisted species except as outlined in these Acts.
Numerous nests of bird species were found within the Study Area but none were observed on site that were protected under the *Wildlife Act Section 34b* provision for the year-round protection of nests of specific species such as the Bald Eagle and the Osprey. However, a Bald Eagle nest was located within 100 m of the Study Area that may require development buffers as outlined in the ‘Develop with Care’ guidelines (MOE 2014). Also, while unmarked areas on *Figure 18* are areas of low environmental sensitivity, it is possible that a situation may occur, such as a Bald Eagle building a nest within the Study Area, that could alter the developable area boundaries in the future. A breeding and migratory bird survey is recommended in advance of tree clearing or development of the area to avoid conflict with *Wildlife Act Section 34* or birds listed under the *MBCA*. It is further recommended that tree clearing or noisy construction activities be conducted outside the bird breeding window typically September 1 to February 29 of any year (MOE 2014). A qualified environmental professional may be engaged to conduct the surveys and prepare nest management and monitoring plans to mitigate potential risks.

Wetland 1 (W1), CR7 (a water resource and fish habitat) and the forested ecosystem-at-risk adjacent to it are natural environmental features that are to be protected under the DNV’s Natural Environment DPA, Streamside Protection DPA, and under the *Fisheries Act* and the provincial *Water Sustainability Act*, as these habitats are connected or adjacent to fish habitat and provincial species at risk habitat (Northern Red-legged frog).

### 7.2. Hydrogeological Considerations

#### 7.2.1. Alteration of the Groundwater Flow Regime

Residential and commercial developments present the potential to alter local groundwater flow regimes, and Hogan’s Pools Park and MCA have been identified by the District as areas in which impacts from development are to be prevented. Impacts could occur if excavations below the water table involve long-term dewatering of saturated sediments to lower the water table, or if a large amount of stormwater is diverted from infiltrating into the ground. Provided that these conditions do not occur, the risk of development of the Study Area to impact groundwater conditions at Hogan’s Pools Park and MCA is low.

In summary:

- Sediments at Hogan’s Pools Park appear to be hydraulically separated from sediments at the Maplewood Study Area by a layer of dense till. Development of the Study Area is not likely to impact groundwater conditions at Hogan’s Pools Park.
- Sediments at the MCA appear to be contiguous with sediments at the Study Area. Groundwater seeps southward from the Study Area to replenish groundwater supplies at the MCA. Development of the Study Area has the potential to impact groundwater conditions at MCA by hardening of surfaces in the western portion (Maplewood Village East) of the Study Area. This can be mitigated by incorporating design elements for stormwater infiltration.

#### 7.2.2. Impacts on Water Quality

Runoff from residential and commercial developments has the potential to impact downstream water quality either by introducing pollutants, decreasing opportunities for passive attenuation, or both. Pollutants that can be introduced in a residential setting include suspended solids, petroleum from automobiles, and bacteria from animal waste. Natural attenuation of these contaminants can be decreased because hardened surfaces such as
asphalt and sidewalks offer fewer opportunities for processes such as bacterial biodegradation, adsorption, and physical straining.

Water quality impacts from the proposed Maplewood development can be mitigated through the use of design elements such as rain gardens, bio-swales, filter strips, and vegetated retention ponds.

7.2.3. **Increased Watercourse Peak Flows**

Peak watercourse flows generated during rain events can increase as land is developed because runoff from hardened surfaces reaches an outfall more rapidly than runoff from undeveloped land. The peak runoff flow from undeveloped land is attenuated by the vegetated surface and by water percolating into the ground. In contrast, runoff from hardened surfaces reaches an outfall very rapidly unless engineered structures are placed along its path to delay the flow.

Attenuating watercourse flows would require the use of engineered structures to infiltrate as much rain water as possible into the ground. Since the ground consists of sand and gravel deposits, the infiltrative capacity in the Maplewood Village East area will likely be very high. Design elements such as infiltration trenches, soakaway pits, bio-swales, and filter strips will be effective provided that a sufficient thickness of unsaturated granular material is present to accommodate water table mounding. Till-covered areas in the Maplewood North Lands will not be suitable for stormwater infiltration, and detention ponds may be required to provide temporal storage for storm runoff.

7.2.4. **Lower Aquifer Water Levels and Reduced Watercourse Base Flows**

During the summer when precipitation rates are low, watercourses rely on groundwater discharging from aquifers as springs or seeps to sustain their flow. At the Study Area, groundwater discharges support fish habitat in local wetlands and watercourses. Residential and commercial developments have the potential to impact groundwater levels and discharge rates by diverting water that would have percolated down to replenish the aquifers that are the sources for the seeps and springs.

Mitigating impacts on watercourse flows and aquifer levels as the Study Area is developed will mean avoiding the use of conventional storm drain pipes to convey rain water off the Study Area. Rain water should instead be infiltrated into the ground at every opportunity where where it would be practicable based on sediment types and groundwater levels. For example, features like infiltration trenches, soakaway pits, bio-swales, and filter strips would likely be effective in portions of Maplewood Village East. Flows are most readily absorbed when distributed among numerous infiltration features distributed over a large area, rather than concentrated in a few large features. Infiltration features should be sized to accommodate most typical rainfall events, with only peak events clipped and discharged to a storm drain to prevent flooding.

While the sediments underlying the Maplewood Village East area are generally permeable, some areas are subject to a seasonal water table near ground surface. If these areas are to be developed, placement of granular fill will be required to provide unsaturated thickness for rain water infiltration. Infiltrating substantial amounts of stormwater through the till in the eastern portion of the Study Area will not be feasible, but since infiltration rates are low in the current (undeveloped) condition, no significant impact on infiltration rates is anticipated as the eastern area is developed.
7.2.5. Potential for Watercourse Flow Augmentation

Watercourse within the Study Area receive a portion of their flows from groundwater sources. After long intervals with little precipitation, such as late summer, water flow is supplied by springs and seepages along the banks and bed of the watercourses. In some municipalities, aquatic habitat for fish has been improved by augmenting the water flow during low-flow times. Groundwater sources are valuable for this purpose because groundwater temperature fluctuates less than surface water temperature, so springs provide a source of cool water to help regulate stream temperatures on hot days.

Hydrostratigraphic conditions at the Study Area present several options for augmenting flow to surface water watercourses. The maps showing the depth to the water table (Figures 10 and 11) can be used for planning augmentation features.

Diverting groundwater at a rate of up to 3 L / s (50 USgpm) for watercourse augmentation is not likely to impact recharge to the aquifer beneath the MCA, since the estimated seepage rate through the aquifer is an order of magnitude larger, and since a portion of the flow may reinfiltrate into the aquifer lower in the watercourse channel. Accordingly, groundwater can be used to augment stream flows at rates of up to 3 L/s without dedicated structures to reinfiltrate this flow.

To augment flows in watercourses, groundwater could be pumped from wells drilled in the aquifer. Existing wells south of the Study Area have driller’s yield estimates of up to 19 L / s (300 USgpm), and productive wells could likely be constructed in the aquifer at the Study Area.

It may be possible to obtain a water source that supplies water without pumping by developing the spring near MW16-02. This could be accomplished by capturing the seepage in a French drain with a single outlet pipe.

Excavating beds of existing wetlands below the water table would result in their retaining water year-round.

8. Summary of Recommendations

The following are a summary of recommendations concerning the protection of environmentally sensitive features within the Study Area and potential development considerations:

8.1. Environmental

- Retain W1 and W2 and the watercourses that supply them. Provide protective riparian buffers which will also act as wildlife corridors connecting the MCA with upslope forest habitat. The connecting ditches also provide for fish passage and should be maintained for fish passage.

- Retain CR1 and the associated wetland (W4) and provide improved fish access and develop rearing habitat for salmonids.

- Reconfigure and consolidate ephemeral drainages within the Maplewood North Lands to improve retained watercourses such as CR1 and CR10 to a higher level of ecological function.

- Enhance the vegetative character of the riparian area of retained watercourses.

- Retain mature conifer forest at Maplewood Village East as it appears comprise a provincially listed ecosystem at risk and has high value as wildlife habitat.
• Buffer the steep slopes of the escarpment from development and retain the forest on these slopes for greenway and wildlife habitat connectivity.

• Manage surface and groundwater resources with low impact stormwater management techniques and avoidance of deep building foundations which may require water management that could impact the ground water resource, particularly within the Maplewood Village East area.

• Ensure compliance to Wildlife Act 34 and the Migratory Birds Convention Act by avoiding disturbance of breeding birds during development activities.

Buffer areas for the protection of environmental features should include measures to restrict human access or use so that they maintain some ecological functionality for wildlife.

8.2. Hydrogeological

The broad slope area occupies much of the Maplewood North Lands. Dense till present in this area has low permeability and allows little infiltration of precipitation. As a result, in its current (undeveloped) state, rainfall infiltration rates into sediments in this area are low. Accordingly, development of the till-covered slope area is not likely to impact groundwater conditions. The potential to infiltrate stormwater in this area is also low.

We anticipate that the feasibility of stormwater infiltration will be limited in areas having a shallow water table unless granular fill is placed. Construction of buildings with foundations penetrating the water table should be avoided.

The opposite is true of sediments underlying the plain in the Maplewood Village East area, where the potential to infiltrate stormwater appears to be high provided that a sufficient thickness of unsaturated granular sediment is present to accommodate mounding. Mounding occurs as the water table rises in response to water infiltrating from the surface. Modification of the ground surface, such as placement of low-permeability fill, could result in reduced infiltration rates.

The presence of coarse, permeable and free draining material in the Maplewood Village East area has several implications that may be pertinent to designing features within the development, for example:

• water features involving impounded water above the water table, such as for decorative ponds, will need to be lined to prevent water from rapidly seeping out;
• construction that relies on conventional perimeter drains for dewatering will not be suitable below the seasonal high water table, as the resulting groundwater inflows would be very large;
• stormwater can be rapidly discharged through constructed infiltration features provided that a sufficient thickness of unsaturated granular material is present.

Construction of buildings with foundations penetrating the water table should be avoided. We anticipate that the feasibility of stormwater infiltration will be limited in areas having a shallow water table unless granular fill is placed. However, provided that a sufficient thickness of unsaturated granular sediment is present to accommodate mounding the potential to infiltrate stormwater appears to be high. Mounding occurs as the water table rises in response to water infiltrating from the surface. Modification of the ground surface, such as placement of low-permeability fill, could result in reduced infiltration rates.

In Summary

• Sediments beneath the broad slope occupying much of the Maplewood North Lands consist of dense till to a depth of more than 8m. The till limits infiltration of water, and development in this portion of the Study Area
is unlikely to strongly affect groundwater conditions. Detention ponds may be required to provide temporal storage for runoff from hard surfaces.

- Sediments beneath the plain occupying much of the Maplewood Village East area consist of permeable sand and gravel. Hardening of surfaces in this area is likely to impact the volume of water infiltrating into the ground unless this is mitigated through the use of design elements for infiltrating stormwater and recharging groundwater.
- Impacts to water quality, stream peak flows, stream baseflows, and aquifer water levels can be mitigated by incorporating design elements for infiltrating stormwater in the proposed development. Features include infiltration trenches, soakaway pits, bio-swales, filter strips, rain gardens, bio-swales, vegetated retention ponds, and detention ponds.
- In drained excavations penetrating the water table in the western portion of the Study Area (Maplewood Village East), substantial inflows of groundwater can be expected.
- Opportunities for stream flow augmentation include well construction or spring development. Wetlands could be reconfigured to retain water year-round by deepening them.

9. Conclusions

The environmental assessment found that the Study Area provided terrestrial and water habitat and resources for local and migratory birds as well as habitat for a variety of other animals. Also, the Study Area was a source of water, conveying surface water flows during the winter rainy season to the MCA, and contained watercourses that may be enhanced to provide improved winter rearing habitat for salmonids. The watercourse, CR1 and the wetlands, W1 and W2, and their upslope water sources (CR7 and CR10) were considered highly sensitive riparian and fish and wildlife habitat that must be retained and undeveloped. These areas also provide green corridors for wildlife movement to and from the MCA to upslope forests. The mature conifer forest adjacent to W1 is comprised of sensitive red-listed ecosystems at risk and important habitat for wildlife, including species at risk. Other environmentally sensitive features included the forested and steep escarpment slopes that are protected under the Steep Slope development permit guidelines of the District's OCP.

Potential direct environmental impacts of development include permanent loss of wildlife habitat, loss of surface water resources to fish bearing habitat, and loss of wetlands and wetland habitat. Permanent impacts of development of the Study Area can be mitigated by avoidance of building on those areas in which impacts to terrestrial and aquatic resources would be high and/or difficult to replace as compensation for loss of habitat. The escarpment slopes are a source of surface water seeps feeding watercourses and wetlands, provide wildlife habitat and are known to be unstable in areas. Recommendations include maintaining forested vegetation on those steep slopes to provide stability and continuity of forested habitat for wildlife access. Appropriate buffers (setbacks for development) from the top or base of steep slopes are outlined in the OCP or may be modified by the recommendation of a geotechnical expert.

Water resources such as watercourses and wetlands have legislated protections by the Province. Other development restrictions include 1) riparian buffers or setbacks along watercourses that are important sources of water for the wetlands and for downstream aquatic habitat in the Maplewood Conservation Area and 2) retention of wetlands, W1 and W2, which provide important habitat for wildlife and fish and are difficult to replace through development of compensatory habitat that would be required by regulatory agencies under the provincial Water Sustainability Act and the federal Fisheries Act.
Watercourses and wetlands to be retained for fish and wildlife habitat can be protected from the impacts of development by appropriately sized riparian buffers. Indirect impacts of development within the Study Area include the potential for disturbance of breeding/nesting birds protected under legislation as follows: a) birds and their nests protected under the *Migratory Birds Convention Act* and b) birds and their nests protected under the provincial *Wildlife Act* Section 34. Impacts can be mitigated through construction scheduling outside of the bird breeding window and/or environmental monitoring of active nests during the breeding season to observe and report that birds are not being disturbed during this critical period. If there is evidence of disturbance, the work causing the disturbance would need halt until the active nest had fledged (young had left the nest).

In the hydrogeological assessment, surficial geology and groundwater occurrences in the Study Area were investigated and potential impacts of development were assessed. Salient findings include the determination of the character of sediments underlying Hogan’s Pools Park. These sediments appear to be hydraulically separated from sediments at the Maplewood Study Area by a layer of dense till. Development within the Study Area is not likely to impact groundwater conditions at Hogan’s Pools Park.

Sediments underlying much of the Maplewood North Lands consist of dense till and development there is unlikely to have a strong impact on groundwater conditions on site or in the Maplewood Conservation Area. Conversely, sediments covering most of the Maplewood Village East area are permeable, and while there is the potential for development there to impact groundwater conditions, the impacts can be easily mitigated by incorporating storm water infiltration features within the development. Avoidance of deep building foundations in the Maplewood Village East area where the soils are permeable and the ground water elevations close to the surface is recommended.

Areas recommended for development contain environmental features such as water resources and wildlife habitat. Water quality and quantity impacts to downstream habitats can be minimized in the developable area through incorporation of low impact stormwater management techniques and without impacting quantity or quality of surface water flow to downslope habitats nor impact natural groundwater conditions.

Retention and protection of wetlands W1 and W2 and their associated permanent and ephemeral sources of water are recommended to maintain water resources to the habitat downstream in the MCA. These wetlands and riparian areas will provide natural corridors of vegetation cover for the movement of wildlife from through the area to and from the MCA. Other ephemeral watercourses may be reconfigured and consolidated, with approvals obtained under the *Water Sustainability Act*, to provide additional water resources to increase the ecological functioning of the retained watercourses and wetlands. Fish habitat enhancements may be possible within the Study area with the removal of fish passage barriers to improve access from the MCA. Augmentation (through the use of pumps and wells) of water flow and enhancement of habitat will increase the ecological function of the wetlands and watercourses.

## 10. Limitations

This investigation has been conducted using a standard of care consistent with that expected of scientific and engineering professionals undertaking similar work under similar conditions in B.C. No warranty is expressed or implied.

This report is prepared for the sole use of the District of North Vancouver. Any use, interpretation, or reliance on this information by any third party, is at the sole risk of that party, and Piteau and McElhanney accept no liability for such unauthorized use.
11. Closure

The information presented in this report is for use by the District of North Vancouver and their representatives as part of their land use planning. The objective of this assessment was to document inventory findings, identify environmentally sensitive areas and make recommendations to avoid and mitigate potential impacts from development.

We trust this report provides the information you require at this time. Please do not hesitate to call the undersigned with questions or concerns.

Respectfully submitted,

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Reviewed by: David J. Tiplady, PEng
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12. References


Ministry of Environment, Lands and Parks (MELP), 1998b. Species Inventory Fundamentals. Standards for components of British Columbias Biodiversity No.1


Ministry of Forests and Range (MOFR). 2008. Biogeoclimatic Ecosystem Classification Subzone/Variant Map for the Chilliwack Forest District (Coast Forest Region).


Appendix A: Hydrogeological Study – Monitoring Well Drill Logs
## Monitoring Well ID: MW15-1

**Well Type:** Groundwater Monitoring Well  
**Project Location:** Maplewoods North, North Vancouver, BC  
**Drilling Contractor:** Mud Bay Drilling Co. Ltd.  
**Drilling Equipment/Method:** Sonic  
**Well Location:** West of former buildings

### Depth (ft/m)  

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<th>Depth (ft/m)</th>
<th>Soil / Sediment Description</th>
<th>Sample Type</th>
<th>% Recovery</th>
<th>Sample Analyzed</th>
<th>Sample ID</th>
<th>Headspace (PID) ppm</th>
<th>Well Construction</th>
<th>Remarks</th>
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<td>2:10</td>
<td>Brown-Grey medium to coarse-grained Sand and Gravel. Some cobbles. Dense, dry. Fine-grained sand content increasing with depth.</td>
<td>100 N</td>
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<td>MW15-1</td>
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<td>Dark brown, fine to medium grained Silty Sand. Dense and moist to wet. Saturated at 3 mbg. Some roots at 3.5 mbg.</td>
<td>100 N</td>
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<td>2:10</td>
<td>Brown Sand and Gravel with cobbles. Wet and dense. Colour switches to grey at 5.2 mbg.</td>
<td>100 N</td>
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<td>MW15-1</td>
<td>MW15-1</td>
<td>3.2</td>
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### Date of Water Level: August 4, 2015  
**Well-Borehole Diameter:** 15 cm  
**Water Level (from TOC):** 2.960 m  
**Well Casing Diameter:** 5 cm  
**Well Casing Material:** PVC  
**Well Screen Slot Size:** 0.025 cm  
**Depth of Well (TOC):** 4.068 m
**MONITORING WELL ID: MW15-2/SV15-2**

**Well Type:** Groundwater and Soil Vapour Monitoring Well

**Project Location:** Maplewoods North, North Vancouver, BC

**Drilling Contractor:** Mud Bay Drilling Co. Ltd.

**Drilling Equipment/Method:** Sonic

**Well Location:** south of former buildings

**Project Name/No.:** 12325

**Client:** Darwin Properties (Canada) Ltd.

**Engineer/Geologist:** FOM

**Drill Date: July 30, 2015**

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<td>Dark-brown Peat. High forest content. Damp.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2</td>
<td>SAND and GRAVEL</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
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</tbody>
</table>
MONITORING WELL ID: MW15-3

Well Type: Groundwater Monitoring Well
Project Location: Maplewoods North, North Vancouver, BC
Drilling Contractor: Mud Bay Drilling Co. Ltd.
Drilling Equipment/Method: Sonic
Well Location: east of former buildings

Date of Water Level: August 4, 2015
Water Level (from TOC): 3.81 m
Well-Borehole Diameter: 15 cm
Depth of Well (TOC): 5.44 m
Well Casing Diameter: 5 cm
Well Casing Material: PVC
Well Screen Slot Size: 0.025 cm
<table>
<thead>
<tr>
<th>Depth (ft/m)</th>
<th>Soil / Sediment Description</th>
<th>Sample Type</th>
<th>% Recovery</th>
<th>Sample Analyzed</th>
<th>Sample ID</th>
<th>Headspace (PID) ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 m</td>
<td>Ground Surface</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>10 m</td>
<td><strong>TOPSOIL</strong></td>
<td>Topsoil</td>
<td>100</td>
<td>Y</td>
<td>MW15-4 (0.5)</td>
<td>37.3</td>
</tr>
<tr>
<td>1 m</td>
<td><strong>SAND and GRAVEL</strong></td>
<td>Brown-Grey medium to coarse Sand and Gravel. Some cobbles. Some silt. Dense, dry.</td>
<td>100</td>
<td>N</td>
<td>MW15-4 (1.0)</td>
<td>1.0</td>
</tr>
<tr>
<td>2 m</td>
<td><strong>SAND and GRAVEL</strong></td>
<td>Brown-Grey medium to coarse-grained Sand and Gravel. Some cobbles. Some silt. Dense, dry.</td>
<td>100</td>
<td>N</td>
<td>MW15-4 (2.0)</td>
<td>6.4</td>
</tr>
<tr>
<td>9 m</td>
<td><strong>PEAT</strong></td>
<td>Dark-brown Peat. High fibre content. Damp.</td>
<td>100</td>
<td>N</td>
<td>MW15-4 (3.0) and MW15-B</td>
<td>1.5</td>
</tr>
<tr>
<td>13 m</td>
<td><strong>SAND and GRAVEL</strong></td>
<td>Brown-Grey medium to coarse-grained Sand and Gravel. Some cobbles. Some silt. Dense, dry.</td>
<td>100</td>
<td>N</td>
<td>MW15-4 (3.9)</td>
<td>0.0</td>
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<tr>
<td>14 m</td>
<td><strong>SAND and GRAVEL</strong></td>
<td>Brown-Grey medium to coarse-grained Sand and Gravel. Some cobbles. Some silt. Dense, dry.</td>
<td>100</td>
<td>N</td>
<td>MW15-4 (4.1)</td>
<td>0.0</td>
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<tr>
<td>15 m</td>
<td><strong>SAND and GRAVEL</strong></td>
<td>Brown-Grey medium to coarse-grained Sand and Gravel. Some cobbles. Some silt. Dense, dry.</td>
<td>100</td>
<td>N</td>
<td>MW15-4 (4.5)</td>
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<tr>
<td>16 m</td>
<td><strong>SAND and GRAVEL</strong></td>
<td>Brown-Grey medium to coarse-grained Sand and Gravel. Some cobbles. Some silt. Dense, dry.</td>
<td>100</td>
<td>N</td>
<td>MW15-4 (5.0)</td>
<td>0.0</td>
</tr>
<tr>
<td>17 m</td>
<td><strong>SAND and GRAVEL</strong></td>
<td>Brown-Grey medium to coarse-grained Sand and Gravel. Some cobbles. Some silt. Dense, dry.</td>
<td>100</td>
<td>N</td>
<td>MW15-4 (5.5)</td>
<td>0.0</td>
</tr>
<tr>
<td>19 m</td>
<td><strong>End of Hole</strong></td>
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<td></td>
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</tr>
</tbody>
</table>

Date of Water Level: August 4, 2015
Water Level (from TOC): 4.91 m
Well-Borehole Diameter: 15 cm
Depth of Well (TOC): 6.50 m
Well Casing Diameter: 5 cm
Well Casing Material: PVC
Well Screen Slot Size: 0.025 cm
### MONITORING WELL ID: MW15-5/SV15-5

**Well Type:** Groundwater and Soil Vapour Monitoring Well  
**Project Location:** Maplewoods North, North Vancouver, BC  
**Drilling Contractor:** Mud Bay Drilling Co. Ltd.  
**Drilling Equipment/Method:** Sonic  
**Well Location:** central portion of the Site

<table>
<thead>
<tr>
<th>Depth (ft/m)</th>
<th>Soil / Sediment Description</th>
<th>Sample Type</th>
<th>% Recovery</th>
<th>Sample Analyzed</th>
<th>Sample ID</th>
<th>Headspace (PID) ppm</th>
<th>Well Construction</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td><strong>TOPSOIL</strong> Topsoil</td>
<td>100 N</td>
<td></td>
<td>MW15-5 (0.4)</td>
<td>3.3</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1.2</td>
<td><strong>SAND and GRAVEL</strong> Brown-Grey medium to coarse Sand and Gravel. Some cobbles. Some silt. Dense, dry.</td>
<td>100 Y</td>
<td></td>
<td>MW15-5 (0.8)</td>
<td>4.0</td>
<td></td>
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<tr>
<td>1.5</td>
<td></td>
<td>100 N</td>
<td></td>
<td>MW15-5 (1.1)</td>
<td>0.0</td>
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<td></td>
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<tr>
<td>2.0</td>
<td></td>
<td>100 N</td>
<td></td>
<td>MW15-5 (1.5)</td>
<td>0.0</td>
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</tr>
<tr>
<td>2.5</td>
<td>Boulders at 1.5 mbg and 2.5 mbg.</td>
<td>100 N</td>
<td></td>
<td>MW15-5 (2.0)</td>
<td>0.9</td>
<td></td>
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</tr>
<tr>
<td>3.0</td>
<td>Colour changes to grey at 3.0 mbg.</td>
<td>100 N</td>
<td></td>
<td>MW15-5 (2.5)</td>
<td>0.3</td>
<td></td>
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</tr>
<tr>
<td>4.0</td>
<td>Wet at 4.0 mbg.</td>
<td>100 N</td>
<td></td>
<td>MW15-5 (3.0)</td>
<td>0.0</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5.0</td>
<td><strong>SANDY SILT</strong> Grey Sandy Silt with gravel. Very stiff and moist to dry.</td>
<td>100 N</td>
<td></td>
<td>MW15-5 (4.0)</td>
<td>0.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.0</td>
<td>Silt content increasing with depth.</td>
<td>100 N</td>
<td></td>
<td>MW15-5 (5.0)</td>
<td>0.6</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>7.0</td>
<td>Moist at 6.0 mbg.</td>
<td>100 N</td>
<td></td>
<td>MW15-5 (6.0)</td>
<td>0.0</td>
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</tr>
<tr>
<td>8.0</td>
<td>Decreasing moisture content with depth.</td>
<td>100 N</td>
<td></td>
<td>MW15-5 (7.0)</td>
<td>1.1</td>
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<tr>
<td>9.0</td>
<td>Increasing density with depth.</td>
<td>100 N</td>
<td></td>
<td>MW15-5 (8.0)</td>
<td>0.0</td>
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</tr>
<tr>
<td>10.0</td>
<td>End of Hole</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Date of Water Level:** August 4, 2015  
**Water Level (from TOC):** 5.0 m  
**Well-Borehole Diameter:** 15 cm  
**Well Casing Diameter:** 5 cm  
**Depth of Well (TOC):** 5.1 m  
**Well Casing Material:** PVC  
**Well Screen Slot Size:** 0.025 cm
### Monitoring Well ID: MW15-6/SV15-6

**Well Type:** Groundwater and Soil Vapour Monitoring Well  
**Project Location:** Maplewoods North, North Vancouver, BC  
**Drilling Contractor:** Mud Bay Drilling Co. Ltd.  
**Drilling Equipment/Method:** Sonic  
**Well Location:** northeast portion of the Site

#### Table:

<table>
<thead>
<tr>
<th>Depth (ft/m)</th>
<th>Soil / Sediment Description</th>
<th>Sample Type</th>
<th>% Recovery</th>
<th>Sample Analyzed</th>
<th>Sample ID</th>
<th>Headspace (PID) ppm</th>
<th>Well Construction</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>Ground Surface</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 1.0         | **TOPSOIL**  
Topsil  
Grey Silty medium to coarse-grained Sand and Gravel. Some cobbles. Dense, dry.  
**Silty Sand and Gravel (Till)** | 100 N        | 0.0        | MW15-6 (0.5) |           | 0.0      |                     |                  |         |
| 2.0         |                         | 100 N        | 3.0        | MW15-6 (1.0) |           | 2.2      |                     |                  |         |
| 3.0         |                         | 100 N        | 1.8        | MW15-6 (2.0) |           | 1.2      |                     |                  |         |
| 4.0         | Moist at 4.0 mbg.        | 100 N        | 2.9        | MW15-6 (4.0) |           | 1.8      |                     |                  |         |
| 5.0         | Cobbles content decreasing with depth. | 100 N | 1.2 | MW15-6 (5.0) |           | 0.8      |                     |                  |         |
| 6.0         | Wet at 6.0 mbg.           | 100 N        | 1.8        | MW15-6 (6.0) |           | 1.4      |                     |                  |         |
| 7.0         | Moist to dry at 6.9 mbg.  | 100 N        | 0.8        | MW15-6 (7.0) |           |          |                     |                  |         |
| 8.0         | End of Hole               |             |            |                 |           |          |                     |                  |         |

#### Additional Information:

- **Date of Water Level:** August 4, 2015  
- **Well Borehole Diameter:** 15 cm  
- **Depth of Well (TOC):** 7.940 m  
- **Water Level from TOC:** 7.035 m  
- **Well Casing Diameter:** 5 cm  
- **Well Casing Material:** PVC  
- **Well Screen Slot Size:** 0.025 cm
<table>
<thead>
<tr>
<th>Depth Below Ground Surface</th>
<th>Lithologic Description</th>
<th>Depth (mbs)</th>
<th>Remarks</th>
<th>Constructed Well</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>Ground Surface</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>-0.5</td>
<td>Gravely Sand</td>
<td>0.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-0.9</td>
<td>Gravely Sand</td>
<td>0.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-1.4</td>
<td>Silt and Sand</td>
<td>1.4</td>
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<tr>
<td>-1.5</td>
<td>Sand</td>
<td>1.5</td>
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<td>-2.4</td>
<td>Gravely Sand</td>
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<td>-2.7</td>
<td>Sand and Silt</td>
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<td>-3.5</td>
<td>Gravely Sand</td>
<td>3.5</td>
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<tr>
<td>-3.8</td>
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<td>-5.0</td>
<td>Sand</td>
<td>5.0</td>
<td>13-15</td>
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<tr>
<td>-5.3</td>
<td>Peat</td>
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<tr>
<td>-6.4</td>
<td>Sand</td>
<td>6.4</td>
<td>19-20</td>
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<tr>
<td>-7.0</td>
<td>Gravely Sand</td>
<td>7.0</td>
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<tr>
<td></td>
<td>End of Hole</td>
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</tbody>
</table>

Drilling Contractor: Omega Drilling
Drilling Method: Sonic
Drilling Started: April 20 2016
Drilling Ended: April 20 2016
<table>
<thead>
<tr>
<th>Depth Below Ground Surface (m aSL)</th>
<th>Lithologic Description</th>
<th>Depth (mbs)</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>0</td>
<td>Ground Surface</td>
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<td></td>
</tr>
<tr>
<td>-0.9</td>
<td>Gravel and Sand</td>
<td>0.9</td>
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</tr>
<tr>
<td></td>
<td>Dark brown, moist</td>
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<td></td>
</tr>
<tr>
<td>-1.2</td>
<td>Sand</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Light brown, moist, some gravel</td>
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</tr>
<tr>
<td>-1.5</td>
<td>Silty Sand</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Light grey, moist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-3.0</td>
<td>Sand and Gravel</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dark brown, moist</td>
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<tr>
<td>-4.0</td>
<td>Sand and Silt</td>
<td>4.0</td>
<td>10-12</td>
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<td>Dark brown, wet</td>
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<tr>
<td>-4.6</td>
<td>Sand</td>
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<td></td>
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<tr>
<td></td>
<td>Light brown, wet, some silt, trace gravel</td>
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<tr>
<td>-5.5</td>
<td>Sand</td>
<td>5.5</td>
<td>16-17</td>
</tr>
<tr>
<td></td>
<td>Light brown, wet, some gravel, some silt</td>
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<tr>
<td>-5.5</td>
<td>End of Hole</td>
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</tbody>
</table>

Drilling Contractor: Omega Drilling
Drilling Method: Sonic
Drilling Started: April 20 2016
Drilling Ended: April 20 2016
### Drillhole Number: MW16-03

**Client:** McElhanney/District of North Vancouver  
**Location:** Maplewood District Lands, North Vancouver  
**Logged By:** Rob Bulger  
**Borehole Diameter:** 15 cm (6")

<table>
<thead>
<tr>
<th>Depth Below Ground Surface (m asl)</th>
<th>Lithologic Description</th>
<th>Depth (m bgl)</th>
<th>Remarks</th>
<th>Constructed Well</th>
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<tbody>
<tr>
<td>0.0</td>
<td>Asphalt</td>
<td>0.9</td>
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<td>-0.5</td>
<td>Gravely Sand</td>
<td>0.5</td>
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<tr>
<td>-0.8</td>
<td>Dark grey, moist, dense</td>
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</tr>
<tr>
<td>-1.2</td>
<td>Sand</td>
<td>1.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-1.5</td>
<td>Light grey, moist, some gravel</td>
<td></td>
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</tr>
<tr>
<td>-2.6</td>
<td>Sand, Silt and Gravel</td>
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<tr>
<td>Dark grey, moist, dense (Till)</td>
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<tr>
<td>-2.6</td>
<td>Sand and Gravel</td>
<td>2.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grey brown, dry, some silt (Till)</td>
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</tr>
<tr>
<td>-2.6</td>
<td>Sand, Silt and Gravel</td>
<td>2.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dark grey brown, moist (Till)</td>
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</tr>
<tr>
<td>10.0</td>
<td>No Recovery</td>
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<tr>
<td>-4.6</td>
<td>Sand and Silt</td>
<td>4.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grey, wet, trace gravel</td>
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<tr>
<td>-4.9</td>
<td>Sand</td>
<td>4.9</td>
<td></td>
<td></td>
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<tr>
<td>Grey, wet, some sand</td>
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<tr>
<td>-5.1</td>
<td>Silt</td>
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<td>17-19</td>
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<tr>
<td>Grey, wet, some sand</td>
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</tr>
<tr>
<td>-6.1</td>
<td>End of Hole</td>
<td>6.1</td>
<td>17-19</td>
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</tbody>
</table>

**Drilling Contractor:** Omega Drilling  
**Drilling Method:** Sonic  
**Drilling Started:** April 20 2016  
**Drilling Ended:** April 20 2016
### Drillhole Number: MW16-04

**Project:** Hydrogeology Assessment  
**Location:** Maplewood District Lands, North Vancouver  
**Project Number:** 3521  
**Logged By:** Rob Bulger  
**Borehole Diameter:** 10 cm (4")

#### Depth Below Ground Surface | Lithologic Description | Depth (mbs) | Remarks | Constructed Well
--- | --- | --- | --- | ---
0.0 | Ground Surface | 0.0 |  |  
-0.5 | **Sand and Gravel**  
Dark brown, moist | 0.5 |  |  
| **Cobbles and Boulders**  
Grey moist |  |  |  
-1.5 | **Sand and Gravel**  
Brown, moist | 1.5 |  |  
-3.0 | **Gravely Sand**  
Grey brown, moist, dense, some silt | 3.0 |  |  
-4.9 | **Sand Gravel and Silt**  
Dark grey brown, moist | 4.9 |  |  
-5.5 | **Silt and Sand**  
Grey brown, moist, some some gravel, trace cobbles, dense | 5.5 |  |  
| **Sand**  
Grey brown, wet, some silt, some gravel | 7.3 | 20-22 |  
| **Sand and Gravel**  
Grey, wet, trace cobbles | 8.5 | 25-27 |  
| **End of Hole** | 30 |  |  |

**Drilling Contractor:** Omega Drilling  
**Drilling Method:** Sonic  
**Drilling Started:** April 21 2016  
**Drilling Ended:** April 21 2016
### Drillhole Number: MW16-05

**Client:** McElhanney/District of North Vancouver  
**Project:** Hydrogeology Assessment  
**Location:** Maplewood District Lands, North Vancouver  
**Project Number:** 3521  
**Logged By:** Rob Bulger  
**Borehole Diameter:** 15 cm (6”)  
**Drilling Contractor:** Omega Drilling  
**Drilling Method:** Sonic  
**Drilling Started:** April 21 2016  
**Drilling Ended:** April 21 2016

<table>
<thead>
<tr>
<th>Depth Below Ground Surface (m a.s.l.)</th>
<th>Lithologic Description</th>
<th>Depth (m bgl)</th>
<th>Sample ID</th>
<th>Remarks</th>
<th>Constructed Well</th>
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</thead>
<tbody>
<tr>
<td>0.0</td>
<td>Ground Surface</td>
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<td>Organic Rich Soil</td>
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<td>-5.5</td>
<td>15-17</td>
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<td>20</td>
<td>End of Hole</td>
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</table>

- **Flush Well Cover - Concrete**  
- **Sand**  
- **50 mm Solid PVC**  
- **Bentonite**  
- **Top of Screen 2.3 m bgl**  
- **50 mm PVC Screen**  
- **Filter Sand**  
- **Bottom of Wall 5.3 m bgl - Stuff**
<table>
<thead>
<tr>
<th>Depth Below Ground Surface (m a.s.l.)</th>
<th>Lithologic Description</th>
<th>Depth (m bgl)</th>
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<td>Light brown, moist, some cobbles</td>
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<td>Grey brown moist, some cobbles</td>
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<td>Grey, wet</td>
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Drilling Contractor: Omega Drilling  
Drilling Method: Sonic  
Drilling Started: April 21, 2016  
Drilling Ended: April 21, 2016
<p>| <strong>Well Tag Number:</strong> | 14564 |
| <strong>Owner:</strong> | CANADIAN OCCIDENTAL |
| <strong>Address:</strong> | 100 AMHERST AVENUE |
| <strong>Area:</strong> | NORTH VANCOUVER |
| <strong>WELL LOCATION:</strong> |  |
| <strong>NEW WESTMINSTER Land District</strong> |  |
| <strong>District Lot:</strong> | 193 Plan: 40923 Lot: A |
| <strong>Township:</strong> | Section: |
| <strong>Indian Reserve:</strong> | Meridian: Block: |
| <strong>Quarter:</strong> |  |
| <strong>Island:</strong> |  |
| <strong>BCGS Number (NAD 83):</strong> | 092G035222 Well: 2 |
| <strong>Class of Well:</strong> |  |
| <strong>Subclass of Well:</strong> |  |
| <strong>Orientation of Well:</strong> |  |
| <strong>Status of Well:</strong> | New |
| <strong>Licence General Status:</strong> | UNLICENSED |
| <strong>Well Use:</strong> | Abandoned |
| <strong>Observation Well Number:</strong> |  |
| <strong>Observation Well Status:</strong> |  |
| <strong>Construction Method:</strong> | Drilled |
| <strong>Diameter:</strong> | 12.0 inches |
| <strong>Casing drive shoe:</strong> |  |
| <strong>Well Depth:</strong> | 68 feet |
| <strong>Elevation:</strong> | 0 feet (ASL) |
| <strong>Final Casing Stick Up:</strong> | inches |
| <strong>Construction Date:</strong> | 1955-09-15 00:00:00 |
| <strong>Driller:</strong> | International Water Supply |
| <strong>Well Identification Plate Number:</strong> |  |
| <strong>Plate Attached By:</strong> |  |
| <strong>Where Plate Attached:</strong> |  |
| <strong>PRODUCTION DATA AT TIME OF DRILLING:</strong> |  |
| <strong>Well Yield:</strong> | 300 (Driller's Estimate) U.S. Gallons per Minute |
| <strong>Development Method:</strong> |  |
| <strong>Pump Test Info Flag:</strong> |  |
| <strong>Artesian Flow:</strong> |  |
| <strong>Artesian Pressure (ft):</strong> |  |
| <strong>Static Level:</strong> | 9 feet |
| <strong>WATER QUALITY:</strong> |  |
| <strong>Character:</strong> |  |
| <strong>Colour:</strong> |  |
| <strong>Odour:</strong> |  |
| <strong>Well Disinfected:</strong> | N |
| <strong>EMS ID:</strong> |  |
| <strong>Water Chemistry Info Flag:</strong> |  |
| <strong>Field Chemistry Info Flag:</strong> |  |
| <strong>Site Info (SEAM):</strong> |  |
| <strong>Water Utility:</strong> |  |
| <strong>Water Supply System Name:</strong> |  |
| <strong>Water Supply System Well Name:</strong> |  |
| <strong>SURFACE SEAL:</strong> |  |
| <strong>Flag:</strong> |  |</p>
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<th>Type</th>
<th>Slot Size</th>
<th>Diameter</th>
<th>Material</th>
<th>Drive Shoe</th>
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**GENERAL REMARKS:**

TEST HOLE #3

**LITHOLOGY INFORMATION:**

From 0 to 4 Ft. Silty sand
From 4 to 11 Ft. Boulders and gravel
From 11 to 20 Ft. Silty sand and gravel
From 20 to 35 Ft. Clean sand and gravel
From 35 to 40 Ft. Mostly sand
From 40 to 68 Ft. Coarse sand and gravel

- [Return to Main](https://a100.gov.bc.ca/pub/wells/wellsreport1.do)
- [Return to Search Options](https://a100.gov.bc.ca/pub/wells/wellsreport1.do)
- [Return to Search Criteria](https://a100.gov.bc.ca/pub/wells/wellsreport1.do)

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### Report 1 - Detailed Well Record

**Well Tag Number:** 3918/

**Owner:** STERLING PULP

**Address:** 100 FORESTER STREET

**Area:** NORTH VANCOUVER

#### WELL LOCATION:

- **NEW WESTMINSTER Land District**
- **District Lot:** 611 Plan: 9510 Lot: 3
- **Township:** Section: Range:
- **Indian Reserve** Meridian: Block: X
- **Quarter:**
- **Island:**
- **BCGS Number (NAD 83):** 8926035222 Well: 1

#### Class of Well:

- **Subclass of Well:**
- **Orientation of Well:**
- **Status of Well:** New
- **Licence General Status:** UNLICENSED
- **Well Use:** Unknown Well Use

#### Observation Well Number:

- **Observation Well Status:**
- **Construction Method:** Drilled
- **Diameter:** 8.8 inches
- **Casing drive shoe:**
- **Well Depth:** 58 feet
- **Elevation:** 0 feet (ASL)
- **Final Casing Stick Up:** inches
- **Well Cap Type:**
- **Bedrock Depth:** feet
- **Lithology Info Flag:**

**Construction Date:** 1978-01-24 00:00:00

**Driller:** Pacific Water Wells

**Well Identification Plate Number:**

**Plate Attached By:**

**Where Plate Attached:**

**PRODUCTION DATA AT TIME OF DRILLING:**

- **Well Yield:** 200 (Driller's Estimate) Gallons per Minute (U.S./Imperial)
- **Development Method:**
- **Pump Test Info Flag:**
- **Artesian Flow:**
- **Artesian Pressure (ft):**
- **Static Level:** 14 feet

**WATER QUALITY:**

- **Character:**
- **Colour:**
- **Odour:**
- **Well Disinfected:** N
- **EMS ID:**
- **Water Chemistry Info Flag:**
- **Field Chemistry Info Flag:**
- **Site Info (SEAM):**
- **Water Utility:**
- **Water Supply System Name:**
- **Water Supply System Well Name:**

**SURFACE SEAL:**

- **Flag:**
- **Material:**
- **Method:**
- **Depth (ft):**
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<tr>
<th>Screen from</th>
<th>to feet</th>
<th>Type</th>
<th>Diameter</th>
<th>Material</th>
<th>Drive Shoe</th>
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</tbody>
</table>

**GENERAL REMARKS:**

REC. PUMP RATE 200 GPM, REC. PUMP SETTING 70°

**LITHOLOGY INFORMATION:**

- From 0 to 8 Ft. Fill
- From 8 to 15 Ft. Gravel and boulders
- From 15 to 20 Ft. Gravel and cobbles
- From 20 to 23 Ft. Grey silty till
- From 23 to 24 Ft. Log
- From 24 to 25 Ft. Grey silty till
- From 25 to 26 Ft. Boulder
- From 26 to 31 Ft. Gravel
- From 31 to 33 Ft. Boulder
- From 33 to 98 Ft. Sand and gravel
# Report 1 - Detailed Well Record

<table>
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<th>Well Tag Number: 72330</th>
<th>Construction Date: 1996-02-12 00:00:00</th>
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<td>Owner: WBT WILD BIRD TRUST</td>
<td>Driller: Field Drilling Contractors</td>
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<tr>
<td>Address: 2645 DOLLARTON HIGHWAY</td>
<td>Well Identification Plate Number:</td>
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<tr>
<td>Area: NORTH VANCOUVER</td>
<td>Plate Attached By:</td>
</tr>
<tr>
<td>WELL LOCATION:</td>
<td>Where Plate Attached:</td>
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<tr>
<td>NEW WESTMINSTER Group 1 Land District</td>
<td>PRODUCTION DATA AT TIME OF DRILLING:</td>
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<tr>
<td>District Lot: 469 Plan: Lot:</td>
<td>Well Yield: 0 (Driller's Estimate)</td>
</tr>
<tr>
<td>Township: Section: Range:</td>
<td>Development Method:</td>
</tr>
<tr>
<td>Indian Reserve: Meridian: Block: 4 Quarter:</td>
<td>Pump Test Info Flag: Y</td>
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<tr>
<td>Island:</td>
<td>Artesian Flow:</td>
</tr>
<tr>
<td>BCCS Number (NAD 83): 092G035222 Well: 8</td>
<td>Artesian Pressure (ft):</td>
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<tr>
<td>Class of Well:</td>
<td>Static Level: 17 feet</td>
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<td>Subclass of Well:</td>
<td>WATER QUALITY:</td>
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<td>Orientation of Well:</td>
<td>Character:</td>
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<tr>
<td>Status of Well: New</td>
<td>Colour:</td>
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<tr>
<td>Licence General Status: UNLICENSED</td>
<td>Odour:</td>
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<td>Well Use:</td>
<td>Well Disinfected: N</td>
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<td>Observation Well Number:</td>
<td>EMS ID:</td>
</tr>
<tr>
<td>Observation Well Status:</td>
<td>Water Chemistry Info Flag: N</td>
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<tr>
<td>Construction Method:</td>
<td>Field Chemistry Info Flag:</td>
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<tr>
<td>Diameter: 0.8 inches</td>
<td>Site Info (SEAM):</td>
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<tr>
<td></td>
<td>Water Utility:</td>
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<tr>
<td></td>
<td>Water Supply System Name:</td>
</tr>
<tr>
<td></td>
<td>Water Supply System Well Name:</td>
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</tbody>
</table>
Casing drive shoe:
Well Depth: 74 feet
Elevation: 0 feet (ASL)
Final Casing Stick Up: inches
Well Cap Type:
Bedrock Depth: feet
Lithology Info Flag: N
File Info Flag: N
Sieve Info Flag: N
Screen Info Flag: N
Site Info Details:
Other Info Flag:
Other Info Details:

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<th>Screen from</th>
<th>to feet</th>
<th>Type</th>
<th>Slot Size</th>
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</thead>
<tbody>
<tr>
<td>Casing from</td>
<td>to feet</td>
<td>Diameter</td>
<td>Material</td>
</tr>
</tbody>
</table>

GENERAL REMARKS:
CASING 1.5 TO 61.0, PUMP TEST RATE 50 GPM,

LITHOLOGY INFORMATION:
From 0 to 4 Ft. COARSE GRAVEL
From 4 to 18 Ft. BROWN SAND DAMP
From 70 to 74 Ft. GREY SILTS
From 50 to 70 Ft. COARSE SAND & GRAVEL CLEANER
From 18 to 50 Ft. COARSE SAND & GRAVEL DIRTY

- Return to Main
- Return to Search Options
- Return to Search Criteria

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Report 1 - Detailed Well Record

Well Tag Number: 92413

Owner: FALLIS

Address:

Area:

WELL LOCATION:
KOOTENAY Land District
District Lot: 377 Pile: X15 Lot: 12
Township: Section: Range:
Indian Reserve: Meridian: block:
Quarter:
Island:

BCS Number (RAD #3): 992652722 Well: 7

Class of Well: Water supply
Subclass of Well: Domestic
Orientation of Well: Vertical
Status of Well: New
Licence General Status: UNLICENSED
Well Use: Private Domestic
Observation Well Number:
Observation Well Status:
Construction Method:
Diameter: inches
Casing drive shoe: Y
Well Depth: 180 feet
Elevation: feet (ASL)
Final Casing Stick Up: inches
Well Cap Type:
Bedrock Depth: feet
Lithology Info Flag: N
File Info Flag: N
Steam Info Flag: N
Screen Info Flag: N
Site info Details:
Other Info Flag:
Other Info Details:

Screen from to feet Type
0 180

Casing from to feet Diameter
0 6

GENERAL REMARKS:
MEASUREMENTS FROM TOP OF CASING. PITLESS UNIT: WELDED. WATER QUALITY & QUANTITY NOT GUARANTEED BY CONTRACTOR. RECOMMENDED PUMPING RATE: 1-5 USGPM. PUMP
LITHOLOGY INFORMATION:
- 0 to 50 ft. brown
- 50 to 70 ft. blue
- 70 to 170 ft. blue
- 170 to 180 ft. blue

- Return to Main
- Return to Search Options
- Return to Search Criteria

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Appendix B: Hydrogeological Study - Grain Size Analysis
Appendix C: Hydrogeological Study -

Table 9 Estimated Monthly Recharge Summary

Table 10 Monthly Water Balance
### Table 9 Estimated Monthly Recharge Summary for Maplewood Study Area

| CLIMATE VARIABLES                                      | MON | AN  | EB   | MAR  | APR  | MAY | JUN | JUL  | AUG  | SEP  | OCT | NOV | DEC | O AL | MEAN | L | LOW |
|--------------------------------------------------------|-----|-----|------|------|------|-----|-----|------|------|------|-----|-----|-----|-----|------|-----|----|-----|
| Average Monthly Precipitation (1)                      | mm  | 255 | 168  | 167  | 136  | 103 | 83  | 53   | 55   | 77   | 189 | 290 | 230 | 1806| 107 | 150 | 57  | 18  |
| Average Monthly Temperature (°C)                       | °C  | 3.8 | 5.2  | 6.6  | 8.4  | 12.6| 15.4| 16.2 | 17.3 | 14.9 | 10.7| 6.1 | 3.7 | -   | -   | 10  | -   | -   |
| Calculated Potential Evapotranspiration (3a)            | mm  | 12  | 19   | 29   | 44   | 77  | 102 | 105  | 103  | 76   | 45  | 21  | 11  | 642 | 36  | 54  | 20  | 7   |
| Potential Infiltration, Runoff or Storage               | mm  | 244 | 148  | 138  | 92   | 27  | -19 | -52  | -48  | 1    | 144 | 270 | 219 | 1282| 71  | 97  | 41  | 13  |
| SOIL WATER BALANCE                                      |     |     |      |      |      |     |     |      |      |      |     |     |     |     |     |     |     |     |
| Assumed Water Holding Capacity (6)                      | mm  | 250 | 250  | 250  | 250  | 250 | 250 | 250  | 250  | 250  | 250 | 250 | 250 | -   | -   | -   | -   | -   |
| Water in Storage in Soil                               | mm  | 250 | 250  | 250  | 250  | 250 | 250 | 231  | 179  | 131  | 132 | 250 | 250 | 219 | 1,164| 64  | 97  | 37  | 12  |
| Remaining Water for Infiltration and/or Runoff         | mm  | 244 | 148  | 138  | 92   | 27  | 0   | 0    | 0    | 0    | 26  | 270 | 219 | 1,164| 64  | 97  | 37  | 12  |
| Assumed Runoff Coefficient (6)                         |     | 0.15| 0.15 | 0.15 | 0.15 | 0.15| 0.15| 0.15  | 0.15 | 0.15 | 0.15| 0.15| 0.15| -   | -   | -   | -   | -   |
| Loss due to Surface Runoff                             | mm  | 37  | 22   | 21   | 14   | 4   | 0   | 0    | 0    | 4    | 40  | 33  | -   | 175 | 15  | 15  | 6   | 2   |
| Remaining Water for Infiltration                        | mm  | 207 | 126  | 117  | 78   | 23  | 0   | 0    | 0    | 0    | 22  | 229 | 186 | 989.1| 54.8| 82.4| 31.4| 10.1|

**NO ES:**
1) Average monthly precipitation recorded at Environment Canada N Vancouver 2nd Narrows Station (1981-2010).
3) Potential evapotranspiration for months with negative mean temperatures are assigned a value of 0.0.
4) Monthly evapotranspiration calculated using the Thornthwaite method and average monthly temperature data.
5) Assumed typical soil water holding capacity for soils in the groundwater recharge areas = 250 mm
6) Assumed surface water run off coefficient; expressed as a fraction of the remaining water, after storage and evapotranspiration = 0.66
7) Area of the Study Area = 0.32 km²
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<th></th>
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<th>ERING</th>
<th>HE S</th>
<th>D</th>
<th>AREA (L/s)</th>
<th>GRO</th>
<th>NDWA</th>
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<td><strong>TOTAL MEAN ANNUAL DISCHARGE</strong></td>
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CONSOLIDATED FOR CONVENIENCE ONLY

This is a consolidation of the bylaws amending the District of North Vancouver Zoning Bylaw 7900. The amending bylaws have been combined with the original bylaw for convenience only. This consolidation is not a legal document. Certified copies of the original bylaws should be consulted for all interpretations and applications of the bylaw on this subject.

Last revised: July 30, 2021
The Corporation of the District of North Vancouver

Bylaw 7900

A bylaw to adopt an Official Community Plan for the entire District of North Vancouver pursuant to Section 876 of the Local Government Act

The Council for The Corporation of the District of North Vancouver enacts as follows:

1. Citation

This bylaw may be cited as the "District of North Vancouver Official Community Plan Bylaw 7900, 2011"

2. District of North Vancouver Official Community Plan

The document attached hereto and entitled “The District of North Vancouver Official Community Plan”, is hereby adopted as the official community plan of the District of North Vancouver.

3. Severability

If any section, subsection or clause of this bylaw is for any reason held to be invalid by the decision of a court of competent jurisdiction, such decision will not affect the validity of the remaining portions of this Bylaw.

4. Repeal

The District Official Community Plan (Bylaw 6300), with the exception of ‘Schedule B’, and any amendments thereto is repealed.

The Alpine Area Community Plan (Bylaw 5800) and any amendments thereto is repealed.

The Lower Lynn Official Community Plan (Bylaw 7689) and any amendments thereto is repealed.

The North Lonsdale – Delbrook Official Community Plan (Bylaw 6750) and any amendments thereto is repealed.

READ a first time the 18th day of April, 2011

READ a second time as amended the 2nd day of May, 2011

PUBLIC HEARING held the 16th and 17th days of May, 2011

READ a third time as amended the 30th day of May, 2011
RESCINDED third reading the 20th day of June, 2011

READ a third time as amended the 20th day of June, 2011

Certified a true copy of "District of North Vancouver Official Community Plan Bylaw 7900" as at Third Reading

________________________
Municipal Clerk

REGIONAL CONTEXT STATEMENT ACCEPTED BY THE GREATER VANCOUVER REGIONAL DISTRICT this the 24th day of June, 2011

ADOPTED the 27th day of June, 2011

________________________   ______________________
Mayor                        Municipal Clerk

Certified a true copy

________________________
Municipal Clerk
# THE DISTRICT OF NORTH VANCOUVER

## OFFICIAL COMMUNITY PLAN

### BYLAW 7900

Adopted by Council on June 27, 2011

## LIST OF OCP AMENDMENT BYLAWS

The following is a list of bylaw amendments to the Official Community Plan (OCP). Certified copies of the original bylaws should be consulted for all interpretations and applications of the bylaw on this subject.

<table>
<thead>
<tr>
<th>Order Of Adoption</th>
<th>OCP Amend. Bylaw</th>
<th>Date of Adoption</th>
<th>Amend. Number</th>
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<td>Re-designates parcels on Berkley Ave from RES2 parcels to POSNA</td>
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<td>7</td>
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<td>Add Regional Context Statement</td>
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<td>9</td>
<td>8027</td>
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The above amendments have all been incorporated into the DNV OCP as of July 30, 2021

It is the responsibility of the viewer to ensure that all OCP amendment bylaws, unless they have subsequently been repealed by Council, are considered in conjunction with the originally adopted Official Community Plan Bylaw 7900.
## District of North Vancouver
Official Community Plan (OCP)

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» Regional Context
» This Official Community Plan
» The Planning Process - “Identity DNV 2030”
» Key Issues to Address in Planning for the Future
» Vision, Principles and Goals
» Strategic Directions
» Plan Organization and Structure
An Official Community Plan - Legislative Authority

An Official Community Plan (OCP) is a statement of objectives and policies that support a municipality’s long-term vision. Authority to adopt an OCP is set out in the *Local Government Act*. The Act requires that an OCP include certain land use statements and designations such as where residential, commercial, industrial, institutional and parkland uses are located, as well as policies for the provision of affordable, rental and special needs housing and the reduction of greenhouse gas emissions. The legislation also enables municipalities to include policies that speak to a broad range of issues including transportation, the natural environment, parks and recreation, social services and financial resiliency.

Acknowledgements

This OCP was developed with the support of the Federation of Canadian Municipalities’ *Green Municipal Fund*. As an Integrated Sustainable Community Plan, the Plan seeks to integrate all areas of municipal concern, from land use planning, to transportation, energy use, social services and infrastructure through a long-term sustainability vision, strategic policy actions and targets.

A Memorandum of Understanding with Vancouver Coastal Health to pilot a partnership to better integrate community health perspectives into planning for our built environment helped shape this plan. Representatives from Vancouver Coastal Health participated in OCP consultation events and provided valuable insights into how urban form, active transportation (walking and cycling) and social well-being benefit the mental and physical health of citizens.

In addition, representatives from the City of North Vancouver, District of West Vancouver, Metro Vancouver, TransLink, School District 44 and other governments and agencies provided valuable input.

Representatives of the Tsleil-Waututh Nation and Squamish First Nation governments participated in the development of the Plan. The Plan has been written without prejudice to First Nations’ assertions of aboriginal rights and title to their traditional territories.
**Historical Context**

The first people to call the North Shore home were Coast Salish, the ancestors of today’s Tsleil-Waututh, Squamish and Musqueam Nations. The Spanish were the first Europeans to arrive, giving their name to Vancouver’s Spanish Banks, and in 1792, Captain George Vancouver explored the local shores.

In 1891, Letters Patent were issued in the name of Queen Victoria establishing the Municipality of the District of North Vancouver. The new municipality stretched 31 kilometres from the North Arm of Burrard Inlet (“Indian Arm”) to Howe Sound and 13 kilometres north from the shoreline into the mountains. The District of North Vancouver originally included territory that would one day become the City of North Vancouver (incorporated 1907) and the District of West Vancouver (incorporated 1912).

Logging, timber milling, shipping and shipbuilding originally fuelled the District’s growth. By the early 20th century, the communities of Deep Cove, Lynn Valley, and Capilano had begun to emerge. A streetcar system (1906-1947) connected Capilano, Upper Lonsdale and Lynn Valley to the foot of Lonsdale and a ferry link to Vancouver.

The Port and its industries continue to contribute to the local economy and, over time, the forests of North Vancouver have come to represent our environmental values, our identity, and our “sense of place”. While the streetcar system has been replaced, this OCP builds upon our established historic land use and transportation patterns.
Regional Context

Today, the District of North Vancouver is one of four municipalities on the North Shore. There are also two First Nations with reserves in the District of North Vancouver. These areas function together as a sub-region of Metro Vancouver. They share key infrastructure (such as roads and utilities) and in some cases partner in the delivery of services (such as recreation and emergency services). These jurisdictions along with the Federal Government, the Province of BC and Metro Vancouver protect and manage the natural assets of the North Shore that contribute immensely to the values that identify this area. The shared waterfront along Burrard Inlet similarly shapes and defines the lifestyle and ecology of the North Shore. The District's industrial waterfront forms part of Canada's largest port, a strategic national asset and provides significant business opportunities and local jobs for residents.

With projected growth on the North Shore estimated at approximately 40,000 more people by 2030, the time frame of this OCP, it is essential that we continue to plan collaboratively with our neighbours. The urban structure contemplated by this OCP establishes a growth management framework to accommodate future growth in the District in a way that integrates with the structure of the broader North Shore sub-region. The designated growth centres of Maplewood, Lower Lynn, and Lower Capilano - Marine provide opportunities to align with Seymour Creek (Squamish First Nation), Lower Lonsdale (City of North Vancouver) and Park Royal/Ambleside (Squamish First Nation and District of West Vancouver) creating opportunities for enhanced transit, active transportation, district energy and the creation of a livable, sustainable urban corridor. Opportunities for collaborative planning will occur in the implementation stage. While the District will continue to work with partner agencies and governments in the provision of recreation, water and utilities, transit and the movement of goods, numerous voices, throughout the Identity DNV 2030 community engagement process, supported the exploration of a fully integrated North Vancouver political and administrative structure.

Beyond the North Shore, the District is also a member municipality of the wider Metro Vancouver region. Our OCP works in concert with the broader regional vision and strategy for managing growth towards a sustainable future. The Livable Region Strategic Plan (1996) is the existing regional growth strategy that is currently under review. Metro Vancouver’s proposed new Regional Growth Strategy has five broad goals that are consistent with the District’s vision and policies for its future:

---

1 In the context of Metro Vancouver, the North Shore comprises the District of North Vancouver, the City of North Vancouver, the District of West Vancouver and Lions Bay.
2 Tsleil-Waututh Nation and Squamish First Nation.
3 Port lands are under federal jurisdiction and are managed by Port Metro Vancouver.
A more detailed description of how the District’s OCP policies support and relate to the Regional Growth Strategy is provided in Schedule C - Regional Context Statement.
This Official Community Plan

This Official Community Plan is the culmination of a two-year community engagement initiative called Identity DNV 2030 and would not have been possible without the extensive participation of the public and stakeholders. This OCP was developed as an Integrated Sustainable Community Plan to provide a comprehensive policy framework that aligns social, environmental and economic planning to ensure a bright and sustainable future for the District. All of the area within the boundaries of the District of North Vancouver is covered by this OCP other than lands that are not subject to municipal jurisdiction.

This OCP is a guide to help District Councils, stakeholders and citizens effect positive change over a twenty-year time horizon. It includes policies that impact a broad range of municipal affairs. Implementation of those policies will occur through a number of specific plans and bylaws. Bylaws enacted and works undertaken by the District after the adoption of the OCP must be consistent with the OCP. In this way the OCP can be thought of as a policy framework, or “umbrella document,” that provides ongoing guidance to municipal decision-making and operations.

The Planning Process - “Identity DNV 2030”

Identity DNV 2030 was launched in June 2009 with the goal of preparing the first District-wide Official Community Plan in twenty years. District of North Vancouver Council envisioned a rigorous, inclusive, open and highly participatory citizen process. To that end, the citizen OCP Roundtable, and its predecessor, the Community Planning Working Group, were established to ensure an effective public engagement process, adherence to a Public Engagement Charter, the creation of a robust community vision and the meaningful adherence of policies to that vision.

Through a combination of over seventy-five open houses, public and stakeholder workshops, coffee shop talks, town hall meetings, charrettes, telephone, online and event surveys, almost 5,000 voices shared their vision for the future of the community and contributed their ideas on how to get there. Citizens were not only given the opportunity to attend, but were provided meaningful opportunities to learn, to participate, to discuss and provide comment.
Phase 1: *What is our long-term vision?*

**May - December 2009**
- Community Values Survey
- Launch Events
- Online and Kiosk Survey
- Visioning Workshops
- Vision Summit

Outcome: OCP Vision, Principles and Goals

Phase 2: *How do we get there?*

**January - November 2010**
- Policy Directions Stakeholder Workshops
- Policy Directions Public Workshops
- Making Choices Event
- Making Choices Open Houses
- Directions and Choices Feedback Survey

Outcome: OCP Draft Policies

Phase 3: *Refining the Plan*

**December 2010 - April 2011**
- OCP Draft One Open Houses and Feedback
- OCP Draft One Stakeholder Workshops
- OCP Draft One Community Associations Meetings
- Coffee Shop Discussions
- OCP Draft Two Open Houses and Feedback

Outcome: Official Community Plan Bylaw
Key Issues to Address in Planning for the Future

Initial plan development began with an inventory of existing conditions in the District and an analysis of the challenges facing us. Over the course of the public engagement process, certain issues and trends emerged. Policy statements contained in this Plan are designed to address those issues and their implications by proactively managing change in a way that enables us to preserve and enhance what is loved most about the District. Some of the key issues that this plan seeks to address are outlined below.

CHALLENGING DEMOGRAPHIC PROFILE

Over the past 30 years the number of seniors (65+) residing in the District has increased fourfold. One in four residents are now over 55. At the same time, a “missing generation” or low number of young adults aged 20-40 means there are fewer residents to drive the economy and start families. The number of jobs in the District has been declining and school closures are ongoing.

LACK OF HOUSING DIVERSITY AND AFFORDABILITY

As much as 70% of housing in the District is in the form of detached homes. As the population ages and household sizes decrease, more than 10% of our detached homes now have only one person living in them. This form of housing is the most expensive and presents a barrier to first-time buyers and to seniors wishing to downsize. With an effective 0% vacancy rate and a dwindling and aging rental housing stock, there are few options for renters.

LOSS OF ECONOMIC VIBRANCY

The District lost about 1,000 jobs between 1996 and 2006 at a time when the Metro Vancouver region gained around 150,000 jobs. Fewer local jobs mean fewer options for District residents to work close to home and more transportation-related greenhouse gas emissions. With businesses contributing 30% of the District’s property tax revenue, their success is vital for all of the community.
LARGE ENVIRONMENTAL FOOTPRINT

Our spread out land use pattern of predominantly detached homes is costly and inefficient to serve with transit and often means residents are unable to walk to the shops and services they need. Our high reliance on the automobile (85% of the commute, 79% of all trips) is a significant contributor to our substantial community greenhouse gas emissions (412,000 tonnes annually).

SOCIAL ISSUES

The District’s changing demographic profile places different demands on our services and programs. Walkable neighbourhoods and active transportation are important determinants of mental and physical health. We have a range of social issues to address and vulnerable populations to support. Examples include an increasing gap between the rich and poor, with over 10,000 of our residents (about 12% of the population) living in low income households. Our homeless population has also seen a dramatic increase, tripling from 44 in 2002 to 127 in 2008.

AGING MUNICIPAL INFRASTRUCTURE AND FINANCIAL CHALLENGES

Most of the District’s infrastructure was built in the 1950s, 1960s and 1970s, which means rising maintenance and replacement costs. Regional infrastructure is in a similar state and these costs are passed on to our residents and businesses through rising utility fees. Our low population growth limits the ability of the District to leverage funding through development cost charges and community amenity contributions, creating a reliance on property taxes and utility fees to fund infrastructure, facilities and improvements. If the District continues to lose businesses, this burden will increasingly be borne by the residential sector. Continuing on the current path of minimal growth and a predominately single family land use pattern may be costly.
Vision, Principles and Goals

Understanding and raising awareness of the key issues in planning for the future catalyzed intensive community visioning through the **Identity DNV 2030** initiative. In December 2009 Council endorsed a compelling 20-year vision, the principles to guide decision-making towards that vision and the specific goals to make it happen.

Our vibrant neighbourhoods and centres are framed by our mountain backdrop, forests, streams and shorelines. We live in an inclusive and supportive community that celebrates its rich heritage and lives in harmony with nature.

Our neighbourhoods include people of all ages, cultures and incomes. All are equally welcomed, valued and actively engaged in community life. Our young have safe and healthy environments in which to grow and succeed; our seniors can remain in the community with their needs met in a dignified way.

Our network of well designed, livable centres provides a wide range of housing options and opportunities to shop, work and gather. Our local businesses are resilient and diverse, providing the services we need and an array of employment opportunities. Education, art, culture and recreation enrich our daily lives; we are an active, healthy and creative community.

Our enviable pedestrian and cycling network connects us to our destinations and our unparalleled natural environment. Many people walk, cycle and take transit, leaving their cars at home as viable alternatives are available.

Our community is effectively addressing and adapting to the challenges of climate change. Our air is clean, our water is pure, our waste is minimal: our lifestyle is sustainable. We have ensured the District remains a great place to live, learn, work and play for generations to come.
VISION FOR 2030

The District of North Vancouver: Inspired by nature, enriched by people

PRINCIPLES

The District of North Vancouver Official Community Plan is guided by the following principles. Collectively these principles provide a decision-making framework to support the realization of the Plan’s Vision and the implementation of the Plan’s Goals.

ACTIVE LEADERSHIP

The District embraces opportunities and addresses challenges proactively, recognizing the key role of local government in defining its community.

ACCOUNTABILITY AND RESPONSIBLE GOVERNANCE

The District engages its residents continually, seeking open and transparent input into its decision-making, while demonstrating fiscal accountability through prudent management of our shared assets.

SUSTAINABILITY FOR FUTURE GENERATIONS

The District balances the environmental, social, cultural and economic needs of the community and is committed to its role in the stewardship of all that is valued for future generations.

COLLABORATION AND PARTNERSHIPS

The District recognizes the necessity and value of collaborating with Federal, Provincial, municipal and First Nation governments as well as agencies, educational institutions, social service organizations, and businesses.
GOALS

Together with the Vision and Principles, these Goals inform the policies, strategies and targets developed for the District of North Vancouver Official Community Plan.

1. Create a network of vibrant, mixed-use centres while enhancing the character of our neighbourhoods and protecting natural areas

2. Encourage and enable a diverse mix of housing type, tenure and affordability to accommodate the lifestyles and needs of people at all stages of life

3. Foster a safe, socially inclusive and supportive community that enhances the health and well-being of all residents

4. Support a diverse and resilient local economy that provides quality employment opportunities

5. Provide a safe, efficient and accessible network of pedestrian, bike and road ways and enable viable alternatives to the car through effective and coordinated land use and transportation planning

6. Conserve the ecological integrity of our natural environment, while providing for diverse park and outdoor recreational opportunities

7. Develop an energy-efficient community that reduces its greenhouse gas emissions and dependency on non-renewable fuels while adapting to climate change

8. Provide infrastructure to support community health, safety and economic prosperity, and facilities that enhance recreational opportunities, cultural activity and artistic expression
Strategic Directions

With Council’s endorsement of the Vision, Principles and Goals in December 2009, Identity DNV 2030 transitioned from asking what we want for the future of the community to exploring policies for how to make it happen. After thirty public and stakeholder themed policy workshops, four strategic directions for the future of the community emerged:

1. **PLAN FOR A MORE BALANCED AND DIVERSE POPULATION**
   - Facilitate diverse housing choices and vibrant, age-friendly communities with a range of facilities and services

2. **CREATE MORE COMPLETE, COMPACT AND CONNECTED COMMUNITIES**
   - Establish a network of connected town and village centres that support effective transit, walking and cycling; and focus growth and renewal in four key centres: Lynn Valley and Lower Lynn Town Centres and Maplewood and Lower Capilano-Marine Village Centres

3. **REDUCE OUR ENVIRONMENTAL FOOTPRINT**
   - Conserve energy and reduce greenhouse gas emissions through compact, connected and “green” communities; and encourage the protection and enhancement of our natural systems

4. **BECOME MORE ECONOMICALLY DYNAMIC AND SUSTAINABLE**
   - Encourage the protection, intensification and diversification of our employment lands, and a customer-oriented and business-friendly environment

These strategic directions, the Making Choices community forums in June 2010, and the workshops, meetings and open houses held on iterative drafts of the OCP from fall 2010 to spring 2011, shaped the objectives and the policies of the Plan.

Identity DNV 2030 was two years of intense, creative dialogue and input that is strongly represented in this OCP. While this OCP creates a roadmap to a sustainable DNV in 2030, there is further work to be undertaken. From conceptual sketches to fully evolved plans and fully realized centres, the community will be engaged at all stages of implementing the OCP. Housing action plans, a social strategy, a climate action plan, economic development and other opportunities will be advanced through the implementation of the OCP. Plan monitoring for success and course correction are vital to keeping this OCP relevant and to achieving the community’s vision.
Plan Organization and Structure

This OCP is structured in three main parts and three schedules:

**Part One: Community Structure** - contains the land use related policies that address growth management, land use regulation, the parks network and transportation systems.

**Part Two: Community Development** - contains the policies that address the ways we can improve the quality of life in the District through social, environmental and economic development.

**Part Three: Plan Management** - focuses on implementation and identifies targets, indicators and baseline conditions to monitor success. It establishes a framework for future planning and strategic action plans and includes a financial statement to achieve long-term financial resiliency.

**Schedule A** - includes policies for the Town and Village Centres where growth and renewal is focused based on the “network of centres concept” including:

1. **LYNN VALLEY TOWN CENTRE**
2. **LOWER LYNN TOWN CENTRE**
3. **MAPLEWOOD VILLAGE CENTRE**
4. **LOWER CAPILANO - MARINE VILLAGE CENTRE**

**Schedule B** - contains the Development Permit Areas (DPAs), which provide statements that apply to all new development that takes place within a delineated DPA. Schedule B includes four categories of DPA, which are: (1) protection of the natural environment; (2) hazardous conditions; (3) form and character of development and (4) energy and water conservation and reduction of greenhouse gases. Each individual development permit area poses unique challenges and issues and therefore has statements of context, objectives and specific development guidelines that apply within that DPA only.

**Schedule C** - is the Regional Context Statement, which identifies the relationship and consistency between the OCP and the Regional Growth Strategy.

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1. Growth Management

2030 TARGET
75-90% of new residential units located in 4 key centres within the Network of Centres

The effective management of growth and change is one of the key functions of an OCP. Well planned growth and development can provide lasting benefits through the efficient use of land, resources, infrastructure, facilities and services. The District’s objective is to proactively manage growth and change in the District to achieve a compact, efficient, environmentally sustainable, prosperous and socially equitable community.

Managing growth proactively requires a strong vision for land use in the District of North Vancouver. The concept that expresses this land use vision is a “network of centres”: a hierarchy of different sized centres with a variety of housing, services and jobs that are accessible, connected, vibrant and unique places. This concept is illustrated on the Network of Centres Concept Map (Map 1). Directing growth into this urban structure supports a number of the OCP’s goals. Sprawl is contained and impacts to natural areas are minimized. Improved transit becomes viable between centres and a more walkable environment is created within centres. Transportation-related greenhouse gases are reduced. Municipal infrastructure and services are provided more efficiently. Local businesses operate within vibrant hubs, while employment lands are preserved for their economic value. More diverse housing choices become available to meet the needs of residents at different stages of their lives. And importantly, the stability and character of residential neighbourhoods are sensitively preserved.

This OCP will strategically direct growth in a controlled manner to achieve the community’s goals and vision. Looking to 2030, the OCP identifies capacity for approximately 10,000 net new housing units, corresponding to a population increase of around 20,000 people and 10,000 new jobs. These figures are estimates only. They are provided to help guide planning and are not targets. This growth may or may not occur over the 20-year planning horizon to 2030 and will depend on market and other forces, including the capacity of infrastructure. The policies and implementation strategies articulated in this Plan will ensure that future development will be guided in the public interest and work towards realizing the desired community benefits.
Policies

1. Accommodate growth and development within the existing built area and maintain the District’s Urban Containment Boundary as shown on the Land Use Map (see Map 2).

2. Protect areas outside the Urban Containment Boundary by limiting to uses associated with outdoor recreation and tourism, watershed and resource management, conservation, rural residential living and research purposes.

3. Establish a network of centres and corridors consistent with the Network of Centres Concept Map (see Map 1) and direct residential and commercial growth to these areas.

4. Facilitate an appropriate mix and intensity of land uses in designated centres and corridors to support enhanced transit service provision.

5. Respect residential neighbourhood character and limit growth in these areas.

6. Integrate land use, transportation, and parks planning, infrastructure provision, urban design, and energy conservation to achieve efficiencies and vibrant places.

7. Protect employment lands by limiting to uses predominantly associated with heavy industry, light industry, and general business and by limiting residential and retail uses.

8. Work collaboratively with the City of North Vancouver, the District of West Vancouver, Squamish and Tsleil-Waututh First Nation governments, the regional transportation authority, Metro Vancouver, and Provincial and Federal agencies to effectively coordinate community and infrastructure planning.
Map 1
Network of Centres Concept Map

Planning to 2030
- 75-90% of growth focused in four key centres:
  - Lynn Valley
  - Lower Lynn
  - Lower Capilano - Marine
  - Maplewood

Legend
- Orange: Town Centre
- Yellow: Village Centre
- Red: Transit Corridor
- Black: Urban Containment Boundary
- Purple: Industrial & Light Industrial
- Green: Parks & Natural Areas

Note: This map is conceptual in nature only
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2 Urban Structure

2030 TARGET
housing mix of 55% detached, 45% attached units

The urban structure of the District is shown conceptually on Map 1, Network of Centres Concept Map. It is comprised of two Town Centres (Lynn Valley and Lynn Creek) and six Village Centres (Lion’s Gate, Edgemont, Queensdale, Maplewood, Parkgate and Deep Cove), along with Neighbourhoods and the Corridors that connect them. In addition to the urban structure policies, which apply across the District, Schedule A of this OCP provides more detailed planning for the four primary growth centres in the District: Lynn Valley and Lynn Creek Town Centres and Lion’s Gate and Maplewood Village Centres. Further implementation of land use policies and OCP objectives is anticipated to occur through specific Centres Implementation Plans and Neighbourhood Infill Plans (Chapter 12.3.1).

2.1 Town Centres

2.2 Village Centres

2.3 Neighbourhoods

2.4 Transit Corridors

2.5 Land Use Designations for the Urban Structure
The Town Centres contain the broadest range of services and land uses in the District. As the highest category of centre, they are anticipated to receive significant growth over the time frame of this plan. The Town Centres are major nodes on the transit network and can be accessed by several bus routes. They function as municipal-wide destinations that contain major commercial uses like grocery and department stores and institutional uses like libraries and community centres. Office employment is encouraged. The Town Centres provide a variety of multifamily housing options within and around their commercial core and transition sensitively outwards to their surrounding neighbourhoods. High quality urban design enhances the public realm and pedestrian environment. **The District’s objective for the Town Centres is to create vibrant and complete communities that provide diverse housing, employment and recreational opportunities.**

**POLICIES**

1. Designate Lynn Valley and Lower Lynn as the District’s Town Centres and prepare detailed Town Centre Implementation Plans for these areas of growth

2. Direct residential growth to the Town Centres in the form of mixed-use and multifamily development to enable greater housing diversity and affordability

3. Concentrate new retail, service and major office development in the Town Centres to maximize transit and pedestrian access for employees and customers

4. Focus community infrastructure investment to the Town Centres to ensure that quality facilities and services meet the needs of their expanded populations, while recognizing District-wide needs

5. Transition sensitively outwards from the Town Centre with appropriate ground-oriented housing forms (such as townhouse) to adjacent residential neighbourhoods

6. Establish Development Permit Areas and Design Guidelines regulating the form and character of development to promote design excellence and reflect the unique qualities of each Town Centre
2.2 Village Centres

The Village Centres provide a focus for their surrounding neighbourhoods. They have a range of shops and services to meet most daily needs, but do not generally include major “destination” retail establishments such as department stores. Mixed-use development, such as apartments situated over shops, is a typical building form within the commercial core, with lower density multifamily housing (such as duplexes or townhouses) forming a peripheral area adjacent to the core. **The District’s objective for the Village Centres is to build on their own unique characteristics to create distinct urban village environments.** More detailed planning for the Village Centres where growth is anticipated - Maplewood and Capilano - Marine - is provided for in this OCP in Schedule A. Significant changes to other Village Centres are not proposed in this plan and pre-existing Local Area Plan land uses have been integrated. The OCP provides for the opportunity for more detailed Village Centre Implementation Plans to be prepared or reviewed where appropriate in the future (Chapter 12).

POLICIES

1. Designate Lower Capilano-Marine, Edgemont, Queensdale, Maplewood, Parkgate and Deep Cove as the District’s Village Centres

2. Prepare detailed Village Centre Implementation Plans for Maplewood and Lower Capilano-Marine as these are areas for revitalization and growth

3. Accommodate a range of multifamily, commercial and institutional uses in the Village Centres

4. Encourage the inclusion of upper floor residential units in new commercial development in core or high street areas

5. Concentrate development in the Village core and transition sensitively outwards with appropriate ground-oriented housing forms (such as duplex and townhouse) to adjacent residential neighbourhoods

6. Establish Development Permit Areas and Design Guidelines regulating the form and character of development to promote design excellence and reflect the unique qualities of each Village Centre

7. Ensure Village Centre Implementation Plans and their peripheral areas are consistent with the objectives and policies of the OCP and prepare or review Plans as necessary

8. Work with Capilano University to integrate residential, institutional or economic development within the university precinct into the District’s urban structure
2.3 Neighbourhoods

The existing residential neighbourhoods in the District are largely comprised of detached houses. With a few exceptions, multifamily residences within neighbourhoods are ground-oriented (duplexes, triplexes or townhouses). Schools, corner stores and parks provide valuable amenities to surrounding residential uses. Neighbourhoods should be walkable, family-friendly places. Significant change is not anticipated in existing neighbourhoods. Sensitive residential infill opportunities may be considered to provide greater housing diversity or transition to adjacent uses through Neighbourhood Infill Plans and/or Housing Action Plans (Chapter 12). Neighbourhood character and local support must be considered in these Plans and planning processes. The District’s objective for Neighbourhoods is to provide safe, beautiful and inclusive environments for residents of all ages.

POLICIES

1. Maintain ground-oriented detached and attached housing as the predominant residential forms

2. Accommodate the provision of schools, community facilities and other institutional uses and maintain public assembly uses where feasible

3. Integrate a network of parks and open spaces throughout neighbourhoods

4. Encourage the preservation of local commercial uses (corner stores) in neighbourhoods and encourage new local commercial uses where appropriate

5. Prepare Housing Action Plan(s) to identify criteria for low intensity infill housing, such as coach and laneway housing and small lot subdivision as appropriate

6. Enable sensitive redevelopment in appropriate areas, such as locations adjacent to existing multifamily or commercial uses, through Neighbourhood Infill Plans
2.4 Transit Corridors

The transit corridor concept illustrated in the Network of Centres Concept Map (Map 1) supports the OCP’s urban structure by connecting the Town and Village Centres along key corridors. These corridors receive, or may potentially receive, frequent transit service provision (defined as every 15 minutes or better, throughout the day, 7 days a week). To support the provision of this level of service, the regional transportation authority allows portions of transit corridors to be designated Frequent Transit Development Areas in collaboration with municipalities. The District’s objective is to achieve the regional designation of Lower Lynn Town Centre and Capilano - Marine Village Centre as Frequent Transit Development Areas. As the District’s Municipal Town Centre\(^1\), Lynn Valley is also a priority for frequent transit. Other opportunities for strategic densification in areas in immediate proximity to transit corridors may arise over the horizon of this plan. These should occur at different scales to ensure a sensitive and appropriate fit to their surrounding uses and would be addressed through Centres Implementation or Neighbourhood Infill Planning processes as outlined in 12.3.1.

POLICIES

1. Work with the regional transportation authority and Metro Vancouver to establish Lower Lynn Town Centre and Capilano - Marine Village Centre as Frequent Transit Development Areas (see Regional Context Statement, Schedule C)

2. Consider designating additional Frequent Transit Development Areas as appropriate over time where such designation is consistent with OCP land use and transportation objectives

3. Enable sensitive densification of appropriate scale at strategic locations along transit corridors within the Network of Centres through Centres Implementation or Neighbourhood Infill Planning processes

2.5 Land Use Designations for the Urban Structure

Map 2 is the Land Use Map for the District. It designates the preferred location of land uses. The residential, commercial and institutional land use designations on Map 2 are described in the following table. The references to Floor Space Ratios (FSR) in the table provide guidance regarding the general massing and approximate density of development. The term “Floor Space Ratio”, as used in the table, means generally the ratio of the floor area of a proposed development over the area of the lot or lots upon which the development is to be located. It does

\(^1\) Lynn Valley is identified as the District's Municipal Town Centre in the proposed Regional Growth Strategy and this designation is reflected in the District’s Regional Context Statement (Schedule C). This designation recognizes Lynn Valley’s existing role as a municipal-serving hub. As OCP implementation advances, Lower Lynn may also be considered for addition to the Regional Growth Strategy as a Municipal Town Centre.
not regulate actual densities on individual lots, that being the function of the District’s Zoning Bylaw. Council may, in its discretion, and with a public hearing, consider zoning bylaw amendments to permit density over and above that indicated in the table on a case by case basis where the proposed development is otherwise consistent with objectives and policies of the OCP.

RESIDENTIAL LEVEL 1: RURAL RESIDENTIAL
Areas designated for rural residential are intended for detached housing on large lots situated outside the urban boundary. The OCP does not envision further intensification of use through subdivision in this designation and/or through extension of services. Detached rural residences are generally allowed up to approximately 0.35 FSR.

RESIDENTIAL LEVEL 2: DETACHED RESIDENTIAL
Areas designated for detached residential are intended predominantly for detached housing within neighbourhoods. This designation accommodates secondary rental units such as suites or coach houses subject to the imposition and satisfaction of appropriate conditions. Detached residences (inclusive of suites and coach houses) are generally allowed up to approximately 0.55 FSR.

RESIDENTIAL LEVEL 3: ATTACHED RESIDENTIAL
Areas designated for attached residential are intended predominantly for ground-oriented multifamily housing within neighbourhoods, or as a transition between higher density sites and adjacent detached residential areas. Typical housing forms in this designation include duplex, triplex and attached row houses up to approximately 0.80 FSR.

RESIDENTIAL LEVEL 4: TRANSITION MULTIFAMILY
Areas designated for transitional multifamily are intended predominantly for multifamily uses within or in close proximity to centres and corridors, or as a transition between higher density sites and adjacent detached and attached residential areas. This designation typically allows for a mix of townhouse and apartment developments up to approximately 1.20 FSR.

RESIDENTIAL LEVEL 5: LOW DENSITY APARTMENT
Areas designated for low density apartment are intended predominantly for multifamily housing in centres and corridors up to approximately 1.75 FSR. Development in this designation will typically be expressed in low rise apartments, but may include some townhouses. Some commercial use may be permitted at grade.

RESIDENTIAL LEVEL 6: MEDIUM DENSITY APARTMENT
Areas designated for medium density apartment are intended predominantly to provide increased multifamily housing up to approximately 2.50 FSR at strategic locations in centres and corridors. Development in this designation will typically be expressed in medium rise apartments. Some commercial use may also be permitted in this designation.
COMMERCIAL RESIDENTIAL MIXED-USE LEVEL 1
Areas designated for commercial residential mixed-use level 1 are intended predominantly for general commercial purposes, such as retail, service and offices throughout the District. Residential uses above commercial uses at street level are generally encouraged. Development in this designation is permitted up to approximately 1.75 FSR.

COMMERCIAL RESIDENTIAL MIXED-USE LEVEL 2
Areas designated for commercial residential mixed-use level 2 are intended predominantly for medium density general commercial purposes, such as retail, service and offices at limited sites within the District. Residential uses are typically expected to accompany commercial uses. Development in this designation is permitted up to approximately 2.50 FSR.

COMMERCIAL RESIDENTIAL MIXED-USE LEVEL 3
Areas designated for commercial residential mixed-use level 3 are intended predominantly to provide for high density uses up to approximately 3.50 FSR at limited appropriate sites in the District’s Centres. Development in this designation may include residential or commercial uses, which encompass retail, office and service uses, or a mix of these residential and commercial uses.

COMMERCIAL
Areas designated for commercial are intended predominantly for a variety of commercial and service type uses, where residential uses are not generally permitted. Development in this designation is permitted up to approximately 1.0 FSR.

INSTITUTIONAL
Areas designated for institutional are intended predominantly for a range of public assembly uses, such as schools, churches, recreation centres, and public buildings. Some commercial and accessory residential uses may be permitted.
The urban structure (Chapter 2) provides diverse opportunities for economic activity such as office and retail in centres, employment in schools and Capilano University and home-based businesses. In addition to these, our industrial and light industrial employment lands play a vital role in achieving our vision of becoming a more complete and balanced community. These areas are predominantly dedicated to employment uses. The development of employment lands should provide for a continued and expanded supply of quality local jobs, enable reduced commuting times and associated greenhouse gas emissions and enhance the municipality’s prosperity. The District’s objective for employment lands is to encourage wealth-generating investment resulting in net new employment and increased tax revenue, which benefits the whole community.

Located in Lower Capilano, Lower Lynn, and Maplewood, land use in these employment areas is comprised of two designations: **Industrial and Light Industrial Commercial**. Uses in the Industrial designation relate
to port-oriented and major industrial type uses such as transportation, warehousing, and manufacturing. Port lands are under federal jurisdiction and are managed by Port Metro Vancouver. Uses in the Light Industrial Commercial designation relate to light industrial and business or “tech” park type uses including research and development. Most retail uses are restricted in both designations, as the walkable and transit-friendly network of centres are better locations for these types of business. Residential uses are also controlled in employment lands, to prevent the erosion of lands available to business and industry. Additional Economic Development policies are found in Chapter 8.

### 3.1 Protecting the Employment Function of Employment Lands

The District’s objective is to ensure an adequate supply of land for business exists to enable significant economic activity and jobs in the community. Protecting employment lands provides stability and reassurance to existing and potential business owners and industries, which increases the likelihood of long-term business investment in the community.

**POLICIES**

1. Monitor the availability of Industrial and Light Industrial Commercial land and developable floor space to facilitate an adequate supply for economic growth

2. Limit residential uses to accessory care-taker units, and to live-work units in Light Industrial Commercial areas within or proximate to the network of centres

3. Direct major retail uses to the network of centres and limit retail in Industrial and Light Industrial Commercial areas to compatible accessory uses and to appropriate conditional uses

4. Direct major office uses to sites within and proximate to the network of centres

### 3.2 Intensifying Uses on Employment Lands

With constraints on land supply, it is important to make efficient use of available areas on all employment lands. Intensifying economic uses in employment lands allows businesses to grow while keeping their overall footprint in the community small. The District’s objective is to make more intense use of our employment land base. This means more jobs per acre, more opportunities for new business, and more revenue generating opportunities within the community.

**POLICIES**

1. Encourage a productive and efficient use of employment lands

2. Encourage infill development and the redevelopment of under utilized sites with Industrial and Light Industrial Commercial uses
3.3 Enabling a Diverse Range of Economic Uses within Employment Lands

Diversity provides stability across the ups and downs of particular industries and sectors, which helps ensure our ongoing vibrancy. The economy is continually changing, and over the long-term horizon of this plan it is important for businesses to be able to change to take advantage of new opportunities, introduce new products, and use new technologies. Some businesses need many uses on the same site. The District’s objective is to provide flexibility for businesses to grow and adapt, while avoiding land use conflicts.

POLICIES

1. Encourage flexibility of compatible uses while preserving the primary function of employment lands

2. Preserve Industrial designated lands for industrial uses and uses that are accessory or supportive of industrial activities

3. Facilitate an appropriate mix of light industrial and non-retail commercial uses in Light Industrial Commercial designated lands
3.4 Ensuring a High Quality Business Environment in Employment Lands

As businesses can often choose to locate in a number of municipalities, it is important to ensure the District remains an attractive and competitive location for a wide range of business types with well-served, high quality employment spaces. The District’s objective is to attract new businesses and encourage existing businesses to reinvest or expand.

POLICIES

1. Promote infrastructure, transportation and municipal service improvements in areas designated for Industrial and Light Industrial Commercial uses

2. Encourage high quality development standards to create desirable employment locations

3. Encourage effective buffering and transitioning between employment and non-employment lands

3.5 Land Use Designations for Employment Lands

The following land use designations on the OCP Land Use Map (Map 2) are described below:

INDUSTRIAL
Areas designated for industrial are intended predominantly for a range of manufacturing, warehousing, transportation, service, and port-related uses. Limited office, limited retail and residential caretaker uses may be permitted.

LIGHT INDUSTRIAL ARTISAN
Areas designated for light industrial artisan are intended predominantly for a mix of small-scale light industrial, warehouse, service, utility and residential uses up to approximately 2.50 FSR. Light industrial uses at street level are generally encouraged, and residential uses are typically expected above street level. Supportive uses including limited office, and limited retail uses may be permitted.

LIGHT INDUSTRIAL COMMERCIAL
Areas designated for light industrial commercial are intended predominantly for a mix of industrial, warehouse, office, service, utility and business park type uses. Supportive uses including limited retail and limited residential uses may be permitted.
LIGHT INDUSTRIAL COMMERCIAL MIXED-USE - INNOVATION DISTRICT
Areas designated for light industrial commercial mixed-use - innovation district are intended predominantly for a mix of industrial, warehouse, office, service, utility and business park type uses up to approximately 1.10 FSR. Light industrial uses at street level are generally encouraged, and commercial uses, such as retail, service and office, are typically expected above street level. Supportive uses including limited institutional, and limited recreational uses may be permitted.

LIGHT INDUSTRIAL RESIDENTIAL MIXED-USE - INNOVATION DISTRICT
Area designated for light industrial residential mixed-use - innovation district are intended predominantly for a mix of industrial, warehouse, office, service, utility, and business park type uses up to approximately 1.10 FSR. Light industrial uses at street level are generally encouraged, and residential uses are typically expected above street level. Supportive uses including limited institutional, limited recreational, and residential-only uses may be permitted.
4 Parks and Open Space

2030 TARGET
increase park, open space and/or trails in growth centres and continue to exceed minimum standard of 2 ha for community and neighbourhood park/1000 District-wide

Our quality of life is directly influenced by our parks and open space. Parks and open space provide opportunities for active and passive recreation, places for people to gather, space to relax and experience nature, and linkages between community facilities and other destinations. They form the core of the District’s natural environment providing habitat and protecting ecological health (Chapter 9). Maintenance and reinvestment of parks and open space is as important as acquiring new lands. The District’s objective is to provide a variety of year-round recreational experiences, meet the needs of users, and protect the ecological integrity of our natural systems.

4.1 Parks and Open Space System
4.2 Parkland Standards and Acquisition
4.3 Land Use Designation for Parks and Open Spaces
The District has an abundance of natural and urban parkland and trails that are highly valued by District residents. Provincial and Regional Parks and conservation areas within the District of North Vancouver are also important natural assets with significant ecological, recreational, community health, heritage and aesthetic values. The District’s objective is to maintain a diverse, high quality parks and open space system that serves a range of community needs and protects the natural environment, comprising:

- **District Parkland** - serves all District residents by providing unique park, recreation and natural environment experiences.

- **Community Parkland** - serves several neighbourhoods and includes parks for organized recreational opportunities, trails and natural features.

- **Neighbourhood Parkland** - smaller localized parks providing limited active and passive recreational opportunities serving residents within a reasonable walking distance.

- **Natural Parkland** - protects environmentally sensitive lands, habitats and wildlife, separating urban uses and providing trail linkages.

- **Trails and Greenways** - contribute towards an integrated and connected system that links destinations and provides opportunities for walking, hiking, and cycling.

- **Blueways and Waterfront** - rivers, creeks and waterfront that have highly valued environmental, recreational, cultural, heritage and economic significance.
The District’s parks, open space and major trails systems are generally as shown on the Parks and Trails Concept Map (Map 3).

POLICIES

1. Develop and implement a Parks and Open Space Strategic Plan consistent with the OCP to manage and improve the District’s parks and trails system.

2. Manage District parkland according the type of parkland and measures to be set out in the District’s Parks and Open Space Strategic Plan.

3. Support the long-term protection of regionally significant Recreation and Conservation lands identified on Map 14, Regional Features (Schedule C), from urbanization.

4. Develop and maintain the District-wide network of trails and greenways shown conceptually on Map 3, Parks and Trails Concept Map, focusing on completing trails identified in the Parks and Open Space Strategic Plan and improving trail connections to the community.

5. Explore opportunities to increase connectivity to Regional and Provincial Parks and participate in Regional Greenways initiatives.

6. Consider and pursue appropriate opportunities to provide improved waterfront access as part of the current system of walkways, street-ends, viewpoints, public wharves and boat launches.

7. Support appropriate non-motorized water recreation and facilities in District waterfront parks.

8. Improve access and enhance signage/way-finding to parks, open spaces and trails for a diversity of people and abilities.

9. Recognize the importance of school fields/play areas as community recreation assets and seek to maintain these uses where appropriate.

10. Encourage the on-site inclusion of usable open space and play opportunities with new multifamily development as appropriate.

11. Design and manage recreational facilities in natural parkland and waterfront areas to support the protection of ecological systems, cultural and archaeological resources.

12. Consider allowing appropriate commercial activities and special events in parks that do not impact environmental systems or impede public access and enjoyment.

13. Explore additional and coordinated opportunities for volunteer citizen engagement in simple parks maintenance, cleanup and enhancement.

14. Work with adjacent municipalities, regional, provincial and federal governments, local First Nations governments and community groups to provide and maintain a coordinated system of parkland, trails, services and facilities while protecting ecological and cultural resources.

15. Advance the Spirit Trail, which would provide a multi-use trail linking Deep Cove to Horseshoe Bay, in consultation and collaboration with the North Shore governments, the Province and other partners.
4.2 Parkland Standards and Acquisition

The District has an abundance of natural and urban parkland and trails but there are a few areas that are inadequately served with neighbourhood and community level parks. Some of these inadequacies are satisfied through school site sports fields and play areas. Over time, there will also be an increasing demand for park space in the Town and Village Centres where growth occurs. The District’s objective is to ensure that all neighbourhoods are well served by the parks system.

POLICIES

1. Support the provision of passive and active outdoor recreational opportunities within reasonable walking distance of every neighbourhood

2. Provide new parkland, open space and greenway trails as part of planning processes for Town and Village Centres undergoing growth and change

3. Explore means to utilize parkland more efficiently including opportunities for joint use with schools

4. Update and adapt local park facilities to suit current needs and changing demographics

5. Develop a strategy for parkland acquisition to address needs and opportunities regarding parkland within the developed and natural areas of the District

6. Consider the purchase or dedication of additional natural parkland through the Parks Acquisition Strategy where such lands provide important trail linkages, ecological functions, waterfront access, protect natural hazardous lands or offer unique educational, cultural or recreational opportunities

7. Encourage strategic parkland acquisitions through donation of private lands, eco-gifting, legacy funding, the development process and other means

4.3 Land Use Designation for Parks and Open Spaces

The following land use designation on the OCP Land Use Map (Map 2) is described below:

PARKS, OPEN SPACE, AND NATURAL AREAS
Areas designated for parks, open space and natural areas are intended for a range of public and private uses focussed principally on the protection and preservation of ecologically important habitat areas, the regional drinking water supply, or the provision of diverse parks, outdoor recreational, or tourism opportunities.
Note: This map is conceptual in nature only.
5 Transportation Systems

2030 TARGET
35% of District resident trips are by walking, cycling or transit

Our ability to move around quickly, safely, affordably, and comfortably affects every aspect of our lives. The ability of goods and freight to move efficiently and the ability of workers and clients to access our local businesses all influence the economic vitality of our municipality. The mode of transportation we use also has consequences for our environmental and personal health: walking to the bus stop or cycling to work, for example, can both reduce greenhouse gas emissions and provide good exercise. The transportation needs and patterns of the community are changing, with most of our trips now being made for non-work purposes, outside of rush hour, and within the North Shore. The District’s objective is to respond to our changing needs and meet our social, economic and environmental goals by providing greater transportation choice.

5.1 Transportation and the Network of Centres
5.2 The Pedestrian Network
5.3 The Bicycle Network
5.4 The Transit Network
5.5 The Road Network and Goods Movement
5.1 Transportation and the Network of Centres

The District’s objective is to strategically integrate transportation and land use planning. The more nodal, concentrated development pattern promoted by this plan will facilitate a move away from the high reliance on the car that our existing dispersed land use pattern imposes. Locating housing, jobs, shops and services in closer proximity makes walking and cycling more viable and transit more efficient. This plan provides land use directions for four centres: Lynn Valley, Lower Lynn, Lower Capilano - Marine and Maplewood. Policies below apply principally to these locations. While significant growth is not directed to other locations on the network of centres, it is recognized that any future development elsewhere on the network should be guided by the policies provided here.

POLICIES

1. Plan for an appropriate density and mix of uses to support the provision of frequent transit service

2. Work with the regional transportation authority to provide appropriate transit infrastructure and facilities

3. Encourage the integration of transit access in the design of new developments

4. Encourage and facilitate access for people of all abilities in the design of centres and transit corridors

5. Encourage new developments to provide high quality pedestrian facilities and improve the public realm

6. Support pedestrian connectivity within and to centres by providing a continuous pedestrian network

7. Provide a range of on-street and off-street cycling infrastructure within centres and routes into centres

8. Consider, where appropriate, reducing vehicle parking requirements for new developments in centres and corridors well served by transit to encourage alternate modes of transportation and increase housing affordability
5.2 The Pedestrian Network

Creating more walkable communities facilitates and promotes easy access to services and facilities, livability and community and environmental health. The District’s objective is to ensure safe and comfortable opportunities to walk are provided for pedestrians throughout the community for a variety of trip purposes.

POLICIES

1. Assess the needs of pedestrians in all road improvement projects and design projects to address needs accordingly

2. Improve District-wide pedestrian connectivity through sidewalk network improvements

3. Improve pedestrian comfort and safety by employing traffic calming and crossing improvements where appropriate

4. Encourage pedestrian-friendly features, public realm improvements, and accessibility for people of all abilities in the design of major developments

5. Work with schools to provide safe walking and cycling routes to schools

6. Integrate the pedestrian network with the parks and urban trail system where feasible and appropriate

7. Improve pedestrian connections and accessibility to transit and enhance pedestrian comfort and safety where necessary
5.3 The Bicycle Network

Cycling is often the fastest mode of transportation for trips in urban areas and provides significant health and environmental benefits. Many cyclists use our existing road network, but some routes pose challenges such as gaps, barriers, and a lack of signage. The District’s objective is to provide a more complete cycling network that is safe and efficient for both recreational and commuter cyclists. The conceptual layout of the cycling network in the District is generally shown on the Bicycle Plan Concept Map (Map 4).

POLICIES

1. Assess the needs of cyclists in all road improvement projects and accommodate bicycles in new and existing roadways when opportunities exist

2. Improve District-wide cycling connectivity and prioritize network expansion to areas with high cycling potential through implementation of the Bicycle Plan conceptually shown on Map 4

3. Provide a range of on-street and off-street cycling infrastructure

4. Coordinate efforts with public, private, and non-governmental partners to establish a cycling network on the North Shore that connects to the wider region

5. Integrate the bicycle network with the parks and urban trail system where feasible and appropriate

6. Require major new commercial, multifamily and municipal developments to include adequate end-of-trip bicycle facilities, such as bicycle parking and change rooms

7. Improve cycling connections to transit and work with the regional transportation authority to make bicycle-transit integration convenient and intuitive
5.4 The Transit Network

Transit is the most environmentally-efficient method of moving large numbers of people and helps reduce congestion by keeping more cars off the road. Transit is also intended to be universally accessible to people of all ages, incomes and abilities. The District’s objective is to support the delivery of an enhanced and more integrated transit system across the community.

POLICIES

1. Assess transit needs in all road improvement projects and address design implications accordingly

2. Work with the regional transportation authority to determine the frequent transit network and integrate the District’s network of centres concept into area transit planning and priorities

3. Work with the regional transportation authority to designate Frequent Transit Development Areas at Lower Capilano-Marine Village Centre and Lower Lynn Town Centre and to provide supporting transit facilities and services

4. Provide transit-supportive road treatments such as transit lanes, signal timing, bus bay bulges and queue jumpers in portions of transit corridors where appropriate

5. Facilitate convenient access to transit in the design of all development along the network of centres

6. Encourage a multi-modal network along transit routes through enhanced walking and cycling facilities

7. Identify opportunities for park and ride facilities near transit exchanges in consultation with the regional transportation authority

8. Work to provide universal access at all transit stops

9. Explore the potential for alternative transit models, routes or providers such as community shuttle services, taxis and water taxis

10. Work with the School District, the regional transportation authority and other potential partners to explore opportunities to enhance bus service to schools where needed

11. Advocate for the establishment of a third SeaBus
5.5 The Road Network and Goods Movement

The District’s road network is an important community asset used for different purposes by different users and modes. The District’s objective is to manage road infrastructure in such a way that enables the efficient movement of goods and people, while improving road safety and minimizing impacts on local neighbourhoods. More specific policy directions for transit and bicycle users of the road network, and adjacent pedestrian infrastructure, have been provided above. The conceptual layout of the roads and goods movement network in the District is generally shown on the Roads and Goods Movement Concept Map (Map 5).

POLICIES

1. Assess the needs of all road users and all modes of transportation in road improvement projects

2. Assess and identify portions of the road network within transit corridors for priority use by transit and/or high occupancy vehicles

3. Facilitate effective goods movement and work with government agencies and land owners to improve access to key port, industrial and commercial areas, while encouraging goods movement by rail or water

4. Facilitate emergency vehicle access across the road network

5. Design and manage main arterial roads to provide for improved vehicle flow and mobility

6. Design and manage streets serving primarily local traffic and residential access for slower speeds to reduce risk of crash and injury, and to discourage cut-through traffic

7. Explore possibilities for new strategic east-west linkages to the road network as a means to reduce trip length and ensure alternative access when a major route is blocked

8. Monitor the development of alternative energy and low emissions vehicles and devise supportive policies for establishing community charging stations and plug-in facilities as necessary

9. Improve road safety for all users and implement appropriate safety improvements

10. Continue to work with the Federal Government, Province, the regional transportation authority, other North Shore municipalities and First Nations governments to identify and advance opportunities to improve vehicle and transit access at the bridgeheads
Note: This map is conceptual in nature only.
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PART 2 | Community Development

6  Social Well-Being
7  Housing
8  Economic Development
9  Environmental Management
10 Climate Action
11 Infrastructure
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6 Social Well-Being

2030 TARGET
a community hub facility within easy access of every centre

Local governments have a critical role to play in making neighbourhoods healthy, vibrant, diverse and inclusive. Fulfilling this role requires a combination of direct municipal action as well as partnering with various organizations, government agencies and non-profit service providers. The District’s objective is to foster a safe, socially inclusive and supportive community that enhances the health and well-being of its residents. OCP policies related to social well-being contribute to the health and vitality of the District and strive to address the needs of all citizens, including those that are most vulnerable and marginalized. These policies are also aimed at empowering the community to develop services and supports to meet its own needs. Increasing demands for existing services, changing demographics and other emerging issues, require that the District respond in a coordinated and comprehensive manner to ensure the continued livability and sustainability of the community. A Social Strategy will provide further direction on coordination and implementation of these OCP policies.

6.1 Citizen Engagement

6.2 Arts, Culture, Libraries, Leisure and Recreation

6.3 Community Services, Programs, and Facilities

6.4 Personal and Public Safety

6.5 Heritage and Archaeological Resources
6.1 Citizen Engagement

The District’s objective is to involve citizens meaningfully in civic affairs and community life. Effective civic engagement builds strong communities, leads to greater public participation and interest in the things we share, and facilitates more responsive governance and better decision-making.

POLICIES

1. Provide opportunities for all citizens to meaningfully participate in civic affairs and community life

2. Utilize effective and leading edge communication tools and outreach efforts to enhance citizen engagement

3. Encourage and support community capacity building
6.2 Arts, Culture, Libraries, Leisure and Recreation

Arts, culture, recreation and library services play an enormous role in building a healthy and creative community. They are vital to the fabric of our community and strengthen our identity. The District’s objective is to support lifelong learning, active living and cultural and artistic expression. Community spaces like libraries and recreation centres are heavily utilized and their effective provision along with delivery of associated services is key to community health. In addition to providing access to opportunities for learning, exercise and cultural expression, these various facilities also act as hubs for socializing and building community connectedness.

POLICIES

1. Foster an environment that promotes creativity and cultural expression and facilitates community access and engagement in arts and cultural experiences

2. Support the development and delivery of creative community events and activities that celebrate the full spectrum of diversity of the District, build on the District’s unique identity and engage local residents, artists and businesses

3. Further develop working partnerships with local First Nations to foster the expression of their cultural identity

4. Promote healthy and active living and inclusive community participation in leisure and recreation activities throughout the District

5. Encourage and facilitate a broad range of leisure and recreation opportunities to match community needs and interests that are accessible through the development and coordination of public and non-profit services

6. Provide accessible library services and resources to facilitate lifelong learning for residents of all ages, backgrounds and abilities

7. Promote and provide technologies that improve access and efficiencies as part of the service continuum for libraries, arts, cultural and recreation services

8. Provide responsive and appropriate library, arts, cultural and recreation services to under-served and developing neighbourhoods
6.3 Community Services, Programs, and Facilities

The District’s objective is to provide, facilitate and support a range of community programs and social services that meet the needs of the community. Most citizens need community support and social services at some point in their lives. A strong network of community programs and services for children, youth, adults, families, seniors, at risk populations, and those with a range of abilities and means, supports individuals and a healthy community.

POLICIES

1. Facilitate the delivery of accessible community services and social programs to meet the current and future needs of all District residents

2. Plan and support initiatives for an age and disability-friendly community

3. Facilitate the provision of accessible services, programs, and facilities that encourage seniors and people with disabilities to function independently

4. Promote the establishment and maintenance of affordable quality child care services

5. Support orientation and community services for welcoming new immigrants

6. Support the creation of a network of community hubs to provide services to residents in a coordinated and cost effective manner

7. Support the role of schools as neighbourhood centres of learning with comprehensive and integrated community facilities and services

8. Encourage the retention of sufficient space in surplus public facilities (schools, churches, recreation centres) to meet changing community needs (such as adult daycare, childcare)

9. Explore and pursue a variety of governance and partnership models regarding service delivery within municipal buildings

10. Enhance programming and service connections between outdoor and indoor community facilities

11. Support civic and community partners with resources, information sharing and collaboration in the achievement of District objectives

12. Encourage sustainable, local food systems through initiatives such as promotion of healthy, local foods and food production, and the facilitation of community gardens, farmers markets, urban agriculture initiatives in appropriate locations

13. Integrate opportunities for urban agriculture in planning Town and Village centres

14. Collaborate with Vancouver Coastal Health and other community partners in their efforts to provide increased access for all members of the community to safe, nutritious food

15. Develop a food policy that defines the District’s vision and commitment to facilitating a food system that supports long-term community and environmental health
6.4 Personal and Public Safety

The District’s objective is to create safe and caring communities. This means working proactively to prevent risks, and being able to respond to emergencies, crime and disorder in a collaborative and effective manner.

6.4 POLICIES

1. Ensure that effective and coordinated services supporting personal safety, including policing, emergency aid, fire safety, disaster response, and support services, are in place across the District

2. Support and advocate for coordinated programs and services to prevent and address crime, violence, and substance abuse

3. Work with community partners, stakeholders and service providers to address safety and security, crime prevention, education, victims’ rights and to promote positive intercultural relationships

4. Review community policing models and provide community policing as appropriate

5. Prepare a fire service policy to define appropriate service levels

6. Locate fire halls strategically to deliver effective service and contribute to the fabric of the community

7. Facilitate the development of safe and accessible community and public spaces and consider crime prevention design principles and accessibility guidelines in their design and retrofit

8. Assess the potential risk of chemical industries in the District and prepare an appropriate development permit area with guidelines to assist in protecting development from such risks

9. Review community notification and emergency response measures related to industrial chemical hazards and facilitate effective community preparedness

Foster a safe, socially inclusive and supportive community that enhances the health and well-being of all residents
6.5 Heritage and Archaeological Resources

Our rich cultural and natural history contributes greatly to the identity of the community and its sense of place. The District’s objective is to ensure that the community has a clear sense of identity and place and a legacy that links our past, present and future. This means facilitating learning about our past, present and future while preserving our archaeological, heritage and cultural resources.

POLICIES

1. Support the preservation of our community’s history and documentary of heritage in a publicly accessible repository of archival and cultural resources

2. Support the programs and services that enable people to understand and appreciate the community’s rich and unique history

3. Support community-wide facilities which connect people from different areas, groups and generations and allow them to learn about each other and explore ideas together

4. Encourage the protection and enhancement of buildings and sites which have historic significance to the community by exploring opportunities to use the tools and incentives available under the Local Government Act

5. Encourage and facilitate the protection of archaeological and cultural sites in land development and management activities through coordinated efforts with First Nations governments, the Province and stakeholders

6. Support continued community involvement in identifying and advising on issues pertaining to District heritage resources and programming

7. Establish a Heritage Plan to implement the policies contained in the Official Community Plan
2030 TARGET

a net increase in rental housing units (overall percentage)

The profile of the District resident of today has changed significantly from that of 20 years ago. During this time there has been a noticeable demographic shift from a younger family-oriented community towards more seniors with fewer young adults and children. Our housing mix, comprised largely of detached single family homes, has not kept pace with the needs of this changing community profile. Providing more diverse and affordable housing choice is needed for seniors, young singles, couples, and families with children so that a wide mix of ages can thrive together and ensure a healthy, diverse and vibrant community. Emergency, transitional and social housing is also needed to support vulnerable populations. The District’s objective is to increase housing choices across the full continuum of housing needs.

7.1 Housing Diversity

7.2 Rental Housing

7.3 Housing Affordability

7.4 Non-Market Housing and Homelessness
7.1 Housing Diversity

The network of centres concept provides important opportunities for increasing housing diversity and approximately 75 - 90% of future development will be directed to the four planned centres (Chapter 2). While growth will be restricted in detached residential areas, opportunities will exist to sensitively introduce appropriate housing choices such as coach houses, duplexes and small lot infill that respect and enhance neighbourhood character. Some flexibility is encouraged to enable residents to better age in place, live closer to schools, or have a mortgage helper. The District’s objective is to provide more options to suit different residents’ ages, needs and incomes.

POLICIES

1. Encourage and facilitate a broad range of market, non-market and supportive housing

2. Undertake Neighbourhood Infill plans and/or Housing Action Plans (described in Chapter 12) where appropriate to:
   a) identify potential townhouse, row house, triplex and duplex areas near designated Town and Village Centres, neighbourhood commercial uses and public schools
   b) designate additional Small Lot Infill Areas
   c) develop criteria and identify suitable areas to support detached accessory dwellings (such as coach houses, backyard cottages and laneway housing)

3. Develop design guidelines to assist in ensuring the form and character of new multifamily development contributes to the character of existing neighbourhoods and to ensure a high standard of design in the new Town and Village Centres

4. Encourage and facilitate a wide range of multifamily housing sizes, including units suitable for families with an appropriate number of bedrooms, and smaller apartment units

5. Require accessibility features in new multifamily developments where feasible and appropriate
7.2 Rental Housing

Entry into home ownership is increasingly challenging given the high housing prices in the District. Rental housing typically offers more affordable options for mid-to-low income groups, which may include single parents, students, young families and seniors. The District’s objective is to provide more alternatives to home ownership. Currently, only 18% of the dwellings in the District are rental.

POLICIES

1. Explore increasing the maximum permitted size of secondary suites
2. Consider permitting secondary suites or lock-off units within townhouses, row houses and apartments
3. Encourage the retention of existing, and the development of new, rental units through development, zoning and other incentives
4. Facilitate rental replacement through redevelopment
5. Continue to limit the conversion of rental units to strata title ownership and require, where possible and appropriate, that new strata units be available for rental
6. Establish a minimum acceptable standard of maintenance for rental properties
7. Develop a rental and affordable housing strategy through Housing Action Plan(s) and/or Centres Implementation Plans
8. Support, where appropriate, parking reductions for purpose built market and affordable rental units
9. Encourage the provision of student housing at or near the campus of Capilano University
10. Support the addition of ancillary rental housing on church sites where additional development can be accommodated

Encourage and enable a diverse mix of housing type, tenure and affordability to accommodate the lifestyles and needs of people at all stages of life.
Lack of affordable housing in the District is often cited as a factor contributing to the loss of our “missing generation” of 20-40-year-olds and the inability of many local employers to find and retain staff. With approximately 2,645 households in core need of appropriate housing and 1,460 households spending at least half of their income on housing, our lack of affordability is widely felt. The District’s objective is to formulate development strategies and work with community partners and senior levels of government to provide housing for modest to moderate income residents.

POLICIES

1. Reflect District housing priorities through an appropriate mix, type and size of affordable housing

2. Focus a higher proportion of affordable housing in designated growth areas

3. Apply incentives (including, but not limited to density bonussing, pre-zoning and reduced parking requirements) as appropriate, to encourage the development of affordable housing

4. Require, where appropriate, that large multifamily developments contribute to the provision of affordable housing by, but not limited to:
   a) including a portion of affordable rental or ownership units as part of the project
   b) providing land dedicated for affordable housing
   c) providing a payment-in-lieu to address affordable housing

5. Expand the District’s Affordable Housing Fund to receive funds from non-municipal sources

6. Work with community partners and the Province to facilitate options for affordable housing and advocate the Federal government to develop a national housing strategy for affordable housing

7. Consider incentives such as reduced Development Cost Charges to facilitate affordable rental housing
Emergency, transitional and supportive housing is needed to provide access to the full continuum of housing in the District. This section addresses the housing needs of our growing homeless population, those most at risk of homelessness, those with substance abuse and mental health issues, seniors who need support to remain living independently and others. Provision of such housing requires funding that the District cannot address on its own. The District’s objective is to work with senior levels of government and social service providers to support our most disadvantaged residents.

**POLICIES**

1. Encourage non-profits, supportive housing groups, developers, senior levels of government and others to develop or facilitate the development of:
   a) transitional housing for homeless adults, families and youth
   b) supportive housing for those with mental health and/or addiction issues
   c) independent living units for people with disabilities
   d) assisted living facilities for people with cognitive and/or developmental disabilities

2. Work with community partners to explore opportunities for social housing, co-operative and innovative housing solutions

3. Continue to facilitate community facility lease policies to provide municipal land or infrastructure for services to vulnerable populations

4. Consider the use of District land, where appropriate, to contribute towards and leverage other funding for the development of social and affordable housing

5. Encourage other levels of government to contribute financial support and/or a portion of surplus lands towards appropriate and affordable housing for those with special needs

6. Continue to support regional efforts to eliminate and prevent homelessness on the North Shore

7. Continue to support non-profit agencies that provide short-term emergency and transitional shelter, food and access to social services for those in need

8. Support community partners in providing a full continuum of support services to address issues related to mental health, addictions, health services, housing, employment, and food security; and to provide assistance for homeless people to facilitate their transition to independent living
8 Economic Development

2030 TARGET
36,000 total jobs in the District by 2030

Ensuring a diverse and resilient local economy is one element of the community’s vision. The OCP is a mechanism for creating and enhancing economic opportunity through land use policies that encourage new investment, quality jobs, and increasing tax revenue from the business sector (Chapters 2 and 3). The long-term economic vibrancy of the community also requires that the District is a “competitive” community from a business perspective and a place that continues to attract people and investment capital. The District's objective for economic development is to become an increasingly successful, economically viable and dynamic community where existing and potential employers and employees want to be. This may be achieved through OCP policies that support the attributes of a desirable community which in turn serve to attract and maintain business. It also means the District supports a full array of competitive local government services to meet the needs of business.

8.1 Maintaining the Attributes of a Competitive Community

8.2 Providing Competitive Local Government Services
8.1 Maintaining the Attributes of a Competitive Community

District policies influence the attributes that make the broader community attractive and competitive for new business start-ups and relocations, business expansions, new land and building development projects, new entrepreneurs, and well-educated highly-skilled people. The competitiveness of the community includes many non-economic factors such as the diversity of housing, the quality of community amenities and services, and the “sense of place” and vibrancy of the community. The District’s objective is to attract investment by maintaining the attributes of a successful and competitive community. The policies below reinforce the economic benefits of directions provided elsewhere in this plan.

POLICIES

1. Establish housing mix policies that support a balanced and diverse supply of housing

2. Create and maintain safe, beautiful, and inclusive neighbourhoods and centres

3. Encourage appropriate and compatible economic activity in all areas, including but not limited to:
   a) Home-based businesses in residential areas
   b) Office, retail and live-work in and adjacent to centres
   c) Industrial and light industrial in employment lands
   d) Education, research and other in school and university sites
   e) Tourism and leisure in commercial, mixed-use and recreation areas

4. Advocate for improvements that enable goods and people to move easily through the District

5. Support initiatives to provide good access via roads and transit to the international airports

6. Advocate for expansion of post-secondary educational institutions and encourage integration opportunities between education, research and business innovation

7. Support and maintain the availability of outstanding recreation, parks, and cultural facilities and events

8. Maintain high quality infrastructure to support the business community

9. Encourage community services that support and welcome entrepreneurial migrants whose new ideas, knowledge and connections help drive new economic activity

10. Promote major job growth or intensification in locations and at densities that support travel by walking, cycling and transit
8.2 Providing Competitive Local Government Services

Local governments can influence public and private investment decisions and economic vibrancy through their policies and practices. Burdensome regulations, uncompetitive taxes and charges, and lengthy or unpredictable decision-making can all undermine the climate for investment, and hence, economic activity. The District’s objective is to create a supportive position that helps generate economic activity and benefits for the whole community.

POLICIES

1. Support the creation of a business-friendly environment
2. Work to reduce permit approval times and to simplify and streamline regulations
3. Periodically review fees and charges and taxes for competitiveness
4. Periodically review and assess regulations for relevance and ease of use
5. Direct all municipal departments to be customer-oriented in providing services
6. Promote the District as an excellent place to do business
7. Devise and implement specific economic development programs as and where necessary
8. Seek partnerships with North Shore municipalities, First Nations governments, regional, provincial and federal authorities, businesses, academic institutions, non-profit organizations and others to achieve mutual economic development objectives
9 Environmental Management

2030 TARGET
integrated stormwater management plans and implementation on all urbanized watersheds

Natural areas including our shorelines, rivers, streams, wetlands, and forested mountain slopes make up 70% of the District’s overall land base. These areas provide a spectacular setting and strong identity for our community and also contain ecosystems that provide many functions necessary for our health and the well-being of a wide variety of plants and animals. They provide clean air and water, healthy soils, and a host of ecological services including rainwater interception, soil stability and temperature regulation, as well as outstanding recreational opportunities. The District’s objective is to protect and improve the ecological health of our natural systems. This means preserving our rich natural heritage for future generations while enjoying it responsibly today.

9.1 Biodiversity

9.2 Urban Forest and Soil Systems

9.3 Aquatic Ecosystems

9.4 Natural Hazards

9.5 Air Quality

9.6 Community Stewardship
9.1 Biodiversity

The diverse forms of life and the habitats and natural processes that support them form the ecosystems that sustain life on this planet. Biodiversity is the foundation of the ecological services we depend on, such as photosynthesis, oxygen, the purification of air and water, and pollination of our crops as well as providing the natural resources that support our economies. Loss of habitat, habitat fragmentation and invasive species are some of the key threats to our local biodiversity. The District’s objective is to protect the ecological integrity of our diverse ecosystems.

POLICIES

1. Identify and map ecologically important features and develop an Ecological Management Strategy to protect these features

2. Manage land uses to protect the ecological values of parkland while providing recreational opportunities (see Map 3, Parks and Trails Concept Map)

3. Consider the acquisition of environmentally sensitive areas for addition to the parkland system

4. Support the protection and enhancement of biodiversity through implementation of environmental development permit areas and guidelines for the protection of the natural environment, streamside areas and hazardous conditions (Schedule B)

5. Encourage and facilitate the protection of rare, endangered and vulnerable species and ecosystems through habitat management, enhancement and restoration

6. Use conservation tools including covenants, eco-gifting, land trusts and tax incentives to conserve lands supporting biodiversity on private property where appropriate

7. Facilitate the connection and restoration of ecologically important areas, natural features, and urban habitat areas to create a comprehensive network of diverse habitats and wildlife corridors within the District

8. Promote environmentally-friendly landscaping practices through the development review process and through stewardship initiatives

9. Develop and implement an integrated invasive species management strategy, with partners, to reduce the spread of invasive species

10. Support measures to prevent conflict between people and wildlife through community education initiatives and enhancements to wildlife corridors

11. Collaborate with other levels of government, First Nations governments, and community organizations to identify, manage and conserve ecologically important areas
9.2 Urban Forest and Soil Systems

The District’s objective is to protect our forested character and enhance the health of our trees and soils. Trees in parks, riparian areas, streets, and trees on private property are all part of the urban forest and help improve community livability and ecological health. Trees improve air quality, sequester carbon, moderate local climate, provide habitat for wildlife, enhance walking and cycling routes, and control rainwater runoff. An equally important part of the urban forest is the soil system. Soil provides the foundation and nutrients for plant growth, absorbs and stores water, and filters water pollutants.

POLICIES

1. Promote the protection of the forested character of the District and remaining old growth trees both in urban and upland areas

2. Recognise the value of the ecological services provided by urban trees and encourage tree retention, replacement or compensation as guided by the District’s development permit requirements and tree protection bylaws

3. Support the appropriate maintenance of trees and hazard tree removal

4. Manage the urban-forest interface to improve the species mix and mitigate risk of disease or hazards such as wildfire and windfall

5. Manage upland forested areas with a view to sustaining the forest for future generations

6. Seek to retain soils, prevent soil compaction, erosion and instability during development and ensure adequate soil depth for rainwater infiltration and vegetation growth

7. Facilitate Provincial Government regulation of contaminated sites through the development approvals process

Conserve the ecological integrity of our natural environment, while providing for diverse park and outdoor recreational opportunities
9.3 Aquatic Ecosystems

Urban land uses can have a significant impact on water quality, base flows and the overall health of aquatic ecosystems. Increasing impervious surfaces, decreasing tree canopy, and reducing topsoil within urban watersheds alters natural hydrological systems and can result in contamination of rainwater, increased volumes of urban runoff discharging into local waterways, and less groundwater recharge which is critical in maintaining base flows in our streams. Coastal development can reduce shoreline and intertidal habitat and increase the risks of property damage from storms and sea level rise. The District’s objective is to encourage proactive management of our watersheds and foreshore areas to best maintain hydrological functions.

POLICIES

1. Prepare and implement integrated watershed/storm water management plans for all District watersheds prioritizing watersheds containing key growth areas

2. Facilitate the protection and enhancement of streams, riparian areas and wetlands

3. Facilitate the maintenance of fish passage in all streams and restore habitat and connectivity in riparian areas of the District

4. Encourage measures to infiltrate rainwater onsite, where appropriate, and manage impervious areas to reduce runoff volumes, improve water quality, and recharge groundwater

5. Design new and replacement drainage infrastructure, including biological treatments, to enhance water quality and to reduce the volume of runoff entering watercourses

6. Facilitate the protection and maintenance of groundwater levels where appropriate, and manage the amount of groundwater pumped into drainage infrastructure

7. Minimize pesticide use through implementation of the Pesticide Use Control Bylaw, education initiatives promoting alternatives to pesticide use, and working with local businesses to eliminate the sale of cosmetic pesticides

8. Work with business and senior agencies to develop integrated spill and pollution event response plans

9. Establish a new Marine Foreshore Development Permit Area to protect and improve the health of the marine foreshore

10. Enhance access to publicly owned marine shorelines where appropriate while protecting coastal habitat
9.4 Natural Hazards

The presence of steep slopes, creeks, ravines, floodplains and forested lands combined with occasional extreme weather activity make some areas of the District susceptible to natural hazards including landslide, debris flow, flood and wildfire. The District’s objective is to reduce and mitigate the risk associated with natural hazards. Development in areas prone to natural hazards requires special consideration due to concerns for personal safety and risk of property damage as well as potential impacts to natural environments.

POLICIES

1. Develop and implement natural hazards development permit areas in relation to landslide, flood, debris flow and forest interface wildfire risks

2. Facilitate mitigation measures to reduce risks of landslide, flood, debris flow and forest interface wildfire

3. Continue to develop information and communication systems to advance the natural hazard management program

9.5 Air Quality

Good air quality is important to the health and well-being of District residents and ecological systems. While management of air quality is a Regional and Provincial responsibility, land use, transportation, environmental and energy planning can have implications for local air quality. The District’s objective is to help facilitate good air quality locally and regionally.

POLICIES

1. Support regional directives to monitor and manage air quality

2. Consider public health implications, including air quality and noise, in the evaluation of new developments and other planning activities

3. Encourage new and innovative clean fuel alternatives for vehicles and supportive infrastructure such as electric charging stations, hydrogen highway and others

4. Promote anti-idling education initiatives
The health of our natural environment affects all of us and we have a shared responsibility in conserving, protecting and restoring ecological systems. Environmental education and partnerships build an awareness of our natural systems, an understanding of how our actions can alter these systems, and enable the celebration of our shared natural heritage. The District’s objective is to create a stewardship ethic where citizens and businesses engage in environmental efforts.

POLICIES

1. Continue to coordinate and partner with senior governments, neighbouring municipalities, local First Nations governments, the School District, local businesses, and community organizations in the delivery of environmental stewardship initiatives

2. Facilitate the delivery of programs in District parks to advance environmental sustainability objectives

3. Work with land owners to conserve and enhance habitat on private lands

4. Promote community education initiatives aimed at building environmental awareness

5. Recognize and support the efforts of local volunteer groups in promoting environmental stewardship
Climate change is a global reality that affects us at a local level. The OCP’s network of centres concept establishes an urban structure that will allow people to live closer to jobs, shops, and services which will result in reduced per capita transportation-related greenhouse gas emissions. Taking other actions to reduce our reliance on fossil fuels, improve our energy efficiency, and adapt our infrastructure for changing environmental conditions is good long-term policy. Such actions can also help reduce common air contaminants that may impact human health. It is a legislative requirement for municipalities to establish greenhouse gas reduction targets, take steps to become more complete and compact communities and implement measures to achieve emission reduction targets. The District’s objective is to become a more energy-efficient community that reduces its greenhouse gas emissions and dependency on non-renewable fuels while adapting to climate change.

10.1 Energy-Efficient Buildings

10.2 Alternative Energy Supply Options

10.3 Waste Management

10.4 Climate Change Adaptation
Buildings in the District contribute around 50% of our community’s greenhouse gas emissions. The District’s objective is to improve the energy efficiency of new and existing buildings. As well as supporting other climate change initiatives, efficient buildings are resilient to higher energy prices and reduce the load on infrastructure. The District has developed a green building strategy and development permit guidelines for the conservation of energy and water for new multifamily residential, commercial and industrial buildings (See Schedule B).

POLICIES
1. Promote the development of green/energy-efficient buildings for new multifamily, residential, commercial, industrial and institutional buildings
2. Encourage residential energy conservation and building retrofits and promote access to senior government grants and incentives to achieve this
3. Advocate for energy efficiency ratings to be established in all homes for sale/resale
4. Work with other levels of government, energy providers and the business community to facilitate emissions assessments and to develop energy and greenhouse gas reduction strategies

In addition to reducing energy consumption, it is important that we explore renewable energy sources and systems to reduce greenhouse gas emissions and that we reduce our dependency on fossil fuels. The District’s objective is to encourage alternative energy sources and systems that lower greenhouse gas emissions.

POLICIES
1. Undertake feasibility assessments of district energy systems and advance these, where appropriate, through partnerships and the planning and redevelopment process
2. Encourage and facilitate new development to be district energy ready with hydronic systems where appropriate
3. Explore opportunities for a heat recovery system from the proposed sewage treatment plant
4. For large developments undergoing rezoning require developers to conduct energy efficiency and alternative energy assessments
5. Investigate potential renewable energy resources and applications including geoxchange, solar and biomass-based technologies, and consider use of incentives for homeowners undertaking green energy improvements
6. Work with North Shore municipalities, Metro Vancouver, First Nations governments and other partners to advance opportunities for integrated, alternative energy systems such as Integrated Resource Recovery and carbon offset opportunities such as aorestation
After buildings and transportation, waste is the third most significant source of greenhouse gases and currently contributes around 4% of carbon dioxide emissions in our community. Waste diverted to landfill sites has long-term environmental impacts and precludes opportunities to use these resources more effectively. The District’s objective is to reduce the waste we generate and use the waste we do generate as a resource.

POLICIES

1. Support a “zero waste” philosophy and advance efforts to reduce, reuse, recycle and compost, building on the successes of existing programs such as North Shore Recycling Program

2. Work with Metro Vancouver and other partners to initiate an organic waste pick-up and composting program in the District

3. Pursue further limits on residential waste once curbside composting is established

4. Facilitate extension of recycling service to multifamily and commercial developments

5. Explore opportunities with partners to use waste as a resource

6. Promote product stewardship from retailers and manufacturers to provide recyclable, returnable and/or biodegradable product packaging

Develop an energy-efficient community that reduces its greenhouse gas emissions and dependency on non-renewable fuels while adapting to climate change
10.4 Climate Change Adaptation

Effective means of climate change mitigation include lowering our greenhouse gas emissions through more efficient land uses and transportation systems, reducing our need and reliance on conventional energy supplies and improving our waste management. At the same time as we seek to limit our contribution to climate change, it is also important to prepare for its impacts. The District’s objective is to adapt proactively to climate change. This means integrating a climate change perspective into our infrastructure design and maintenance, ecosystem management and emergency preparedness.

POLICIES

1. Work with the North Shore Emergency Management Office and service organizations to prepare for and respond to emergencies created by extreme weather events

2. Work with federal, provincial, North Shore municipal and First Nations governments, Metro Vancouver, and other partners to assess potential climate change risks to our community to inform asset management decisions and to guide community and infrastructure planning and design

3. Encourage the management of shoreline areas to adapt to potential climate change impacts as well as to protect ecologically sensitive areas

4. Consider climate change implications in environmental management efforts to conserve biodiversity and enhance forest health
11 Infrastructure

2030 TARGET
available funding accommodates both aging infrastructure and the demands of growth

The District owns and operates a wide array of physical infrastructure assets, ranging from civic buildings and facilities (libraries, recreation centres, fire halls, municipal hall) to roads, utilities (water, sewer), and parks and public space improvements. A significant portion of our infrastructure is reaching the end of its useful life and planning for replacements needed in the next 20 years is underway. To provide a sustainable level of service for future generations, asset management planning needs to factor in appropriate service levels, the life-cycle of infrastructure, and long-term replacement and maintenance costs. The District’s objective is to maintain our municipal infrastructure in good working order to sustain the public health, safety and economic well-being of our residents.

11.1 Infrastructure Planning and the Network of Centres
11.2 Utility and Service Provision and Environmental Integrity
11.3 Infrastructure Maintenance
11.1 Infrastructure Planning and the Network of Centres

The District’s objective is to maximize infrastructure efficiencies. Infrastructure, roads, and land use strongly define the urban structure of the District. Most of our future growth will be directed to centres and corridors. Efficiencies can be achieved and use of municipal assets maximized by focusing these in centres where they are most easily accessed by the greatest number of people.

POLICIES

1. Focus infrastructure investment within Town and Village Centres and strategic corridors connecting them

2. Limit infrastructure extension beyond the urban containment boundary

3. Reinforce community pride and sense of place through sensitive design of public facilities and infrastructure

4. Identify opportunities to co-locate services and infrastructure to realize both capital and operating efficiencies

5. Design facilities and infrastructure to respond to the various and changing needs of District residents and to changing technologies

Provide infrastructure to support community health, safety and economic prosperity, and facilities that enhance recreational opportunities, cultural activity and artistic expression
11.2 Utility and Service Provision and Environmental Integrity

Reducing the energy consumption and enhancing efficiencies of municipal infrastructure and services makes good financial sense and is beneficial for the environment. The District’s objective is to lead by example by providing infrastructure that is energy-efficient and promotes environmental stewardship.

POLICIES

1. Design new District facilities and infrastructure to be energy-efficient with low greenhouse gas emissions

2. Encourage low impact development and stormwater management best practices to protect local watersheds and stream hydrology

3. Utilize the ecological services provided by natural systems (such as rainwater interception, water quality treatment) and restore or “day-light” culverted sections of creeks wherever practical

4. Integrate and co-locate infrastructure and facilities to take advantage of energy and resource system opportunities such as capturing waste heat, heat exchange, energy generation and stormwater reuse
11.3 Infrastructure Maintenance

Our municipal infrastructure must support the social, environmental, and economic well-being of our community in a fiscally responsible manner. The District’s objective is to maintain infrastructure in good working order within the District’s ability to pay. Providing the right level of service, undertaking regular maintenance and replacement programs, anticipating future needs, and planning long-term are essential for sustainable infrastructure management.

POLICIES

1. Develop an asset management plan that coordinates long-term capital planning and management of municipal infrastructure using a systems-based approach
2. Adopt a long term life-cycle asset management perspective for the design, maintenance and renewal of infrastructure and facilities
3. Build community awareness of infrastructure/asset management risks and choices and balance service levels with financial, social and environmental impact
4. Prioritize maintenance, renewal and replacement programs and projects to reduce environmental, social and financial risks
5. Continue to recover utility operation and maintenance costs through user fees and charges
6. Regularly review development cost charges to ensure new developments pays for the additional services they require
PART 3 | Plan Management

12 Plan Implementation
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12.1 Plan Amendment and Review
12.2 Plan Monitoring: Indicators and Targets
12.3 Plan Implementation Strategies
12.4 Financial Statement
12.5 Consolidated List of Land Use Designations
12.1 Plan Amendment and Review

This Official Community Plan provides a long-term vision for the District and policy guidance to achieve this vision. For it to be effective, it is important that municipal decision-making and policy implementation are consistent with the objectives and commitments laid out in this plan. This approach provides direction and assurance to our stakeholders, partners and residents alike. At the same time, due to the long-term horizon of a plan that looks out 20 years to 2030, it is also important for the OCP to be considered a “living document”. As such, it is recognized that the OCP will be amended from time to time as the community evolves, our needs change, and new opportunities to achieve a bright and sustainable future emerge. The key will be for plan amendments to reflect genuine worth and value to the community.

To ensure the ongoing validity of this plan, an OCP review will occur every 5 years. At the time of this review, and through the various implementation strategies detailed in section 12.3, public involvement will be essential in keeping this OCP relevant and alive. Monitoring of progress towards the OCP’s vision and goals will also be provided through the Plan’s Indicators and Targets.

12.2 Plan Monitoring: Indicators and Targets

As a living document that sets a path to the future, it is useful to establish targets to help identify what it is we are striving to achieve in the OCP. For this reason, Chapters 1 through 11 of this plan each refer to a headline target to reflect one significant element of the chapter. In some cases these targets reflect official regional or provincial figures, and in many cases they represent “stretch” targets that may require further development with the community. In addition to the headline targets, a series of community indicators have also been established. These indicators are intended to capture the broader scope of our community’s objectives and represent some of the indicators we need to monitor to assess our progress towards realizing our vision for the future. Together, these targets and indicators measure a number of the OCP’s social, economic, and environmental goals and can be thought of as constituting a sustainability or “triple bottom line” approach to evaluation. The targets and indicators proposed here may be modified and/or supplemented as needs change and progress towards the OCP’s vision is made. These targets and indicators are provided for reference within the OCP.

Progress towards these targets and assessment of these indicators will inform periodic monitoring of the OCP. In addition to the 5-year OCP reviews, a report to Council outlining OCP status and progress is anticipated to be prepared every 1-to-2 years according to need and the availability of data. It is also anticipated that members of the public and/or community stakeholders be involved in the ongoing monitoring and implementation of the plan, through citizen advisory-type working group(s).
<table>
<thead>
<tr>
<th>OCP Policies</th>
<th>2010 Baseline</th>
<th>2030 Target</th>
<th>Additional Community Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Growth Management</strong></td>
<td>Estimate 5-10% of existing residential units are within the 4 key centres</td>
<td>75-90% of new residential units located in 4 key centres within the Network of Centres</td>
<td>• # of new units in 4 key centres: Lynn Valley, Lower Lynn, Maplewood and Lower Capilano-Marine</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• # of existing and new units located within all centres and corridors of the network of centres</td>
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<td></td>
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<td></td>
<td>• # of new units outside the urban containment boundary</td>
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<tr>
<td><strong>Urban Structure</strong></td>
<td>70% detached, 30% attached housing units</td>
<td>Housing mix of 55% detached, 45% attached units</td>
<td>• % of new multifamily units within and outside of commercial residential mixed-use buildings</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Square footage of new office and retail in Centres</td>
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<tr>
<td><strong>Employment Lands</strong></td>
<td>Estimate 5.9 million square feet in employment lands</td>
<td>33% increase in built square feet in employment lands</td>
<td>• New square footage by tax class</td>
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<td></td>
<td></td>
<td></td>
<td>• Vacancy rates</td>
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<td></td>
<td></td>
<td></td>
<td>• New incorporations</td>
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<tr>
<td><strong>Parks and Open Spaces</strong></td>
<td>Exceeding the existing parkland standard of 2 ha community and neighbourhood park/1000 residents as measured District-wide</td>
<td>Increase park, open space and/or trails in growth centres and continue to exceed minimum standard of 2 ha for community and neighbourhood park/1000 District-wide</td>
<td>• % of District residents living within 400m of a Neighbourhood park or open space</td>
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<td></td>
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<td>• % of District residents living within 800m of a Community or District park</td>
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<td></td>
<td>• Ha of District, Community and Neighbourhood levels of parkland; and all types of parkland per 1,000 residents</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• km of new trails and greenways</td>
</tr>
<tr>
<td><strong>Transportation Systems</strong></td>
<td>15% of the commute and 21% of all trips are by walking, cycling or transit</td>
<td>35% of District resident trips are by walking, cycling or transit</td>
<td>• Mode split % of journey to work by car, transit, walk, cycle (census)</td>
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<td>• Mode split % of all trips by car, transit, walk, cycle (trip diary data)</td>
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<td></td>
<td></td>
<td>• Average trip distance by car, transit, walk, cycle</td>
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<td></td>
<td></td>
<td></td>
<td>• Transit service and frequency</td>
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<td></td>
<td></td>
<td></td>
<td>• % of transit stops that are fully accessible</td>
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<td></td>
<td></td>
<td></td>
<td>• New kilometres added to bicycle and pedestrian networks</td>
</tr>
<tr>
<td><strong>Social Well-Being</strong></td>
<td>Gaps in the continuum of community services and facilities across the District</td>
<td>A community hub facility within easy access of every centre</td>
<td>• # of community facilities, visits, and range of services/programs</td>
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<td></td>
<td></td>
<td></td>
<td>• Homelessness count and # of supportive housing units</td>
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<td></td>
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<td></td>
<td>• # of families living below the Low Income Cut Off and child poverty rate</td>
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<td></td>
<td></td>
<td></td>
<td>• # of childcare spaces/#children</td>
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<td></td>
<td></td>
<td></td>
<td>• Population profile: % children, youth, young adults, families, seniors</td>
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<td></td>
<td></td>
<td></td>
<td>• surveyed sense of place, community identity and pride, social inclusion and cohesion</td>
</tr>
<tr>
<td>OCP Policies</td>
<td>2010 Baseline</td>
<td>2030 Target</td>
<td>Additional Community Indicators</td>
</tr>
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</tr>
</tbody>
</table>
| **Housing**                  | 82% owned, 18% rented units                       | A net increase in rental housing units (overall percentage) | • % of affordable and rental units  
  • % of physically accessible units  
  • % of multifamily units that are ground-oriented  
  • Mix of unit sizes in apartments |
| **Economic Development**     | 22,000 fixed workplace jobs (up to 27,000 total jobs including no fixed workplace) | 36,000 total jobs in the District by 2030 | • % of District jobs that are full-time  
  • Job-to-residents ratio or jobs-to-labour force ratio  
  • Tax competitiveness in Metro Vancouver  
  • % of District residents working in the District and/or North Shore |
| **Environmental Management** | Stormwater management is site specific; integrated stormwater management plans not yet developed for our urban watersheds | Integrated stormwater management plans and implementation on all urbanized watersheds | • # and length of healthy and fish accessible salmonid streams  
  • % of tree canopy coverage in urbanized areas  
  • Presence of invasive species in parks  
  • Amount of protected natural parkland or conservation areas  
  • Stream health as measured through methods such as IBI index (benthic invertebrates) |
| **Climate Action**           | 410,000 tonnes of carbon dioxide emitted annually by the community | 33% reduction in community greenhouse gas emissions | • # of new buildings complying with Green Building Strategy  
  • # of town and village centres and developments with alternative energy systems  
  • % of fossil and renewable energy in the community  
  • % of reduction in corporate emissions  
  • Waste diversion rate  
  • # of solar applications |
| **Infrastructure**           | Municipal maintenance and replacement costs exceed available funding | Available funding accommodates both aging infrastructure and the demands of growth | • Long range financial plans, asset plans, and annual budgets in place  
  • Financial reserve levels adequate  
  • Development contributions leveraged to meet community needs |
12.3 Plan Implementation Strategies

This OCP addresses a broad range of issues affecting community life in the District. Achieving the different elements of its vision will require a broad range of implementation strategies. Developed as an Integrated Sustainable Community Plan, the OCP is intended to work synergistically with a number of other municipal policy documents to ensure an integrated and holistic approach to realizing our social, economic and environmental goals.

12.3.1 PLANNING HIERARCHY

This plan establishes four levels of planning in the District: the Official Community Plan, Centres Implementation Plans, Neighbourhood Infill Plans and Strategic Action Plans. The District OCP provides community-wide goals and an overarching policy framework to guide progress towards these goals. More detailed Centres Implementation Plans apply to identified centres or other significant geographical sub-areas of the District. Neighbourhood Infill Plans are undertaken for smaller geographical areas within neighbourhoods to assess their suitability for sensitive intensification. Strategic Action Plans define detailed priority actions and strategies to achieve the goals and objectives of the OCP on a theme or sector basis. The preparation of plans at all levels of the planning hierarchy will involve meaningful public and stakeholder consultation.

FIGURE 4: PLANNING HIERARCHY

The OCP provides an overall growth management strategy and urban structure for the District. Its vision, goals, and policies provide a framework for more detailed implementation strategies.

Centres Implementation Plans are guided by the OCP and provide more detailed planning for significant geographical areas such as Town and Village Centres.

Neighbourhood Infill Plans are guided by the OCP and provide more detailed planning for small geographical areas or portions of neighbourhoods.

Strategic Action Plans are guided by the OCP and provide detailed implementation strategies in thematic areas such as housing or transportation.
For the **Official Community Plan** to be effective and comprehensive, an overall municipal perspective is required to formulate a growth management strategy, organize the preferred urban structure and transportation network, coordinate a system of parks and open space, promote social health and well-being, and guide municipal infrastructure, facilities and other capital programs. Importantly, the OCP contains land use and transportation maps, design guidelines and development permit areas that specify policies in these areas. Schedule A containing policies in relation to the 4 priority growth centres (Lynn Valley Town Centre, Lower Lynn Town Centre, Maplewood Village Centre and Lower Capilano - Marine Village Centre) also forms part of the OCP. Centres Implementation Plans, Neighbourhood Infill Plans and Strategic Action Plans implement the District OCP and must therefore be consistent with OCP policy directions. These secondary plans should be thought of as strategic tools for achieving OCP goals at a more localized or sector-specific level.

**Centres Implementation Plans** are anticipated to be undertaken or updated, as a first priority, in areas where change is most likely to occur and where OCP goals can best be achieved. In accordance with the growth management and urban structure principles laid out in this plan, Centres Implementation Plans are primarily expected to address components of the network of centres concept: Town Centres and Village Centres. However, this plan also provides for other sub-areas, or special study areas such as Capilano University or employment districts, to emerge as the subjects of Centres Implementation Plans where necessary or appropriate.

Secondary planning will perform a number of functions such as addressing planning issues affecting specific areas of the District in more detail, facilitating the application of the general principles expressed in this District OCP, guiding the orderly redevelopment of specific areas of the District, establishing design guidelines that reflect the unique characteristics of a location, and providing effective transitions between adjacent land uses. The policy framework for Centres Implementation Plans is to be guided by the District OCP. The social, economic and environmental goals and policies laid out in this plan can be thought of as providing “terms of reference” for eventual sub-area planning. Centres Implementation Plans are expected to use the portfolio of land use designations provided by the OCP and may lead to amendment of the OCP land use map.

**Neighbourhood Infill Plans** may be undertaken for smaller areas where a change of land use or density may be appropriate. This may include portions of residential neighbourhoods in transition or under redevelopment pressure because of adjacency to a centre, corridor or existing commercial, institutional or higher density uses. Alternatively, neighbourhood infill planning may be undertaken to determine the potential for small-lot infill areas or pilot projects. The intent of infill level planning is to enable a more geographically focussed approach to meeting the housing and land use needs of neighbourhoods outside of the network of centres. Significant consideration will be given to ensure any land use changes fit sensitively with neighbourhood character. Neighbourhood Infill Plans are expected to use the portfolio of land use designations provided by this plan and may lead to amendment of the OCP land use map.
Strategic Action Plans apply to specific themed or subject-based components of the OCP. It is anticipated that they will generally have a shorter time frame than the 20-year horizon of the OCP. As implementation strategies, these plans are expected to focus on identifying feasible, cost effective programs or actions that implement OCP goals and objectives, which may include identifying capital projects. As with sub-area plans, Strategic Action Plans are expected to be consistent with the community vision and goals expressed in the OCP. Strategic Action Plans to be undertaken to support the OCP are anticipated to include (but are not limited to):

- Economic Strategy
- Parks and Open Space Strategic Plan
- Transportation Plan
- Social Strategy
- Recreation Facilities Plan
- Cultural Strategy
- Housing Action Plans
- Climate Action Plan
- Land Strategy
- Ecological Management Strategy

Importantly, the District OCP is adopted by bylaw while sub-area Centres Implementation Plans, Neighbourhood Infill Plans and Strategic Action Plans are approved as policy documents by Council resolution. Where further policy work identifies a need or benefit to change OCP directions expressed in this plan, including changes to the land use map, the OCP may be amended to ensure it remains a relevant and effective legislative tool to achieve the community’s sustainability goals.

12.3.2 TRANSITIONING FROM LOCAL AREA PLANS (LAPS)

After the last District-wide OCP was adopted in 1990, nine Local Area Plans (LAPs) were prepared as geographically based, sub-area plans to provide more detailed information regarding land use and density, transportation, servicing and parkland requirements, housing and amenity provisions. Some LAPs were also accompanied by specific design and environmental guidelines. These LAPs were completed incrementally over a 16-year period:

- Alpine Area OCP (1990)
- Lower Lynn OCP (1993)
- North Lonsdale Delbrook OCP (1995)
- Lower Capilano (1996)
- Upper Capilano (1999)
- Lynn Valley Plan (1998)
- Maplewood Local Plan (2002)
- Seymour Local Plan (2004)
- Lynnmour/Interriver Local Plan (2006)
LAPs played an important role in setting the direction of various neighbourhoods and their development was accompanied by extensive public engagement. Members of our community contributed their expertise and shared their local knowledge to enrich the local area planning processes. These local plans have served this community well and the general land use directions from LAPs have been respected and incorporated into the Land Use Map (Map 2) of this OCP. Existing local area level design guidelines, in addition to design guidelines being prepared for the four centres of growth and change designated in this plan, are or will also be integrated into the OCP.

Prepared and adopted mostly in the 1990s, many LAPs are now outdated and do not consider a number of the issues facing the community today (such as our demographic challenges and economic conditions) or meet the current legislative requirements of OCPs (such as affordable housing and greenhouse gas reductions). In the absence of established and consistent guidelines for their development, the nine plans also exhibit different levels of detail and the lack of integration between plans has meant land use and growth management in the District has lacked a coordinated direction. The policies and objectives provided in this District-wide OCP consolidate the general directions from existing LAPs to provide an integrated basis to ensure community planning addresses today’s needs and challenges in a coordinated manner.

Section 12.3.1 describes a “planning hierarchy” to guide future community planning in the District consisting of the OCP, Centres Implementation Plans, Neighbourhood Infill Plans, and sector-specific Strategic Action Plans. Land use concepts and guiding policies for the four primary growth centres (Lynn Valley, Lower Lynn, Maplewood and Lower Capilano - Marine) are included as Schedule A of this OCP. It is anticipated that implementation of these four growth centres will occur through the preparation of more detailed Centres Implementation Plans as a priority. This OCP also provides for implementation to occur through additional Centres Implementation Plans, Neighbourhood Infill Plans and Strategic Action Plans. Preparation of these plans will involve extensive consultation with associated neighbourhoods and community stakeholders. Until such time as more detailed sub-area planning occurs at the centres or neighbourhood level, existing Local Area Plans will be used as reference policy documents to inform land use decisions in their respective areas. Ongoing liaison with communities implementing centres plans and existing LAP policies (where relevant) will occur.
12.3.3 COMMUNITY AMENITY CONTRIBUTIONS

This OCP provides a growth management strategy and urban structure that support and integrate our social, environmental, and economic goals. The controlled redevelopment this growth management strategy directs will provide an opportunity to improve livability and to address existing or future needs in the community. **New development in the District will typically be expected to provide benefits to the community beyond the development itself.** If development requires a rezoning or plan amendment that involves an increase in density or a change from one land use to a higher land use, then that new development will, wherever possible, be required to provide a community amenity contribution (CAC) in the form of either a payment or a physical community amenity.

CACs will be implemented through the District’s Community Amenity Contribution Policy which establishes the framework for the provision and value of community amenity contributions. The Policy allows the development industry, the community, staff and Council to share clear expectations regarding CACs as early as possible in the development process. It facilitates the development industry to be responsive to community expectations associated with new development.

The District’s CAC policy includes the following key components:

» Direction regarding when community amenities are to be provided

» Considerations which will be factored into decisions relating to CAC contributions

» Items eligible to be considered CACs

» Dollar value of CACs

» Legal security for CACs

In addition to the District’s Community Amenity Contribution policy, area specific CAC strategies will be prepared for Town and Village centres where growth is occurring to reflect specific amenities required to meet the planning objectives of the centres.
12.4 Financial Statement

Achieving our vision for the future of the community requires that financial sustainability, including taxpayers’ ability to pay, be considered in all municipal decision-making. An analysis of the financial implications of the key strategic directions accompanied the development of this plan. In addition to its environmental and social benefits, the urban structure or “network of centres” concept proposed by this plan brings long-term financial efficiencies to the operations of the municipality. Concentrating population growth in specific centres allows for greater efficiency in service and infrastructure provision, resulting in reduced per capita costs. Enabling strategic residential and commercial growth in these centres and the more productive use of industrial and light industrial employment lands will provide greater net tax revenue for the District. Under this growth management model, increases in revenue are anticipated to exceed increases in service costs. At the same time, this model of growth management also provides opportunities for increased municipal revenue in the form of community amenity contributions and development cost charges that the municipality can use for improved amenities on behalf of the community. Implementation of the OCP’s network of centres concept is anticipated to result in an overall enhanced financial, social and environmental setting for District residents. Long-term financial planning and the allocation of District revenues and resources must be coordinated with the OCP towards the achievement of the community’s diverse goals and objectives expressed in this plan.

LONG TERM FINANCIAL PLAN

The District’s objective is to achieve long term financial resilience in pursuit of the vision, goals and associated services included in the OCP. It recognizes these five elements as essential to developing its long-term financial plan and achieving this objective:

1. **Long-term service vision** - defined at the level of municipal programs, includes expected levels of service and intended outcomes for the community

2. **Supporting financial policy** - including clear statements on governance and efficiency, program costing and funding, growth related revenue, long-term funding for major capital requirements, and long-term fund balances required to achieve the goal of financial resilience

3. **Analysis and forecasting** - including the development of the necessary tools to model long-term policy impacts and changes in the fiscal environment

4. **Collaborative and participatory process** - including public and stakeholder engagement and a system for priority based budgeting guided by the long-term services vision

5. **Connection to other plans** - ensuring the long-term financial plan is inclusive of all approved plans, policies and interdependencies
12.5 Consolidated List of Land Use Designations

A consolidated list of all of the land use designations used in the OCP Land Use Map (Map 2) is provided in the table below. Policies and objectives relating to these designations are provided in Parts One and Two and Schedule A of the OCP. The references to Floor Space Ratios (FSR) in the table provide guidance regarding the general massing and approximate density of development. The term “Floor Space Ratio”, as used in the table, means generally the ratio of the floor area of a proposed development over the area of the lot or lots upon which the development is to be located. It does not regulate actual densities on individual lots, that being the function of the District’s Zoning Bylaw. Council may, in its discretion, and with a public hearing, consider zoning bylaw amendments to permit density over and above that indicated in the table on a case by case basis where the proposed development is otherwise consistent with objectives and policies of the OCP.

**RESIDENTIAL LEVEL 1: RURAL RESIDENTIAL.** Areas designated for rural residential are intended for detached housing on large lots situated outside the urban boundary. The OCP does not envision further intensification of use through subdivision in this designation and/or through extension of services. Detached rural residences are generally allowed up to approximately 0.35 FSR.

**RESIDENTIAL LEVEL 2: DETACHED RESIDENTIAL.** Areas designated for detached residential are intended predominantly for detached housing within neighbourhoods. This designation accommodates secondary rental units such as suites or coach houses subject to the imposition and satisfaction of appropriate conditions. Detached residences (inclusive of suites and coach houses) are generally allowed up to approximately 0.55 FSR.

**RESIDENTIAL LEVEL 3: ATTACHED RESIDENTIAL.** Areas designated for attached residential are intended predominantly for ground-oriented multifamily housing within neighbourhoods, or as a transition between higher density sites and adjacent detached residential areas. Typical housing forms in this designation include duplex, triplex, and attached row houses up to approximately 0.80 FSR.

**RESIDENTIAL LEVEL 4: TRANSITION MULTIFAMILY.** Areas designated for transitional multifamily are intended predominantly for multifamily uses within or in close proximity to centres and corridors, or as a transition between higher density sites and adjacent detached and attached residential areas. This designation typically allows for a mix of townhouse and apartment developments up to approximately 1.20 FSR.

**RESIDENTIAL LEVEL 5: LOW DENSITY APARTMENT.** Areas designated for low density apartment are intended predominantly for multifamily housing in centres and corridors up to approximately 1.75 FSR. Development in this designation will typically be expressed in low rise apartments, but may include some townhouses. Some commercial use may be permitted at grade.
RESIDENTIAL LEVEL 6: MEDIUM DENSITY APARTMENT. Areas designated for medium density apartment are intended predominantly to provide increased multifamily housing up to approximately 2.50 FSR at strategic locations in centres and corridors. Development in this designation will typically be expressed in medium rise apartments. Some commercial use may also be permitted in this designation.

COMMERCIAL RESIDENTIAL MIXED USE LEVEL 1. Areas designated for commercial residential mixed use level 1 are intended predominantly for general commercial purposes, such as retail, service and offices throughout the District. Residential uses above commercial uses at street level are generally encouraged. Development in this designation is permitted up to approximately 1.75 FSR.

COMMERCIAL RESIDENTIAL MIXED USE LEVEL 2. Areas designated for commercial residential mixed use level 2 are intended predominantly for medium density general commercial purposes, such as retail, service and offices at limited sites within the District. Residential uses are typically expected to accompany commercial uses. Development in this designation is permitted up to approximately 2.50 FSR.

COMMERCIAL RESIDENTIAL MIXED USE LEVEL 3. Areas designated for commercial residential mixed use level 3 are intended predominantly to provide for high density uses up to approximately 3.50 FSR at limited appropriate sites in the District’s Centres. Development in this designation may include residential or commercial uses which encompass retail, office and service uses, or a mix of these residential and commercial uses.

COMMERCIAL. Areas designated for commercial are intended predominantly for a variety of commercial and service type uses, where residential uses are not generally permitted. Development in this designation is permitted up to approximately 1.0 FSR.

INSTITUTIONAL. Areas designated for institutional are intended predominantly for a range of public assembly uses, such as schools, churches, recreation centres, and public buildings. Some commercial and accessory residential uses may be permitted.

INDUSTRIAL. Areas designated for industrial are intended predominantly for a range of manufacturing, warehousing, transportation, service, and port-related uses. Limited office, limited retail and residential caretaker uses may be permitted.

LIGHT INDUSTRIAL ARTISAN. Areas designated for light industrial artisan are intended predominantly for a mix of small-scale light industrial, warehouse, service, utility and residential uses up to approximately 2.50 FSR. Light industrial uses at street level are generally encouraged, and residential uses are typically expected above street level. Supportive uses including limited office, and limited retail uses may be permitted.
LIGHT INDUSTRIAL COMMERCIAL. Areas designated for light industrial commercial are intended predominantly for a mix of industrial, warehouse, office, service, utility and business park type uses. Supportive uses including limited retail and limited residential uses may be permitted.

LIGHT INDUSTRIAL COMMERCIAL MIXED USE - INNOVATION DISTRICT. Areas designated for light industrial commercial mixed-use - innovation district are intended predominantly for a mix of industrial, warehouse, office, service, utility and business park type uses up to approximately 1.10 FSR. Light industrial uses at street level are generally encouraged, and commercial uses, such as retail, service and office, are typically expected above street level. Supportive uses including limited institutional, and limited recreational uses may be permitted.

LIGHT INDUSTRIAL RESIDENTIAL MIXED USE - INNOVATION DISTRICT. Area designated for light industrial residential mixed-use - innovation district are intended predominantly for a mix of industrial, warehouse, office, service, utility, and business park type uses up to approximately 1.10 FSR. Light industrial uses at street level are generally encouraged, and residential uses are typically expected above street level. Supportive uses including limited institutional, limited recreational, and residential-only uses may be permitted.

PARKS, OPEN SPACE, AND NATURAL AREAS. Areas designated for parks, open space and natural areas are intended for a range of public and private uses focussed principally on the protection and preservation of ecologically important habitat areas, the regional drinking water supply, or the provision of diverse parks, outdoor recreational, or tourism opportunities.
SCHEDULE A | Town & Village Centre Policies
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Objectives for Town and Village Centres

OCP Schedule A includes land use concepts, mobility network concepts, and more detailed policy directions to inform the development of the four key growth areas which are identified in the OCP Network of Centres Concept Map (Map 1). These include: Lynn Valley Town Centre, Lower Lynn Town Centre, Maplewood Village Centre, and Lower Capilano Marine Village Centre. To achieve high quality town and village centre environments, and address the needs and opportunities of these respective communities, planning for each centre incorporates the following objectives:

1. Create a vibrant mixed use centre that serves as a focal point for the community
2. Accommodate a range of households through a diverse mix of housing types and tenures
3. Provide an engaging and interconnected open space network and public realm
4. Reduce the need for vehicle trips and improve pedestrian, bicycle and transit conditions
5. Become a more sustainable, energy and resource efficient neighbourhood
6. Support local employment opportunities and economic activities
7. Provide enhanced amenities to meet the community’s needs
8. Facilitate and promote public safety
9. Integrate planning with surrounding neighbourhoods and adjacent jurisdictions
10. Reinforce the centre’s identity and respond to local climate, context, history, landscapes and landmarks
Implementation of Town and Village Centre Policies

The land use concepts, mobility network concepts, and policy directions for each centre contained in Schedule A will be implemented through the preparation of more detailed Centres Implementation Plans (as outlined in Sections 12.3.1 and 12.3.2 of the OCP). Centres Implementation Plans are expected to be consistent with OCP policies and objectives, and will be prepared in consultation with respective local communities and stakeholders. Centres Implementation Plans may, where necessary, include (but are not limited to):

» Development permit area designations and guidelines

» Phasing recommendations

» Community amenity contribution strategy

» Traffic analyses

» Transitions to peripheral areas

» Utilities and servicing needs assessments

» Integrated stormwater management plans
1 INTRODUCTION

Lynn Valley Town Centre is one of the District’s two Town Centres in the OCP. Regionally, Lynn Valley is also identified as the District’s Municipal Town Centre, which is a municipal-wide centre or hub with medium and higher density uses including residential, commercial, employment, recreational and civic. It is also a focus for potential frequent transit service. The land use policies for Lynn Valley Town Centre serve to accommodate approximately 2,500 new units within the timeframe of this OCP. Policies support the creation of a vibrant, compact and more complete community and direct and coordinate growth and redevelopment towards that vision.

Located in the heart of Lynn Valley, the Town Centre core is currently characterized by retail malls, and the new Lynn Valley library and civic plaza. Heritage buildings and features, parks and views to local mountains reflect the rich cultural and natural history of Lynn Valley. Building on the quality design, liveliness and sense of place initiated by the new Lynn Valley library and civic plaza, there is an opportunity to revitalize the Town Centre into a more vibrant, pedestrian oriented, mixed use centre with housing choices and inviting street level shopping along a High Street with sidewalk cafes and community spaces. Redevelopment of the Town Centre also provides an opportunity to increase the diversity of housing choices in an area close to services, shops, jobs and transit.
2 VISION

Lynn Valley Town Centre is envisioned as a well-designed pedestrian, biking and transit-oriented mixed use centre in the heart of Lynn Valley that celebrates its natural and cultural setting and strong sense of community. Building on the existing strong commercial core with recreation and civic uses, a mix of new residential, commercial and employment uses, park and community space, and green building design and infrastructure will create a more vibrant and complete community.

3 TOWN CENTRE POLICIES

3.1 LAND USE

Map 6 indicates the predominant land uses for Lynn Valley Town Centre.

3.1.1 GENERAL LAND USE

1. Locate higher density forms in the core of the Town Centre so that new residents may walk to and from shops, community and recreational services, cultural events and potential employment

2. Focus ground-oriented multifamily housing along the edges of the Town Centre and transition sensitively to surrounding low density residential areas

3. Provide for private and semi-public open spaces with good access to views and sunlight through appropriate building orientation and massing

4. Establish a gateway to the Town Centre at the historic intersection of Mountain Highway and Lynn Valley Road

5. Establish East 27th Street as a predominantly residential street with similar character on both sides and potential for limited retail on the north side
3.1.2 HOUSING

1. Facilitate the provision of a diverse mix of multifamily housing forms and choices in the Town Centre to accommodate the needs of people at different lifecycle stages

2. Facilitate the provision of family housing in the residential area south of East 27th Street in the form of townhouses as well as apartments

3. Encourage redevelopment that includes units with more than 3-bedrooms that are suitable for families with children, and that may include flexible lock-off units

4. Facilitate the provision of new affordable and rental housing through the redevelopment of the Town Centre

5. Ensure that a portion of residential units in the Town Centre include adaptable design elements

6. Explore opportunities for the co-location of some ancillary housing for seniors on church sites

7. Consider the use of the District’s old library site for a combination of market and non-market housing
3.1.3 COMMERCIAL AND EMPLOYMENT USES

1. Promote the retention of existing office uses and provide additional flexible office/retail space for local job opportunities according to the Lynn Valley Town Centre Land Use Map (Map 6)

2. Plan for sufficient additional retail and office space in the Town Centre in the next 20 years

3. Encourage redevelopment in which smaller commercial units are wrapped around large format retail units to create active and engaging store fronts, and to facilitate regular breaks in the street wall to promote pedestrian access and connectivity

4. Promote flexible retail or office use on strategic sites in the Town Centre and within mixed use buildings to accommodate changing community needs

5. Incorporate a portion of covered space for indoor shopping and gathering

3.1.4 COMMUNITY FACILITIES, SERVICES AND AMENITIES

1. Prepare a community amenity strategy for the Lynn Valley Town Centre to deliver community amenities and public benefits generally to include, but not limited to:

   » Affordable and non-market rental housing

   » Network of interconnected public gathering places including open space and plazas

   » Parks, greenways, trails, playgrounds and community gardens

   » Multi-purpose community space and daycare space

   » Community art and cultural facilities

   » Restoration of heritage features

   » Enhanced public recreation facilities and services
3.1.5 PARKS AND OPEN SPACES

1. Improve connections to existing parks and open space within and adjacent to the Town Centre through an integrated network of pedestrian walkways, sidewalks and trails according to the Mobility Network Map (Map 7)

2. Establish a strong pedestrian corridor to connect the library square to the Town Centre core and High Street

3. Create a Town Centre Green/Park south of the library square to connect with the High Street and consider opportunities for innovative stormwater management, community gardens and other recreational uses in this space

4. Protect natural parkland and local ecosystems including forest and riparian habitat, and seek to rehabilitate Hastings Creek at Lynn Valley Road

5. Create new park and greenway connections south of East 27th Street to provide additional park space for residents and to improve linkages between neighbourhoods, within the Town Centre and Kirkstone Park

6. Provide additional gathering spaces in the Town Centre and an urban plaza at a central location along the High Street

7. Design new urban spaces to promote public safety, provide attractive design elements (seating, lighting, public art, view corridors and landscaping) and encourage activity and vibrancy

8. Use public art, signage and other creative “way-finding” strategies in the Town Centre to enhance sense of place and to mark major trail connections and points of historical, recreational or other significance

Character sketches of the Lynn Valley Town Centre

Lynn Valley Road looking north-east

Mountain Highway at East 27th Street looking north
3.2 MOBILITY NETWORK

Map 7 provides a conceptual representation of the mobility network for Lynn Valley Town Centre.

1. Support a safe and integrated transportation network that includes all modes of transportation with an emphasis on walkability and strong pedestrian connections and plan road, transit, bike and pedestrian routes in accordance with the Lynn Valley Town Centre Mobility Network Map (Map 7)

2. Connect the Town Centre to outside destinations and explore opportunities to establish a north-south pedestrian/cycle route east of Mountain Highway

3. Maintain Lynn Valley Road and Mountain Highway as primary vehicular routes for Lynn Valley

4. Establish a pedestrian and vehicle oriented High Street in the core of the Town Centre to include generous sidewalks, weather protection, bike facilities and on-street parking

5. Encourage the majority of parking to be located underground, and explore opportunities for reduced parking standards and shared residential/commercial parking in concert with enhanced pedestrian, cycling and transit facilities

6. Work with the regional transportation authority to support the provision of frequent transit service to and from the Town Centre and support transit service with appropriately located lay-by areas and accessible, safe and attractive transit stops

7. Provide accessible and comfortable sidewalks in the Town Centre and provide safe and attractive pedestrian crossings of Lynn Valley Road, Mountain Highway and East 27th Street at strategic locations

8. Continue to explore innovative transit choices in the long-term
3.3 SUSTAINABILITY

1. Assess the feasibility of a district energy system for Lynn Valley Town Centre, and subject to the results of this analysis, encourage new development to be district energy ready.

2. Promote the implementation of green building and water conservation practices.

3. Integrate the natural environment into the Town Centre by planting native landscaping, protecting pocket parks and heritage stumps, and encourage innovative rain gardens/ rainfall capture features, green walls and roofs to utilize ecological services and reflect the natural context.

4. Complete an integrated stormwater management plan for the Hastings Creek watershed and implement measures to maintain and enhance the health of the watershed.

5. Require integrated stormwater management strategies for new development in the Town Centre and seek to manage and re-use stormwater on site to the greatest extent possible.

6. Encourage community gardens and urban agriculture in open spaces and rooftop gardens.

7. Encourage new multi-family housing developments to provide composting facilities and/or coordinate composting services.
1 INTRODUCTION

Lower Lynn is one of two designated Town Centres in the OCP. Centrally located within the District at the Second Narrows bridgehead and connected to Lower Lonsdale via Main Street/Low Level Road, Lower Lynn has good access to transit, nearby parks and amenities, adjacent employment lands and numerous commercial uses. Lower Lynn is well situated for the creation of a complete community. In the regional context, Lower Lynn will be proposed, in consultation with the regional transportation authority, as a Frequent Transit Development Area with a greater mix and density of housing, commercial, employment and other uses to support frequent transit services. Over the next 20 years (and potentially longer) it is anticipated that approximately 3,000 units will be created in Lower Lynn Town Centre.

Existing land uses in Lower Lynn include light industrial, regionally oriented retail uses along Main Street, port industrial activity south of Main Street and single family homes east of Mountain Highway. The highway, railway lines serving the port and Lynn Creek are physical barriers that impact the connectivity of the Lower Lynn Town Centre with the surrounding area. The community has expressed a strong desire to rejuvenate and redevelop this area. Seylynn Village, a high-density mixed use development, has been approved at the north-eastern edge of Lower Lynn Town Centre and may catalyze redevelopment. With redevelopment, there is an opportunity to realize greater housing choices including rental and more affordable types. As well, the pedestrian and cycling network connections can be improved to Park and Tilford, Lynn Creek Park, and the trail network from the waterfront north to Inter-River Park. Pedestrian and cycling connections may also be facilitated to Seymour Creek and Maplewood in the future.
2 VISION

Lower Lynn will be a transit-oriented mixed use community comprised of a wide range of housing types for people of all stages of life, all incomes, with accessible places of work and convenient shopping, amenities and civic uses and services. Over time, Lower Lynn will become an outstanding model of urban living in harmony with the North Shore’s natural environment.

3 TOWN CENTRE POLICIES

3.1 LAND USE

Map 8 indicates the predominant land uses for Lower Lynn Town Centre.

3.1.1 HOUSING

1. Accommodate a range of household types including seniors, young families and singles, and a range of income levels through a mix of residential unit types and tenures

2. Establish minimum requirements for the provision of affordable and rental units to be achieved through the Lower Lynn public benefit and community amenity provision strategy

3. Encourage redevelopment that includes an appropriate proportion of units suitable for families in terms of adequate unit size, number of bedrooms, access to private outdoor space and potential for “lock off” units

4. Require multi-family developments to include on-site play space for children where appropriate

5. Consider, where appropriate, facilitating live/work units along Mountain Highway to provide a transition between residential and light industrial uses

Potential forms of development: tower/podium, mid-rise and ground-oriented
3.1.2 COMMERCIAL AND EMPLOYMENT USES

1. Focus new commercial floorspace and services in the “heart” and within Seylynn Village; and explore transitional commercial uses at the southwest corner of Mountain Highway and Crown Street

2. Support and encourage major office development

3. Support light industrial commercial uses and encourage intensification and diversification of such uses

4. Maintain Main Street as a regional destination commercial area

5. Facilitate effective buffering of commercial and mixed uses along Main Street from nearby industrial areas, and transition development sensitively to adjacent residential uses

6. Maintain the District’s Works Yard in the medium term and consider alternative uses of this site that may support the Town Centre in the long term

3.1.3 COMMUNITY FACILITIES, SERVICES AND AMENITIES

1. Provide a central plaza on the east side of Mountain Highway in the heart of the Town Centre and program it to support community activities and serve as a community focal point

2. Create a gateway to the heart at Mountain Highway and Crown through public realm improvements on the four corners

3. Prepare a community amenity strategy for Lower Lynn Town Centre to deliver community amenities and public benefits generally to include, but not limited to:

   a) Affordable and rental housing units

   b) Redevelopment of Seylynn Hall as a community centre

   c) Community space adjacent to Seylynn Park

   d) Neighbourhood park improvements including playgrounds at Seylynn and Bridgman Parks, and new neighbourhood park space to serve the area south of Crown Street and east of Mountain Highway

   e) Urban plaza including landscaping, street furniture and public art

   f) Enhancement of trails and greenways

   g) Other community amenities as identified to meet goals and objectives for Lower Lynn
3.1.4 PARKS AND OPEN SPACES

1. Undertake trail improvements to enhance connections to the Lynn Creek trail system and Lynnmour School and neighbourhood

2. Establish Crown and Orwell Streets as greenways that prioritize walking and cycling

3. Upgrade Seylynn Park to address local recreational needs

4. Expand and upgrade Marie Place Park as a locally serving neighbourhood park

5. Facilitate creation of a new neighbourhood park south of Crown Street and east of Mountain Highway

6. Design open spaces with consideration of solar orientation, weather protection and typical use during different times of day

7. Design open spaces with consideration of crime prevention principles and maximization of passive surveillance
3.2 MOBILITY NETWORK

Map 9 provides a conceptual representation of the mobility network for Lower Lynn Town Centre.

1. Pursue transportation demand management strategies to encourage active travel modes and public transit

2. Work with the regional transportation authority to coordinate the provision of effective transit service and upgrades to Phibbs Exchange to support increased population and employment in Lower Lynn Town Centre

3. Work with the regional transportation authority to improve the integration of Phibbs Exchange into the community

4. Investigate the potential for new pedestrian/cycle bridges over Lynn Creek and over the Trans-Canada Highway along the Crown Street alignment

5. Improve the existing Lynn Creek trail to Lynnmour School under the Keith Road and highway bridges

6. Work with the Provincial transportation ministry and other governments to address highway interchange improvements including east-west connections to the Seymour area

7. Designate Crown and Orwell Streets as greenways and implement streetscape improvements that prioritize walking and cycling movements

8. Secure mid-block connections east of Mountain Highway at redevelopment

9. Provide a consistent and high quality sidewalk treatment on both sides of Mountain Highway

10. Develop way-finding measures and signage to direct pedestrians and cyclist to the community heart, Seylynn Park, Lynn Creek trail system, community facilities and Phibbs Exchange
MAP 9: LOWER LYNN TOWN CENTRE MOBILITY NETWORK MAP

REFERENCE MAP ONLY
All proposed routes, roads and greenways are conceptual and show approximate locations.
3.3 SUSTAINABILITY

1. Undertake a feasibility analysis of district energy to consider alternative/sustainable energy systems for Lower Lynn; and subject to this analysis, anticipate and accommodate the development of a hydronic based district energy system

2. Promote the implementation of green building and water conservation practices

3. Manage and re-use storm water on site to the greatest extent possible

4. Encourage urban agriculture through provision of garden spaces and green roofs

5. Encourage new multi-family housing developments to provide composting facilities and/or coordinate composting services
1 INTRODUCTION

Maplewood Village is a unique place in the District given its proximity to the waterfront, its industrial neighbours and character and its diverse housing. The area is endowed with an outstanding natural environment and open space network including the Seymour River and various creeks, the Burrard Inlet foreshore, Maplewood Farm, Cutter Island Park and the Windridge Escarpment.

Development in Maplewood dates back to the 1920s, originally with waterfront sawmills that evolved to other port related industries including ship building, chemical plants and lumber export taking advantage of access to rail, water transport and the highway. More recently, business parks have developed along the new Dollarton Highway contributing significantly to the District’s job base and economy.

A residential community of approximately 1,000 people exists in a mix of older, more affordable rental townhouse and low rise apartments, and a blend of old and new single family homes. Modest commercial development is located along Old Dollarton Road to serve the local community and a recreation centre is located nearby in the Seymour Area.

Retention and enhancement of the character and features of Maplewood is critical in planning for the next 20 years. The OCP identifies that Maplewood will accommodate approximately 1,500 more units towards creating a vibrant village centre.
2 VISION

The vision for Maplewood Village is “a complete and balanced community with local jobs equaling the local labour force. In particular, jobs for local people and especially jobs for local young people should be encouraged and this will also have the merit of increasing the municipal tax base. New employment areas will reflect a high environmental standard and will also have high aesthetic standards, reflecting the community’s outstanding natural environment. There will be a variety of housing for all ages and incomes and family circumstances centered on a newly invigorated, walkable Maplewood village center. Old Dollarton Road will become a key focus of pedestrian activity, a street lined with new retail businesses with apartments and live/work units above. The Maplewood village center will be convenient for transit and pedestrians and will be the nerve center of an extensive system of trails, which wend through the community stretching from the Seymour River to Windridge and from Hogan’s Pool to Burrard Inlet” (Maplewood Local Plan, 2002).

3 VILLAGE CENTRE POLICIES

3.1 LAND USE

Map 10 indicates the predominant land uses for Maplewood Village Centre.

3.1.1 HOUSING

1. Encourage the retention of rental stock and the provision of affordable housing through redevelopment

2. Accommodate approximately 1,500 new residential units within a mix of building types (midrise, lowrise, mixed use buildings) and unit sizes

3. Support the provision of housing for seniors and families in terms of unit sizes, number of bedrooms and provision of private outdoor space

4. Encourage the replacement of the approximately 250 existing purpose-built, market rental units in Maplewood as development occurs

5. Target up to 300 net new non-market housing units within the Centre
3.1.2 COMMERCIAL AND EMPLOYMENT USES

1. Maintain and enhance light industrial uses

2. Limit retail and service uses within the business parks on the south side of Dollarton Highway and on the north side east of Riverside Drive

3. Permit intensive office and employment uses north of Dollarton Highway

4. Focus local serving commercial uses in mixed use, street oriented developments in the village heart

5. Permit live/work and small scale manufacturing units with residential above within the village centre
3.1.3 COMMUNITY FACILITIES, SERVICES AND AMENITIES

1. Develop a Maplewood Village community amenity contribution strategy to achieve community amenities and public benefits

2. Liven the “heart” of the Village Centre with streetscape design guidelines addressing civic improvements such as public plazas and art, coordinated street furniture, street trees and landscaping

3. Secure community space where feasible and appropriate when redevelopment occurs within the Village Centre

3.1.4 PARKS AND OPEN SPACES

1. Investigate the feasibility of establishing a children’s playground within the community park north of the Maplewood School site or within the village heart

2. Create east-west pedestrian and bicycle linkages to connect Maplewood Village with surrounding neighbourhoods, key destinations and facilities at Maplewood Conservation Area, Canadian International College, Maplewood Farm, Seymour Creek and Lower Lynn Town Centre

3. Explore the potential for an urban agricultural pilot project at Maplewood Farm

3.2 MOBILITY NETWORK

Map 11 provides a conceptual representation of the mobility network for Maplewood Village Centre.

1. Enhance pedestrian and cyclist connections within the village centre and to the wider Maplewood area

2. Design mid-block, north-south greenways connecting Seymour River Place to Dollarton Highway, and connecting the Windridge escarpment to Dollarton Highway between Forester and Riverside

3. Provide way-finding signage directing pedestrians and cyclists to the Village Centre

4. Design the Village Centre to support effective and frequent transit
3.3 SUSTAINABILITY

1. Explore and advance alternative on-site or neighbourhood renewable energy generation systems and connections, particularly the potential for eco-industrial networking whereby local industries utilize each other’s by-products as energy sources

2. Undertake an environmental reconnaissance to guide detailed planning for Maplewood Village Centre

3. Maintain stands of significant trees and strive to connect habitat and greenspace through greenways

4. Promote the implementation of green building and water conservation practices

5. Manage storm water on site to the greatest extent possible

6. Integrate opportunities for urban agriculture

7. Encourage new multi-family housing developments to provide composting facilities and/or coordinate composting services
MAP 11
MAPLEWOOD VILLAGE CENTRE
NETWORK MOBILITY MAP

REFERENCE MAP ONLY
All proposed routes, roads, and greenways are conceptual and show approximate locations.

MAP 1: MAPLEWOOD VILLAGE CENTRE NETWORK MOBILITY MAP
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1 INTRODUCTION

Situated at the end of the Marine Drive Corridor near the Lions Gate Bridge, Lower Capilano Village Centre has a unique geographical position in the District and will serve as a gateway to welcome people to North Vancouver while providing a heart for the local community, as well as amenities and housing options to meet the community’s needs over the next 20 years.

The area is close to significant natural features of the Capilano River and Regional Park trail system as well as the Pemberton escarpment and Bowser Trail. These features offer spectacular and unique views. In addition, Marine Drive is redeveloping into a vibrant mixed use corridor oriented to pedestrians and transit. There are aging and vacant commercial properties in the area which create an opportunity for renewal. There is also an opportunity for enhanced community and park facilities and transportation network improvements.

Conceptual planning for the Lower Capilano - Marine Drive focuses on the commercial properties at Capilano and Marine in order to identify a more effective land use and transportation configuration, promote the viability of continued tourist services, and provide for significant community benefits for local residents. Given the strategic location of this area and its potential to serve as a hub at the entrance to the Marine Drive Corridor, Capilano Road and the Lions Gate Bridge, Lower Capilano - Marine is expected to emerge as a key village centre within the OCP’s Network of Centres.
2 VISION

The Lower Capilano - Marine Drive Village Centre serves as a gateway to the District and will function as a vibrant, walkable neighbourhood with local-serving businesses, jobs, community recreation opportunities and a range of housing options.

3 VILLAGE CENTRE POLICIES

The following policies guide decision-making for land uses, community amenities, the mobility network, parks and open space and sustainability for the Lower Capilano - Marine Drive Village Centre.

3.1 LAND USE

3.1.1 GENERAL

1. Locate higher density land uses in the core area of the Village Centre to support the commercial uses and community facilities located in the “heart”

2. Focus ground-oriented multifamily housing along the edges of the core of the Village Centre and transition sensitively to surrounding low density residential areas

3. Promote high quality urban design that reflects the local context and integrates significant viewscapes
3.1.2 HOUSING

1. Provide for a range of housing options to meet the anticipated needs of existing and future District residents over the next 20 years including: seniors, young adults and families

2. Encourage the inclusion of three bedroom units in multi-family buildings for families

3. Encourage the inclusion of on-site play spaces in multi-family building developments where appropriate

4. Encourage purpose-built rental housing

5. Facilitate the provision of affordable housing through redevelopment including: market and non-market rental units, potential lock-off units, and price controlled ownership housing

3.1.3 COMMERCIAL AND EMPLOYMENT USES

1. Retain a portion of the existing hotel/motel units in the medium term and develop a phasing strategy to address renewal of these sites in the future

2. Support the redevelopment of a modest amount of local serving office in mixed-use buildings

3. Accommodate approximately 100,000 ft² of commercial space in the Village Centre

4. Explore the potential of developing a small business “incubator” with office space and facilities to support small enterprises
3.1.4 COMMUNITY FACILITIES, SERVICES AND AMENITIES

1. Create a community heart that includes, but is not limited to:
   
a) A community centre of approximately 17,000 - 24,000 ft² with local-serving programming, space for community groups and some recreational capacity

b) Small-scale retail that serves local residents’ needs

c) Community open / plaza space

d) Playground space

e) Community green space and connection to parks through enhanced trails

f) Pedestrian and cycling linkages to nearby destinations and networks

g) Programming of spaces that provide opportunities for diverse activities

2. Facilitate the provision of adequate daycare spaces through redevelopment

3. Explore the provision of adult daycare facilities in the new community centre

4. Ensure adequate cycling facilities, such as sheltered bike racks, are provided in the redevelopment of the village centre

5. Explore the potential for including bike storage lockers adjacent to the new bus lay-by
3.1.5 PARKS, TRAILS & OPEN SPACES

1. Increase the total land area dedicated to parks, trails and public open spaces such as plazas throughout the village centre.

2. Design new open spaces, playgrounds and plazas with a focus on amenities and with consideration of crime prevention principles including maximization of passive surveillance.

3. Establish new park spaces and enhance access to and connectively between parks and trails in the area by:
   a) creating new trails/greenways in strategic locations
   b) exploring opportunities in partnership with the District of West Vancouver and Metro Vancouver to enhance access and parks facilities (e.g. benches) at Capilano River and Klahanee parks.
   c) exploring the potential of a pedestrian/cycle access across the Capilano River to connect to Capilano River Regional Park trails.
   d) enhancing way-finding, safety and accessibility on trails.
   e) providing pedestrian amenities on existing streets where needed to complete trails loops.
3.2 MOBILITY NETWORK

Map 13 provides a conceptual representation of the mobility network for Lower Capilano - Marine Village Centre.

1. Provide an integrated transportation network that supports all modes of transportation with an emphasis on walkability and strong pedestrian/cycling connections.

2. Work with the regional transportation authority and the Province to plan and implement effective and frequent transit service, routing and facilities.

3. Continue to work with the Province to enhance access to the Lions Gate bridge.

4. Coordinate the establishment of a transit right-of-way connection between Curling Road and Marine Drive with a potential bus lay-by off of Marine to facilitate bus priority (conceptual location shown on Map 13).

5. Create a welcoming and inviting pedestrian experience by:
   a) using appropriate traffic control and traffic calming measures on roadways
   b) providing pedestrian infrastructure along Fullerton Avenue, Curling Road and Capilano Road
   c) providing sidewalk amenities to encourage pedestrian connections between Woodcroft, the Village Heart and transit stops.

6. Connect the Lower Capilano and Lions Gate neighbourhoods by creating a “crossroads” connection at Hope Road into the heart of the new Village Centre (Map 12).

7. Facilitate below-grade vehicular parking for all new commercial, mixed-use and institutional development.

8. Provide new bike route facilities, including signage for way finding/route-marking and road safety infrastructure, as appropriate.
3.3 SUSTAINABILITY

1. Assess the viability of a district energy system for the Village Centre including Marine Drive and if viable, require new development be ‘District Energy Ready’ for hook-up to hydronic systems

2. Promote the implementation of green building and water conservation practices

3. Incorporate infiltration and water features to manage stormwater and facilitate opportunities to integrate public art in this type of green infrastructure

4. Encourage drought tolerant, native species in all landscaping on District lands, such as boulevards and open spaces

5. Encourage community gardens, green roofs/roof top gardens and living walls where appropriate

6. Encourage new multi-family housing developments to provide composting facilities and/or coordinate composting services

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The Corporation of the District of North Vancouver

Bylaw 7934

A bylaw to amend the District of North Vancouver Official Community Plan Bylaw 7900, 2011

The Council for The Corporation of the District of North Vancouver enacts as follows:

1. Citation

This bylaw may be cited as “District of North Vancouver Official Community Plan Bylaw 7900, 2011, Amendment Bylaw 7934, 2012 (Amendment 4)”.

2. Amendments

District of North Vancouver Official Community Plan Bylaw 7900, 2011, is amended as follows:

a) by the addition of Schedule B, “Development Permit Areas”, as attached to this Bylaw as schedule 1.

3. Repeal

‘Schedule B’ of The District Official Community Plan (Bylaw 6300) and any amendments thereto is repealed.

READ a first time this the 5th day of June, 2012

READ a second time as amended this the 11th day of June, 2012

PUBLIC HEARING held on this the 19th day of June, 2012

READ a third time as amended this the 9th day of July, 2012

ADOPTED this the 9th day of July, 2012

Mayor

Municipal Clerk

AMENDED JULY 30, 2021
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Introduction

This Schedule B establishes seven Development Permit Areas (DPAs):

1. Protection of the Natural Environment DPA;
2. Streamside Protection DPA;
3. Wildfire Hazard DPA;
4. Creek Hazard DPA;
5. Slope Hazard DPA;
6. Form and Character DPA; and
7. Energy and Water Conservation and GHG Emission Reduction DPA.

Part One of this Schedule B designates the areas that are subject to the above DPAs, and delegates the issuance of some development permits to the District’s General Manager, Planning, Properties and Permits.

Part Two of this Schedule B contains definitions.

Part Three deals with the Protection of the Natural Environment DPA and the Streamside Protection DPA. It provides the context and objectives for these DPAs and provides exemptions and guidelines applicable to each. Corresponding Development Approval Information Areas are designated at the end of Part Three.

Part Four deals with the Wildfire Hazard DPA, the Creek Hazard DPA and the Slope Hazard DPA. It provides the context and objectives for these DPAs and provides exemptions and guidelines applicable to each. Requirements in relation to hazard assessment reports to be prepared by qualified professionals are then provided. A Development Approval Information Area is designated at the end of Part Four.

Part Five deals with the Form and Character DPA. It provides the context and objectives for this DPA and provides exemptions and guidelines in relation to different types of built form. A Development Approval Information Area is designated at the end of Part Five.

Finally, Part Six deals with the Energy and Water Conservation and GHG Emission Reduction DPA. It provides the context and objectives for this DPA and provides applicable exemptions and guidelines. A Development Approval Information Area is designated at the end of Part Six.

Because development guidelines are more flexible than zoning and other regulations, Council is able to exercise discretion on a case by case basis and specify conditions and requirements to meet the intent and objectives of the applicable DPA. A development permit may vary requirements of other District bylaws. As an example, in an environmentally sensitive area Zoning Bylaw setbacks from a property line might be reduced to locate development farther away from a wetland. But in no instance may a development permit vary the permitted use or density of land from that which is specified in the Zoning Bylaw.

Development permits are registered on title, therefore the specified conditions and requirements that development must adhere to “run with the land” remaining in force until rescinded by the issuance of a new development permit.
PART 1 | Designation, Requirement for a Development Permit and Delegation
A. **Designation of Development Permit Areas**

1. **Protection of the Natural Environment**

Pursuant to section 919.1(a) of the *Local Government Act*, all parcels coloured green on Map 1.1 are collectively designated as the protection of the natural environment development permit area (the “Protection of the Natural Environment DPA”).

2. **Streamside Protection**

Pursuant to section 919.1(a) of the *Local Government Act*, all parcels coloured green on Map 1.2 and any other parcel in the District that contains a stream, or is partly or entirely located:

   a) within 15 metres of the *top of bank* of a stream, or
   
   b) within 10 metres of the *top of ravine bank* for ravines that are greater than 60 metres in width; or
   
   c) within 30 metres of the *top of bank* of a stream for parcels that are 0.5 hectares or larger in area and are located on or adjacent to the Capilano River, Lynn Creek, Seymour River, or on or adjacent to Mackay Creek at any point south of Marine Drive are collectively designated as the streamside protection development permit area (the “Streamside Protection DPA”). For greater certainty, the Streamside Protection DPA applies to all parcels that meet the above criteria, whether or not coloured green on Map 1.2.

3. **Wildfire Hazard**

Pursuant to section 919.1(a) and (b) of the *Local Government Act*, all parcels coloured light and dark orange on Map 2.1 are collectively designated as the wildfire hazard development permit area (the “Wildfire Hazard DPA”).

4. **Protection of Development from Creek Hazards**

Pursuant to section 919.1(b) of the *Local Government Act*, all:

   a) potential flood hazard areas;
   
   b) potential debris flow and debris flood hazard areas;
   
   c) parcels that are located wholly or partially within any potential debris flow and debris flood hazard areas or potential flood hazard areas, and
   
   d) parcels that intersect or touch any red line (the 10 metre reference line) shown adjacent to a potential flood hazard area on Map 2.2 are collectively designated as the creek hazard development permit area (the “Creek Hazard DPA”).
5. **Protection of Development from Slope Hazards**

Pursuant to section 919.1 (b) of the *Local Government Act*, all:

- a) *potential slope hazard areas*;
- b) parcels that are located wholly or partially within any *potential slope hazard areas*;
- c) parcels upon which there is located a *steep slope* are collectively designated as the slope hazards development permit area (the “Slope Hazard DPA”); and
- d) parcels that intersect or touch any red line (the 20 metre reference line) adjacent to a *potential slope hazard area* shown on Map 2.3

are collectively designated as the slope hazard development permit area (the “Slope Hazard DPA”).

6. **Form and Character of Commercial, Industrial and Multi-Family Development**

Pursuant to subsections 919.1(d), 919.1(e) and 919.1(f) of the *Local Government Act*, all lands coloured red on Map 3.1 and all lands zoned for commercial, industrial or multi-family residential uses in the *Zoning Bylaw*, are collectively designated as the development permit area for form and character of commercial, industrial and multi-family development (the “Form and Character DPA”).


Pursuant to subsections 919.1(h), (i) and (j) of the *Local Government Act*, all lands coloured purple on Map 4.1 and all lands zoned in the *Zoning Bylaw*:

- a) for commercial, industrial/employment, multi-family and institutional purposes; and
- b) zoned Comprehensive Development and containing commercial, employment, multi-family or institutional land uses

are collectively designated as the development permit area for energy and water conservation and greenhouse gas emission reduction development permit area (the “Energy and Water Conservation and GHG Emission Reduction DPA”).

![Photo (left) courtesy of the Lynn Canyon Ecology Centre](image-url)
B. Requirement for a Development Permit

All development and all subdivisions (other than a subdivision of a new building under the British Columbia Strata Property Act) within a designated development permit area shall require a development permit unless exempted in accordance with the provisions of this document. Development permits issued may include any development conditions permitted by the Local Government Act, as appropriate to the development permit area and development in question.

The requirements and guidelines in this document supplement regulations in other District development control bylaws - they do not replace them. Issuance of a development permit does not absolve an applicant from compliance with any other District bylaw and the requirements and guidelines in this document should be read in conjunction with the balance of this Official Community Plan, the Zoning Bylaw, Building Regulation Bylaw and the Development Servicing Bylaw in particular.

A development variance may either relax or increase a bylaw requirement if doing so results in an improved form of development on a particular parcel of land. It must be noted however, that development permits may not alter the permitted land use or density as specified in the Zoning Bylaw, as this is not permitted under the Local Government Act.

Under certain conditions, as set out in Parts 3, 4, 5 and 6 of this document, development may be exempted from the requirement to obtain a development permit. If unsure, property owners may submit a description of a proposed development activity with appropriate supporting information, and District staff will advise in writing whether the development is exempt from the requirement for a development permit.

An exemption from the requirement to obtain a development permit in connection with one development permit area shall not act as an exemption in connection with another development permit area. Also, an exemption from the requirement to obtain a development permit under the Protection of the Natural Environment DPA or under the Streamside Protection DPA shall not act as an exemption in connection with a requirement to obtain an environmental permit in accordance with the provisions of Environmental Protection and Preservation Bylaw No. 6515, as amended.

The District may impose in a development permit, any condition permitted by law in order to ensure compliance with the guidelines set out in this document.

When assessing a development permit application and determining what conditions, if any, should be imposed in a development permit, the applicable guidelines in this document should be followed. Alternative methods or materials may be considered where they provide equivalent or better performance and fulfill the objectives of the applicable guidelines. Staff should require that sufficient evidence or proof be submitted to substantiate any claims that may be used regarding use of the alternative method or material.

Where a parcel is designated as more than one type of development permit area, a single development permit may be issued, provided that the guidelines for all applicable development permit areas are addressed in the development permit.
C. Delegation of Authority to Issue Development Permits

In accordance with Section 920 of the Local Government Act, the Council hereby delegates to the director the powers of the Council to:

1. issue development permits with or without conditions in connection with the Protection of the Natural Environment DPA; Streamside Protection DPA; Wildfire Hazard DPA; Creek Hazard DPA; Slope Hazard DPA; and Energy and Water Conservation and GHG Emission Reduction DPA;

2. issue minor development permits with or without conditions in connection with the Form and Character DPA; and

3. provide any approval, acceptance or consent, form any opinion or determination, or require, provide or accept any reports, information or other items in connection with the foregoing as required or permitted in this document,

all in accordance with the applicable guidelines set out in this document, provided that:

1. the development permit does not involve any variances of the Zoning Bylaw;

2. in the case of a streamside protection development permit, the development permit does not involve parcels that are greater than 0.5 hectares in size located on or adjacent to the Capilano River, Lynn Creek or Seymour River, or located on or adjacent to Mackay Creek at any point south of Marine Drive;

3. the director may refer any DPA application to Council for decision, and in that event the provisions of this section related to reconsideration do not apply to the application.

4. the director may, in accordance with the applicable guidelines herein, require the applicant to provide security to be applied by the District to the cost of:
   a) providing landscaping, including vegetation and trees provided to preserve, protect, restore or enhance riparian areas, that the permit requires to be provided;
   b) correcting an unsafe condition that has resulted as a consequence of the contravention of a condition in the permit; and
   c) correcting damage to the environment that has resulted as a consequence of the contravention of a condition in the permit;

5. in imposing the security requirements set out in section 7, the director may require security to be maintained for so long as there is a reasonable possibility of contravention of a landscaping condition, the creation of an unsafe condition, and the causing of harm to the environment in connection with the development authorized by the permit;
6. within 10 business days of being notified in writing of the director’s decision regarding a development permit application, the applicant may, upon paying the application fee set out in Schedule “W” of the District Fees and Charges Bylaw 6481 (7806), as amended from time to time, request Council to reconsider the director’s decision by giving notice in writing to the District’s corporate officer setting out:

a) the grounds on which the applicant considers the decision is inappropriate; and

b) the decision that the applicant considers would be appropriate for Council to make having regard to the applicable guidelines herein, including development permit conditions and security conditions that the applicant considers would be appropriate;

7. the District’s municipal clerk must place each request for reconsideration on the agenda of a meeting of the Council to be held not earlier than 2 weeks from the date on which the request for reconsideration and payment of the applicable application fee was received;

8. the District’s municipal clerk must notify the director of each request for reconsideration and the director must:

a) prior to the date of the meeting at which the reconsideration will occur, provide a written report to the Council setting out, at the level of detail the director considers appropriate, the rationale for the director’s decision; or

b) at the meeting at which the reconsideration occurs, provide an oral report on the rationale for the director’s decision;

9. the District’s municipal clerk must notify the applicant of the date of the meeting at which the reconsideration will occur; and

10. the Council may either confirm the decision of the director or substitute its own decision, including with respect to development permit conditions and amounts of security.
In this document, the following terms have the meanings assigned to them below:

“accessory” means accessory as defined in the Zoning Bylaw;

“active floodplain” means an area of land that supports floodplain plant species and is:

1. adjacent to a stream that may be subject to temporary, frequent or seasonal inundation, or

2. within a boundary that is indicated by the high water mark;

“APEGBC” means the Association of Professional Engineers and Geoscientists of British Columbia or any replacement or successor professional association;

“buffer” or “buffer area” means an area that remains undeveloped in order to protect slope stability or to provide a setback from a natural hazard;

“Council” means the Council of the District;

“Creek Hazard DPA” means the development permit area designated in Part One section A.4 of this document;

“debris flood” means a flood of water that carries an unusually large amount of sediment and/or wood debris, and that is often triggered by a landslide dam outbreak;

“debris flow” means a fast moving, liquefied and channelized landslide of mixed and unconsolidated water and debris that may occur during unusually wet weather on a steep mountain creek with abundant debris sources;

“defensible space” means the area around a structure where fuel and vegetation should be managed to reduce the risk of structure fires spreading to the forest or vice versa and to provide safe working space for fire fighters;

“designated flood” generally means an event that has a 1 in 200 chance of occurring in any given year, based on a frequency analysis of unregulated historic flood records or by regional analysis in cases of inadequate stream flow data available. In some cases, a designated flood can be the flood of record (for example, when an event greater than the 1 in 200 year event has occurred in recent history);

“designated flood level” means the observed or calculated water surface elevation for a designated flood, and is used to determine the flood construction level;

“detailed assessment” means a detailed, site-specific study and field review to delineate hazard areas and provide quantitative estimates of hazard or risk, the minimum requirements of which detailed assessment are set out in this document;
“development” means any of the following:

1. construction of, addition to or alteration of a building or other structure, including, without limitation:
   a) new building construction;
   b) building additions and alterations, including alterations to exterior materials;
   c) construction of, addition to or alteration of accessory buildings and structures, including pools, hot tubs, sheds and other structures; or
   d) construction of, addition to or alteration of retaining walls; and
2. alteration of land, including, without limitation:
   a) site clearing or removal of vegetation;
   b) landscaping, including planting and clearing;
   c) site grading;
   d) tree cutting;
   e) placement of fill, or disturbance of soils, rocks or other native materials;
   f) creation of impervious and semi-impervious surfaces (such as patios and driveways);
   g) installation, construction or alteration of flood protection or erosion protection works;
   h) installation, construction or alteration of roads, trails, docks, wharves or bridges; or
   i) installation, construction or maintenance of drainage, hydro, water, sewer or other utilities or utility corridors, including underground sprinkler or irrigation systems;

“development approval information” means information about the anticipated impact of the proposed activity or development on the community, which information is more particularly described in this document;

“director” means the District’s General Manager, Planning, Properties and Permits and his or her successor in function and his or her designate;

“District” means, depending on the context, The Corporation of the District of North Vancouver or all of the land falling within the jurisdictional boundaries of The Corporation of the District of North Vancouver;

“document” means this Schedule B attached to and forming part of the District’s Official Community Plan Bylaw 7900, 2011;

“elements at risk” means anything of social, environmental or economic value, including human lives and well-being that may be affected by a natural hazard;

“Energy and Water Conservation and GHG Emission Reduction DPA” means the development permit area designated in Part One section A.7 of this document;
“environmental impact study” means a detailed environmental assessment prepared by a qualified environmental professional that includes delineation and assessment of the natural environment protected area or the streamside protected area in relation to a proposed change or development;

“exemption” means an exemption from the requirement for a development permit in connection with a given development;

“Form and Character DPA” means the development permit area designated in Part One section A.6 of this document;

“fire resistive materials” means materials resistant to fire, such as stucco, metal, brick, rock, stone, lumber treated for fire resistance and cementitious products (including hardiplank), but excludes, without limitation, untreated wood, aluminum and vinyl products;

“fire resistive rating” means the time for which a material or construction will withstand the standard fire exposure as determined by a fire test made in conformity with the standard methods of fire testing;

“fire retardant roofing” means Class A and Class B roofing as specified in the Homeowners FireSmart Manual, BC Edition, 2004, Province of B.C., as the same may be amended or replaced from time to time, or such other roofing as may be specified by the District from time to time;

“flood” means an overflowing or pooling of water on land that is normally dry;

“flood construction level” or “FCL” means the designated flood level plus a specified allowance for freeboard, as determined by a qualified professional;

“flood of record” means the largest recorded flood event on any given stream or river, and when this exceeds the 1 in 200 year instantaneous event it becomes the designated flood;

“flood-proofing” means the alteration of land or buildings to reduce or eliminate the potential for flood damage and may include the use of increased elevation and/or construction methods that allow for occasional wetting and drying;

“floodway” means the channel of a watercourse and those portions of a floodplain that are reasonably required to actively convey the flow of a designated flood;

Seymour River (left); Lynn Creek during a 100 year rain storm event (right).
“freeboard” means a vertical distance typically added to the designated flood level to account for variation in local hydraulic conditions (such as river bend or large boulders in a stream), to allow for waves rising from winds, and to address uncertainties inherent in engineering assumptions and calculations and introduce a factor of safety to such calculations;

“fuel” means a combustible material;

“gross floor area” means gross floor area as defined in the Zoning Bylaw;

“habitable space” means any room or space within a building or structure, which room or space is or can be used for human occupancy, commercial sales, or storage of goods, personal property or mechanical or electrical equipment (including furnaces), and which room or space would be subject to damage if flooded;

“habitat” means the natural home of an organism, including without limitation:

1. in respect of aquatic species, spawning grounds and nursery, rearing, food supply, migration and any other areas on which aquatic species depend directly or indirectly in order to carry out their life processes, or areas where aquatic species formerly occurred and have the potential to be reintroduced; and

2. in respect of other wildlife species, the area or type of site where an individual or wildlife species naturally occurs or depends on directly or indirectly in order to carry out its life processes or formerly occurred and has the potential to be reintroduced;

“habitat compensation” means the enhancement or increase in the productivity of existing streamside protection areas or natural environment protection areas, or, where appropriate, the replacement, of habitat and vegetation, where measures to avoid, repair or mitigate impacts caused by development may not be adequate to protect the streamside protection areas or natural environment protection areas as the case may be;
“high water mark” means the visible high water mark of a stream where the presence and action of the water are so common and usual, and so long continued in all ordinary years, as to mark on the soil of the bed of the stream a character distinct from that of its banks, in vegetation, as well as in the nature of the soil itself, and includes the active floodplain;

“landslide” means a movement of rock, debris or earth down a slope, and can be the result of a natural sequence of events and/or human activities; landslides include rock falls, rock slumps, rockslides, rock avalanches, rock creep, debris falls, debris slides, debris flow, debris floods, earth falls, earth slumps, earth slides, earth flows, earth creep and flow slides;

“master requirements list” or “MRL” means the information guides published by the District and containing requirements for development permits and/or building permits on properties with a range of natural hazards or special circumstances;

“mature stand of trees” means a group of trees in which the contiguous canopy area is greater than 100 square metres and where at least 3 trees are at least 50 years old;

“minor development permit” means a form and character development permit in connection with the following minor development activity in the Form and Character DPA:

1. minor façade and design changes in respect of a development for which a form and character development permit has already been issued by the District;

2. installations of up to 100 square metres of new gross floor area on a parcel provided that the new gross floor area is an addition to or is accessory to a permanent structure on the parcel; or

3. installation of new antennas on existing telecommunications facilities or changes to existing telecommunications facilities;

“natural boundary” means the natural boundary as defined in the Land Act (B.C.) In addition, the natural boundary includes the best estimate of the edge of dormant or old side channels and marsh areas;
“natural environment protected area” means the area, in which protection, conservation or enhancement is required in order to protect mature stands of trees, habitat for species at risk, wetlands, raptors’ nesting sites or wildlife corridors, as the case may be;

“new building or structure” means a building or structure, excluding an accessory building or structure, that contains habitable space and that is newly constructed or being constructed or intended to be constructed or that is or is being or is intended to be substantially reconstructed;

“new ICI building or structure” means a building or structure, excluding an accessory building or structure and excluding a single family residential building, that contains habitable space and that is newly constructed or being constructed or intended to be constructed or that is or is being or is intended to be substantially reconstructed;

“permanent structure” means any lawfully constructed or legally non-conforming building or structure that is a fixture on land and is placed or erected on a permanent foundation;

“potential debris flow and debris flood hazard areas” means those areas identified as such on the Map 2.2;

“potential flood hazard areas” means those areas identified as such on Map 2.2;

“potential slope hazard areas” means those areas identified as such on Map 2.3;

“preliminary assessment” means a preliminary or overview assessment by a qualified professional to determine the extent, location or presence of a hazard, the probability of a hazardous event affecting an element at risk, and whether a detailed assessment is required;

“Protection of the Natural Environment DPA” means the development permit area designated in Part One section A.1 of this document;

“qualified environmental professional” means an applied scientist or technologist or registered professional, acting alone or together with another applied scientist or technologist or registered professional, if:

1. the individual is registered and in good standing in British Columbia with an appropriate professional organization constituted under an Act, acting under that association's code of ethics and subject to disciplinary action by that association, and

2. the individual's area of expertise is recognized by the director as one that is acceptable for the purpose of providing all or part of an assessment report in respect of that development proposal, and

3. the individual is acting within that individual's area of expertise;
“qualified professional” means a professional with appropriate education, training and experience, fully insured and in good standing with the relevant professional association, and means:

1. for the purpose of the flood and slope hazard assessments (Creek Hazard DPA and Slope Hazard DPA), a specialist Professional Engineer or Professional Geoscientist, as appropriate, with experience or training in geotechnical and geohazard assessments, river hydraulics and hydrology and, where appropriate, debris flow processes experience or training and/or structural engineering expertise in connection with mitigation works; and

2. for the purpose of the wildfire hazard assessments (Wildfire Hazard DPA), a Registered Forest Professional qualified by training or with at least two years experience in the assessment, fuel management prescription development and mitigation of wildfire hazards in British Columbia;

“raptor” means a bird or its eggs of the order Falconiformes known as vultures, eagles, falcons and hawks or the order Strigiformes known as owls;

“ravine” means a narrow, steep-sided valley that is commonly eroded by running water and has a slope grade greater than 3:1;

“risk” is a measure of the probability and consequence of an adverse affect in relation to health, property, environment or other things;

“risk tolerance criteria” means generally the risk-based approach to the management of natural hazards established by the District, and more specifically means the risk tolerance criteria established by the District, as may be amended from time to time, which said criteria set out the maximum levels of tolerable risks to life for both existing and new development within the District, and which said criteria should be applied to any development in the Creek Hazard DPA and in the Slope Hazard DPA.

“Slope Hazard DPA” means the development permit area designated in Part One section A.5 of this document;

“species at risk” means an extirpated, endangered or threatened species or a species of special concern;

“steep slope” means any land with a slope angle greater than 20 degrees (36%) measured over a vertical distance of at least 10 metres;

“stream” means any of the following:

1. a pond, lake, river, creek or brook whether it usually contains water or not; and

2. a ditch, spring or wetland that is connected by surface flow to something referred to in paragraph (1);

“streamside area or habitat” means the area along a stream that influences natural features, functions and conditions of a stream;
“streamside protected area” means an area adjacent to a stream that links aquatic to terrestrial ecosystems and includes both existing and potential streamside vegetation and existing and potential upland vegetation that exerts an influence on the stream, the width of which includes the area:

1. from the centreline of the stream to a distance of 15 metres measured perpendicularly from the top of bank of a stream (as illustrated in the following diagram); or:

2. from the centreline of the stream to a distance of 10 metres measured perpendicularly from the top of bank of a ravine for ravines that are greater than 60 metres in width;

3. for parcels greater than 0.5 hectares in size located on or adjacent to the Capilano River, Lynn Creek or Seymour River, or located on or adjacent to Mackay Creek at any point south of Marine Drive, the area from the centreline of the stream to a distance of 30 metres measured perpendicularly from the top of bank of a stream.

For the purpose of this definition, potential streamside vegetation is considered to exist if there is a reasonable ability for regeneration either with assistance through enhancement or naturally;

“Streamside Protection DPA” means the development permit area designated in Part One section A.2 of this document;

“top of bank” means:

1. for a floodplain area contained in a ravine, the point closest to the boundary of the active floodplain of a stream where a break in the slope of the land occurs such that the grade beyond the break is flatter than 3:1 at any point for a minimum distance of 15 metres measured horizontally from the break; and

2. for a floodplain area not contained in a ravine, the edge of the active floodplain of a stream where the slope of the land beyond the edge is flatter than 3:1 at any point for a minimum distance of 15 metres measured horizontally from the edge;
“top of ravine bank” means the first significant break in a ravine slope where the break occurs such that the grade beyond the break is flatter than 3:1 for a minimum distance of 15 metres measured horizontally from the break, and the break does not include a bench within the ravine that could be developed;

“watercourse” means any natural or man-made depression with well-defined banks and a bed 0.6 metre or more below the surrounding land that serves to give direction to a current of water at least six months of the year, or having a drainage area of two square kilometres or more upstream of the point of consideration;

“wetlands” means land that is inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal conditions does support, vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, fens, estuaries and similar areas that are not part of the active floodplain of a stream;

“wildlife corridor” means a series of connected or linked habitats that may include a streamside area or habitat or a series of mature stands or trees, that facilitates or aids in the movement of species;

“Wildfire Hazard DPA” means the development permit area designated in Part One section A.3 of this document;

“wildfire mitigation” means any action taken to eliminate or reduce the long-term risk of wildfire; and

“wildfire risk area” means that part of the Wildfire Hazard DPA that is coloured light orange on map 2.1;

“Zoning Bylaw” means the District Zoning Bylaw 3210, 1965. as amended, consolidated or re-enacted from time to time.
PART 3 | Protection of the Natural Environment, its Ecosystems and Biological Diversity

1  Protection of the Natural Environment
2  Streamside Protection
Context

The natural features of the District, including our rivers, wetlands and forests, provide a spectacular setting and strong identity for our community. They also contain ecosystems that provide many functions necessary for our health and well being and the health and well being of a wide variety of plants and animals. The local ecology is crucial to the health of the air we breathe, the water we drink and the soil beneath our feet, and provides a host of ecological services including rainwater interception, soil stability, and temperature regulation. The District’s intention is to protect and improve the integrity, ecological health and biodiversity of our natural features and systems. This means preserving our rich natural heritage for future generations while enjoying it responsibly today.

There are two development permit areas for the protection of the natural environment, its ecosystems and biological diversity: the Protection of the Natural Environment DPA and the Streamside Protection DPA.
1 Protection of the Natural Environment

The local ecology is crucial to the health of the air we breathe, the water we drink and the soil beneath our feet...

A. Objectives

The Protection of the Natural Environment DPA and corresponding Development Approval Information Area are established to:

1. protect the District’s natural setting, ecological systems and visual assets as a part of a rich natural heritage for the benefit of present and future generations;

2. protect wildlife corridors and the connectivity of our ecosystems;

3. protect our forested character and enhance the health of our forests, trees and soils;

4. conserve environmentally sensitive areas in order to protect biodiversity;

5. protect forested areas inside our watersheds in order to maintain or enhance hydrological functions; and

6. regulate development on parcels in the Protection of the Natural Environment DPA in furtherance of the above objectives.
B. Exemptions

The following activities are exempt from the requirement to obtain a protection of the natural environment development permit:

1. development that does not encroach or impact in any way on a natural environment protected area;

2. renovation or repair of a permanent structure on its existing foundation, provided that there is no expansion of the building footprint, including no cantilevered or projecting portions of the permanent structure, and provided that there is no clearing, grading or disturbance of soils, vegetation or trees within the natural environment protected area;

3. interior renovations within the existing foundation of a permanent structure;

4. public works and services and maintenance activities carried out by, or on behalf of, the District generally in accordance with these guidelines and approved by the director;

5. habitat compensation projects and other habitat creation, restoration and enhancement works carried out in accordance with District bylaws and a plan approved in writing by the director;

6. routine maintenance of existing landscaping and lawn areas;

7. installation of seasonal play or recreational equipment on existing yard/lawn areas, such as sandboxes or swing sets;

8. paths for personal use by the parcel owners, provided they do not exceed 1.0 metre in width, are constructed of pervious natural materials with no concrete, asphalt or pavers and no creosoted or otherwise treated wood, do not involve structural stairs, and require no removal of native vegetation;

9. minor alterations or repairs to existing roads, paths or driveways, provided that there is no further disturbance of land or vegetation; or

Brownies doing restoration planting in the Lower Seymour Conservation Area (left).
10. subdivision of land where:

a) minimum parcel area requirements are met exclusive of any land within any natural environment protected area(s);

b) natural environment protected areas are intact, undisturbed and free of development activities and are kept intact, undisturbed and free of development activities; and

c) no restoration or enhancement of any natural environment protected areas is required.

In order to determine whether a proposed subdivision qualifies for an exemption, applicants may be required to provide additional information on the condition of the natural environment protected area.
C. Guidelines

The following guidelines apply within the Protection of the Natural Environment DPA:

1. Efforts should be made to locate development away from:
   a) habitat for species at risk;
   b) mature stands of trees;
   c) raptor’s nesting sites;
   d) wetlands; and
   e) wildlife corridors.

2. Without limiting subsection (1) above, proposed development should be located and designed so as to minimize any damage to natural environment protected areas and efforts should be made to protect and enhance natural tree cover and vegetation, drainage patterns and landforms.
3. New structures on a parcel should be located as far away from *natural environment protected areas* as is feasible and in any event as far away from *natural environment protected areas* as existing permanent structures, if any, on the parcel.

4. Applicants may be required to submit a detailed environmental impact study prepared by a *qualified environmental professional*, to identify any potential issues and impacts relating to the proposed development and relating to protection, conservation and enhancement of *natural environment protected areas*. The environmental impact study may be required to include:

   a) delineation of the *natural environment protected area* including details on the features and extent of the said area. This may need to be done in conjunction with a certified B.C. Land Surveyor;

   b) description and relevant details of the proposed *development* and an assessment of the impacts of said *development* including impacts associated with the construction, operation and/or maintenance of the *development* on vegetation, wildlife, *habitat*, hydrology and soils;

   c) delineation and identification of any sensitive ecosystems for inclusion on the *District’s sensitive ecosystem inventory*; and

   d) where necessary and appropriate, description of any *habitat compensation* projects.

5. Where land and/or natural vegetation in the *natural environment protected area* is disturbed or damaged due to *development*, the applicant may be required to provide *habitat compensation* for the portion of the *natural environment protected area* that will be affected, as approved by the *director*. A *habitat compensation project*, may need to be coordinated with or prepared by the *qualified environmental professional* and based on a legal survey prepared by a certified B.C. Land Surveyor, but in all cases should include:

   a) a site plan drawn to scale showing:

      i. the site of the *development*,

      ii. that portion of the *natural environment protected area* that is impacted, in both size (square metres) and location, and

      iii. the site of the proposed *habitat compensation* project, in both size (square metres) and location;

   b) the details of the *habitat compensation project* based on a principal of no net loss to the *natural environment protected areas*, which may include but is not limited to:

      i. a planting plan, listing each species to be planted and each plant’s size (based on a principal of no net loss),

      ii. a tree planting plan based on a 3:1 ratio of replacement trees to trees removed,

      iii. details on soil work, grading and drainage, and

      iv. details on other proposed mitigation measures such as nesting boxes, wildlife snags or habitat piles.
6. Staff may require a legal survey and environmental impact study or letter from a qualified environmental professional in order to determine the boundaries of the natural environment protected area and confirm that the development is not impacting the area.

7. Development Permits issued may require that:

   a) the natural environment protected area be protected or enhanced in accordance with the permit;

   b) the timing and sequence of development occur within specific dates or construction window to minimize environmental impact;

   c) specific development works or construction techniques (e.g., erosion and sediment control measures, fencing off of trees or vegetation, etc.) be used to ensure minimal or no impact to the natural environment protected area;

   d) mitigation measures (e.g. removal of impervious surfaces, replanting of riparian species, etc.) be undertaken to reduce impacts or restore habitat within the natural environment protected area;

   e) security may be required to secure satisfactory completion of habitat protection works, restoration measures, habitat compensation or other works for the protection of the natural environment (the “required works”). The security shall be in the amount of 125% of the estimated value of the required works as determined by the director and shall either be:

      i. in the form of a separate cash deposit or letter of credit; or

      ii. if acceptable to the director in his or her sole discretion, in the form of the cash deposit or letter of credit provided pursuant to the building permit in relation to the proposed development for which the development permit is issued; and

   f) security in the form of a cash deposit or letter of credit may also be required to secure recovery of the cost of any works, construction or other activities with respect to the correction of any damage to the environment that results as a consequence of a contravention of any condition or requirement in the protection of the natural environment development permit. The security taken pursuant to the building permit in relation to the proposed development for which the development permit is issued shall constitute the security for the purpose of this subsection, and shall not be released until damage, if any, has been remediated to the satisfaction of the director.
2 Streamside Protection

The District’s intention is to protect and improve the integrity, ecological health and biodiversity of our natural systems.

A. Objectives

The Streamside Protection DPA and corresponding Development Approval Information Area are established to:

1. protect the District’s natural setting, ecological systems and visual assets as a part of a rich natural heritage for the benefit of present and future generations;

2. protect the District’s network of streams, wetlands and riparian wildlife corridors;

3. regulate development activities in and near streams in order to protect the aquatic environment;

4. conserve, enhance and restore streamside areas and ensure development does not result in net loss of habitat; and

5. identify when and how development may occur near streams in the District and the criteria for such development.
B. Exemptions

The following activities are exempt from the requirement to obtain a streamside protection development permit:

1. *development* outside the *streamside protected area*;

2. renovation or repair of a *permanent structure* on its existing foundation, provided no further extension or encroachment into the *streamside protected area* occurs, including cantilevered or projecting portions of the *permanent structure*, and provided that there is no clearing, grading or disturbance to soils, vegetation or trees within the *streamside protected area* and no drainage alteration;

3. interior renovations within the existing foundation of a *permanent structure*;

4. public works and services and maintenance activities carried out by or on behalf of the *District* generally in accordance with these guidelines and approved by the *director*;

5. streamside vegetation management such as removal of invasive species and revegetation with native streamside species, according to a plan approved in writing by the *director*;

6. routine maintenance of existing landscaping and lawn areas;

7. installation of seasonal play or recreational equipment on existing yard/lawn areas, such as sandboxes or swing sets;

8. habitat creation, restoration and enhancement works within *streams* that are authorized by all applicable provincial and federal authorities having jurisdiction;

9. *habitat compensation* projects and other habitat creation, restoration and enhancement works that are not within *streams* and are carried out in accordance with *District* bylaws and a plan prepared by a *qualified environmental professional* and approved in writing by the *director*;

10. paths for personal use by the parcel owners, provided they do not exceed 1.0 metre in width, are constructed of pervious natural materials with no concrete, asphalt or pavers and no creosoted or otherwise treated wood, do not involve structural stairs and require no removal of vegetation in a *streamside protection area*;

11. minor alterations or repairs to existing roads, paths or driveways, provided that there is no further disturbance of land or vegetation.

12. subdivision of land where:

   a) minimum parcel area requirements are met exclusive of the *streamside protected area(s)*;

   b) the *streamside protected areas* are intact, undisturbed and free of *development* activities and are kept undisturbed, intact and free of *development* activities;

   c) no *development* activities related to the creation and servicing of parcels will occur in the *streamside protected areas*; and,
d) no restoration or enhancement of the \textit{streamside protected areas} is required.

e) In order to determine whether a proposed subdivision qualifies for an exemption, applicants may be required to provide additional information on the condition of the existing \textit{streamside protection area}.

\section*{C. Guidelines}

The following guidelines apply within the \textit{Streamside Protection DPA}:

1. All \textit{development} should be located outside the \textit{streamside protected area}.

2. Without limiting subsection (1) above, any proposed \textit{development} in the \textit{streamside protected area} should be located so as to avoid any damaging impact to the \textit{streamside protected area} and so as to minimize intrusion into the \textit{streamside protected area}, and efforts should be made to protect and enhance the natural features of the \textit{streamside protected area}, including the natural tree cover and vegetation, drainage patterns and landforms.

3. New structures on a parcel should be located as far away from the \textit{stream or wetland} as is possible or feasible and in any event as far away from the stream or wetland as existing \textit{permanent structures}, if any, on the parcel.
4. As noted above, development should be located outside the streamside protected area, however, where that is not possible, the area within 5 metres of the top of bank, edge of wetlands or top of ravine bank should remain free of development including new impervious or semi-impervious surfaces and new structures or extensions of existing permanent structures, including decks and patios.

5. Applicants may be required to submit an environmental impact study, prepared by a qualified environmental professional, to identify any potential issues relating to the proposed development and its impacts on the streamside protected area and relating to protection, preservation and enhancement of the streamside protected area, including issues and impacts associated with the District’s broader objectives of streamside protection and wildlife corridor enhancement, as set out herein, and to identify any mitigative measures that should be undertaken. Applicants may also be required to obtain approval from Fisheries and Oceans Canada (DFO) under the Fisheries Act. Any DFO approvals required by the District will be considered as part of the development permit review, but, for greater certainty, the development permit process will also consider impacts to other streamside or environmental values in addition to fish habitat. The environmental impact study may be required to include:

   a) delineation of the streamside protected area including details on the features and extent of the said area, this should be done in conjunction with a certified B.C. Land Surveyor;

   b) description and relevant details of the proposed development and an assessment of the impacts of said development including impacts associated with the construction, operation and/or maintenance of the development on vegetation, wildlife, habitat, hydrology and soils;

   c) delineation and identification of any sensitive ecosystems for inclusion on the District’s sensitive ecosystem inventory; and

   d) where necessary and appropriate, description of any habitat compensation projects.

6. Where land and/or natural vegetation in the streamside protected area is or may be disturbed or damaged due to proposed development, the applicant may be required to provide habitat compensation for the portion of the streamside protected area that will be affected, as approved by the director. A habitat compensation plan, may need to be coordinated with or prepared by the qualified environmental professional and based on a legal survey prepared by a certified B.C. Land Surveyor, but in all cases should include:

   a) a site plan drawn to scale showing:
      i. the site of the development,
      ii. that portion of the streamside protected area that is impacted, in both size (square metres) and location, and
      iii. the site of the proposed habitat compensation project, in both size (square metres) and location;
b) the details of the habitat compensation project based on a principal of no net loss to the streamside protected areas, which may include but is not limited to:

i. a planting plan, listing each species to be planted and each plant’s size (based on a principal of no net loss),

ii. a tree planting plan based on a 3:1 ratio of replacement trees to trees removed,

iii. details on soil work, grading and drainage, and

iv. details on other proposed mitigation measures such as nesting boxes, wildlife snags or habitat piles; and

c) a cost estimate for the habitat compensation works.

7. To determine the location of the streamside protected area on a parcel, applicants may be required to confirm, with the assistance of a qualified environmental professional and illustrated by certified legal survey, the top of bank, top of ravine bank and/or edge of wetlands in relation to property lines and existing and proposed development.

8. Development permits issued may require that:

a) streamside area or habitat and trees or other vegetation within the streamside protected area be preserved or enhanced in accordance with the permit;

b) the timing and sequence of development occur within specific dates or construction window to minimize impact to streams, fish or wildlife species;
c) specific development works or construction techniques (e.g., erosion and sediment control measures, fencing off of trees or vegetation, etc.) be used to ensure minimal or no impact to the streamside protected area;

d) mitigation measures (e.g. removal of impervious surfaces, replanting of riparian species, etc.) be undertaken to reduce impacts or restore habitat within the streamside protected area;

e) security in the form of a cash deposit or letter of credit be provided to secure satisfactory completion of habitat protection works, restoration measures, habitat compensation or other works for the protection of the streams and streamside habitat (the “required works”). This security shall be in the amount of 125% of the estimated value of the required works as determined by the director and shall either be:

   i. in the form of a separate cash deposit or letter of credit; or

   ii. if acceptable to the director in his or her sole discretion, in the form of the cash deposit or letter of credit provided pursuant to the building permit in relation to the proposed development for which the development permit is issued; and

f) security in the form of a cash deposit or letter of credit be provided to secure recovery of the cost of any works, construction or other activities with respect to the correction of any damage to the environment that results as a consequence of a contravention of any condition or requirement in the streamside protection development permit. The security taken pursuant to the building permit in relation to the proposed development for which the development permit is issued shall constitute the security for the purpose of this subsection, and shall not be released until damage, if any, has been remediated to the satisfaction of the director.
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Development Approval Information Areas

Land within the Protection of the Natural Environment DPA and Streamside Protection DPA are also designated collectively as a Development Approval Information Area in accordance with Section 920.01 of the Local Government Act. Applicants for protection of the natural environment or streamside protection development permits may be required by the District to provide, at the applicant’s expense, information in order to demonstrate compliance with the applicable guidelines.

Requirements

If required by the District, applicants for a protection of the natural environment development permit or a streamside protection development permit must submit the information set out in this section.

1. Where any development is proposed within a natural environment protected area or a streamside protected area, the District may require that a report prepared by a qualified environmental professional be provided at the applicant’s expense to assess existing conditions and impacts of the proposed development on:
   a) streams and streamside areas, in the case of proposed development in a streamside protected area, or
   b) mature stands of trees, habitat for species at risk, wetlands, raptors’ nesting sites or wildlife corridors, in the case of proposed development in a natural environment protected area.

2. Information on existing conditions (baseline information) on the site should be provided in a survey plan prepared by a certified B.C. Land Surveyor, that includes, at a minimum, the following:
   a) plans at 1:100 minimum scale with north arrow and minimum 1 metre contour interval;
   b) parcel boundaries and adjacent streets and rights-of-way;
   c) natural features including streams, wetlands, top of bank, mature stands of trees, habitat for species at risk, raptors’ nesting sites and wildlife corridors;
   d) boundaries of the streamside protected area or the natural environment protected area, as the case may be, determined in accordance with this document and the guidelines herein;
   e) any existing improvements on the parcel including locations and dimensions of existing buildings, driveways, parking areas, utilities, retaining walls and landscaping; and
   f) all trees and vegetation within the natural environment protected area or streamside protected area, as the case may be, highlighting vegetation and trees that will be affected or removed by the proposed development. The District may require that a tree assessment and retention/restoration plan be completed by a professional arborist in accordance with Master Requirement List (MRL) Form #ENV106 and #ENV108A, which are available for viewing at the District’s website at www.dnv.org, as amended from time to time.
3. Information on the proposed development should, at a minimum, include:

   a) locations and dimensions of proposed buildings, driveways, parking areas and utility services relative to the natural environment protected area or streamside protected area, as the case may be; and

   b) any temporary encroachment(s) by clearing, grading and other construction-related activities into the natural environment protected area or streamside protected area, as the case may be, and measures to mitigate and/or compensate such encroachment(s).

4. A written analysis should be provided demonstrating that the proposed development is consistent with the applicable development permit guidelines, and identifying any mitigation or compensation measures that are consistent with the guidelines, including measures that may be specified as development permit conditions.

5. The report must describe by plan and text the erosion control measures that are to be put in place during the site preparation and construction stages of the project.

6. If the director is not satisfied that the information is sufficient to comply with this section in scope, level of detail or accuracy or in any other respect, the director may, within 30 business days of receipt of the information submitted by the applicant, require the applicant to provide, at the applicants expense, further information to reasonably comply with this section.
PART 4 | Protection of Development From Hazardous Conditions

1  Wildfire Hazard
2  Creek Hazard
3  Slope Hazard
**Context**

The presence of steep slopes, ravines, creeks, rivers, floodplains and forested lands combined with occasional extreme weather activity make some areas of the District susceptible to conditions that may be hazardous. Such conditions include debris flow, debris flood, flood, slope instability, landslides, erosion, or wildfire. It is the District's objective to reduce and mitigate the risks associated with development in these areas by applying the District's ongoing Risk Management Program and taking appropriate precautionary measures through professional studies and assessments in order to guide safe development, building design, construction and long-term maintenance and monitoring.

Within this category, there are three development permit areas: the *Wildfire Hazard DPA*, the *Creek Hazard DPA* and the *Slope Hazard DPA*. 
1 Wildfire Hazard

The District’s intention is to ensure new development is resilient to natural hazards and climate change.

A. Objectives

The Wildfire Hazard DPA and corresponding Development Approval Information Area are established to:

1. ensure that development within the Wildfire Hazard DPA is managed in a way that:
   a) minimizes the risk to property and people from wildfire hazards;
   b) promotes activities to reduce wildfire hazards while still addressing environmental issues; and
   c) minimizes the risk of fire to the District’s forests;

2. proactively manage conditions affecting potential fire behaviour, thereby increasing the probability of successful fire suppression and containment, and thereby minimizing adverse impacts;

3. conserve the visual and ecological assets of the forest for the benefit of present and future generations; and

4. reduce the risk of post-fire landslides, debris flows and erosion.
B. Exemptions

All development is exempt from the requirement to obtain a wildfire hazard development permit other than the construction and installation of a new building or structure for which a building permit is required pursuant to the District’s Building Regulation Bylaw.

C. Guidelines

The following guidelines apply within the Wildfire Hazard DPA:

1. Applicants may be required to provide a preliminary assessment report and detailed assessment report prepared by a qualified professional.

2. New buildings or structures and associated accessory buildings and structures should be located as far away from any wildfire risk areas as is reasonably possible or feasible and in any event, as far away from any wildfire risk areas as existing permanent structures, if any, on the parcel.

3. For parcels that are located entirely within a wildfire risk area, guideline number 2 does not apply, but new buildings or structures and associated accessory buildings and structures should be located as far away from any contiguous undeveloped forested areas or areas containing hazardous forest fuel types or accumulations as is reasonably possible or feasible.

4. The following fire resistive materials and construction practices should be required for all subject development in the Wildfire Hazard DPA:
   a) fire retardant roofing materials should be used, and asphalt or metal roofing should be given preference;
   b) decks, porches and balconies should be sheathed with fire resistive materials;
   c) all eaves, attics, roof vents and openings under floors should be screened to prevent the accumulation of combustible material, using 3mm, non combustible wire mesh, and vent assemblies should use fire shutters or baffles;
   d) exterior walls should be sheathed with fire resistive materials;
   e) fire-resistive decking materials, such as solid composite decking materials or fire-resistant treated wood, should be used;
   f) all windows should be tempered or double-glazed to reduce heat and protect against wind and debris that can break windows and allow fire to enter the new building or structure;
   g) all chimneys and wood-burning appliances should have approved spark arrestors; and
   h) building design and construction should generally be consistent with the highest current wildfire protection standards published by the National Fire Protection Association or any similar, successor or replacement body that may exist from time to time.
5. All new hydro servicing that is in, or within 10 metres of, a wildfire risk area should be underground, or where this is not feasible, poles of non-combustible materials should be used (concrete).

6. The following landscape and service conditions should be required in respect of subject development in, or within 10 metres of, a wildfire risk area:
   a) firebreaks should be designed and installed, which may be in the form of cleared parkland, roads, or utility right-of-ways;
   b) wildfire risk mitigation and landscaping should be designed and installed to protect, conserve and enhance natural features of the site and adjacent ecosystems in accordance with District bylaws;
   c) if removal of trees or vegetation is deemed necessary by the qualified professional for the purpose of reducing wildfire risk, District approval is required and replacement trees or vegetation may be required by the District; and
   d) if deemed necessary by the qualified professional for the purpose of reducing wildfire risk, a defensible space of at least 10 metres should be managed around buildings and structures with the goal of eliminating fuel and combustible debris, reducing risks from approaching wildfire and reducing the potential for building fires to spread to the forest, and the required defensible space may be larger in areas of sloping ground where fire behaviour creates greater risk.

7. Building design and construction should generally be consistent with the highest current wildfire protection standards published by the National Fire Protection Association or any similar, successor or replacement body that may exist from time to time.

8. All wood, vegetation and construction debris identified in the qualified professional’s report should be removed within three months of permit issuance, or immediately during high fire risk seasons, and the District may require security in connection with such removal.

9. Applicants may be required to submit a tree assessment and retention/restoration plan completed by a qualified professional in accordance with current standards and District report requirements.

Fire Interface Area: homes in Grousewoods (left) and Braemar/Demsey (right) back on to the forest.
Minimize the risk to people and property from creek hazards and mitigate the impacts of flooding within areas already developed.

A. Objectives

The Creek Hazard DPA and corresponding Development Approval Information Area are established to address the following objectives:

1. minimize the risk to people and property from creek hazards;

2. encourage safety in the construction, location and manner of development;

3. minimize development in high hazard areas due to debris flow, debris flood areas;

4. mitigate the impacts of flooding within areas already developed;

5. avoid increasing the hazard to or vulnerability of others on the floodplain; and

6. maintain a natural riverine and floodplain regime.
B. Exemptions

The following activities are exempt from the requirement to obtain a creek hazard development permit:

1. public works and services and maintenance activities carried out by, or on behalf of, the District and approved by the director;

2. development involving buildings or structures in which the top of all proposed concrete slabs or underside of all wooden floor systems for all habitable space is more than 2 metres above the lowest elevation in the part of the creek channel that is adjacent to or closest to the proposed building or structure. This exemption does not apply where the flood hazard arises from Capilano River, Mackay Creek (below Highway #1), Mosquito Creek, Lynn Creek, or Seymour River; or to debris flow or debris flood hazards;

3. repairs or renovations (including roof repairs or replacement) to a permanent structure, provided that there is no expansion of the building footprint, including no cantilevered or projecting portions of the permanent structure;

4. construction of additional storeys above an existing building;

5. additions of less than 25 square metres in area, provided that no other additions have been commenced or constructed within the immediately preceding 24-month period and provided that the proposed addition is not located in a potential debris flow or debris flood area or a potential flood hazard area;

6. replacement or repair of an existing deck, provided that, if the deck is located in a potential debris flow or debris flood area or a potential flood hazard area, the location and dimensions of the deck do not change;

7. construction of an accessory building permitted by the Zoning Bylaw, provided that the accessory building is located outside any potential debris flow or debris flood area and any potential flood hazard area;

8. minor alterations or repairs to existing roads, paths or driveways, provided that there is no further disturbance of land or vegetation;

9. habitat creation, restoration or enhancement works carried out in accordance with District bylaws and a plan approved by the director;

10. routine maintenance of existing landscaping and lawn areas;

11. planting of trees or vegetation in accordance with District bylaws; or

12. removal of trees or vegetation in accordance with District bylaws.
C. Guidelines

The following guidelines apply in the Creek Hazard DPA:

1. Applicants may be required to provide a preliminary assessment report and detailed assessment report prepared by a qualified professional.

2. Development should:
   a) be constructed in a location and manner that will maximize the safety of residents and property;
   b) be located in the least hazardous part of the site;
   c) be minimized in floodplain areas, or where development may impede a natural floodway;
   d) comply with flood construction requirements identified by a qualified professional in a preliminary assessment or detailed assessment report;
   e) not increase the risk or hazard to, or vulnerability of, other properties or structures;
   f) not include habitable space below the flood construction level specified by the qualified professional except in accordance with recommendations made by a qualified professional and in compliance with these guidelines;
   g) in connection with renovations to any existing permanent structure, where reasonable, reduce flood hazard to the existing permanent structure by raising the habitable space to flood construction levels; and
   h) not include the installation of any mechanical equipment or electrical wiring below the flood construction level except in accordance with recommendations made by a qualified professional and in compliance with these guidelines.

3. Background information on potential flood, debris flood and debris flow hazards may be available through the District’s Natural Hazard Management Program, and, if so, information in these reports should be referenced as part of any development permit application.

4. Structural and/or non-structural flood protection measures should be implemented to mitigate the impacts of flooding within areas already developed.

5. Vegetation should be maintained and/or restored along all creek banks, valley floors and floodplains and within the required setback from top of bank to minimize erosion in accordance with the guidelines applicable to the streamside development permit.
6. Potential debris flow and debris flood hazard areas and potential flood hazard areas should remain free of development, or, if that is not possible, then:

   i. mitigation should be undertaken to reduce risk to an acceptable level (risk for both the subject property and any adjacent or nearby lands should be addressed); and

   ii. conditions (for example conditions relating to the permitted uses, density or scale of building) should be imposed as necessary to reduce potential hazard to acceptable levels,

both as determined by a qualified professional in a preliminary assessment or detailed assessment report.

7. Storm sewer connections should be installed and maintained in accordance with the District's Sewer Bylaw to reduce possible erosion of creek banks.

8. Proposed flood construction levels should be clearly defined by a qualified professional, preferably in Geodetic Survey of Canada datum.

9. Natural riverine and floodplain regimes should be preserved. Development should be sited so as to allow normal creek processes (erosion and channel migration) and anticipated flooding to occur. Where appropriate, this should include actions, such as grading of the site, to deflect flood water and to allow for floodways or pooling of floodwater.

A new foundation and creek bank stabilization project, after the creek eroded the foundations of the existing house (left). Debris Flow risk reduction: Debris catch basin on one branch of MacKay Creek (right).
The creek hazard development permit area map published on December 8, 2015. For the most up-to-date map, click here.

1. Potential Creek Flood, Design Flood, Hazard Area
2. Potential Flood Hazard Area
3. 10-Metre Reference Line to Potential Flood Hazard Area on Creek

Scale: 1:17,500

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Notes to Users:

1. The Designated Flood has a statistical return period of 200-years. (There is a one in 200 chance that the Designated Flood could be equalled or exceeded in any one year.)
2. The Designated Flood hazard maps are administrative tools that show the minimum designated flood elevation and do not substitute for the information contained on the City of North Vancouver’s flood hazard maps. Flood hazard maps do not provide information on site-specific hazards such as land erosion or sudden shifts in the water courses.
3. The flood hazard maps are based on previously reported water profiles and LiDAR surveys from 2006. The maps depict conditions at the time of the original reporting and surveys. Changes to the land use, channel or water body may affect the flood plain boundaries shown on these maps. Flood plain boundaries are a result of the types of data used to create the map: the accuracy of the location of a flood plain boundary as shown on this map is limited by the accuracy of the LiDAR data used for generating base contour mapping.
4. The accuracy of the location of a flood plain boundary as shown on this product or service: "Source: The District of North Vancouver GIS Department.
5. Published: December 4, 2015
6. The District of North Vancouver makes no representation or warranties whatsoever with respect to: the accuracy; the content; or the quality of information found on this product or service. The District of North Vancouver does not permit the user to rent, sell, distribute, transfer, or grant any rights to this product or service, in whole or in part, to another person or organization.

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3 Slope Hazard

The District’s intention is to reduce slope hazards and landslide risk to people and property by carefully managing development and construction practices on or near steeply sloped lands.

A. Objectives

The Slope Hazard DPA and corresponding Development Approval Information Area are established to address the following objectives:

1. minimize the risk to people and property from slope hazard;
2. develop safely and minimize the impacts on or near steeply sloped lands, including the potential run out area below steep slopes;
3. reduce slope hazards and landslide risk to people and property by carefully managing development and construction practices on or near steeply sloped lands;
4. avoid alteration of steeply sloped lands that may cause increased instability of the land or adjacent areas;
5. encourage professional design of structures and mitigative works and to ensure field review during construction and post-construction certification; and
6. encourage ongoing maintenance and monitoring of steeply sloped lands.
B.  Exemptions

The following activities are exempt from the requirement to obtain a development permit:

1. public works and services and maintenance activities carried out by, or on behalf of, the District, and approved by the director;

2. non-structural repairs or renovations (including roof repairs or replacement) to a permanent structure provided that there is no expansion of the building footprint, including no cantilevered or projecting portions of the permanent structure, and provided that such repairs or renovations do not increase the gross floor area of the permanent structure;

3. replacement or repair of an existing deck, provided that the location and dimensions do not change;

4. construction of an accessory building of less than 25 square metres permitted by the Zoning Bylaw provided that the accessory building is located outside any potential slope hazard area and at least 10 metres away from the crest of any steep slope, and provided that no removal of trees or placement of fill will be required;

5. routine maintenance of existing landscaping and lawn areas;

6. habitat creation, streamside restoration or similar habitat enhancement works in accordance with District bylaws and a plan approved by the director; or

7. planting of vegetation, except for the planting of trees within 10 metres of the top of a steep slope.

C.  Guidelines

The following guidelines apply in the Slope Hazard DPA:

1. Applicants may be required to provide a preliminary assessment report and detailed assessment report prepared by a qualified professional.

2. Background information on potential slope hazards in some areas is available through the District’s Natural Hazard Management Program, and the information in these reports should be referenced as part of any development permit application. Such information is available for Berkley, Lynn Valley/Westlynn, Pemberton Heights, Capilano River East, Mosquito Creek, Mount Fromme East, Riverside West and Deep Cove/Cove Cliff, among others.

3. Development should minimize any alterations to steep slopes, and the development should be designed to reflect the site rather than altering the site to reflect the development.

4. Terracing of land should be avoided or minimized and landscaping should follow the natural contours of the land.

5. Buildings and structures and landscaping should be located as far as reasonably possible from steep slopes or channel discharge/runoff points at the base of slopes.
6. Potential slope hazard areas should remain free of development, or, if that is not possible, then:

   a) mitigation should be undertaken to reduce risk to an acceptable level (risk for both the subject property and any adjacent or nearby lands should be addressed); and

   b) conditions (for example conditions relating to the permitted uses, density or scale of building) should be imposed as necessary to reduce potential hazard to acceptable levels,

both as determined by a qualified professional in a preliminary assessment or detailed assessment report.

7. Stepped and articulated building forms that integrate and reflect the natural site contours and slope conditions should be used, and large unbroken building masses that are unsuitable for sloped conditions should be avoided.

8. The construction of structures, pathways/trails, driveways, utilities, drainage facilities, septic fields, swimming pools, hot tubs, ponds, landscaping or other uses at or near the top or base of steep slopes should be avoided. A minimum ten metre buffer area from the top or base of any steep slope should be maintained free of development except as otherwise recommended by a qualified professional. On very steep slopes, this buffer area should be increased.

9. Vegetation should be maintained and/or reinstated on the slopes and within any buffer zone above the slopes in order to filter and absorb water and minimize erosion.

10. No fill, including yard clippings, excavated material, sand or soil, should be placed within ten metres of the top of slopes or along pre-existing drainage channels.

11. The base of slopes should not be undercut for building, landscaping or other purposes except in accordance with the recommendations of a qualified professional and a permit issued under this section.

12. For homes at the base of slopes, it is preferable for bedrooms to be constructed on the downslope side of the home.
13. Designs should avoid the need for retaining walls, particularly to minimize cutting of the uphill slope. Large single plane retaining walls should be avoided. Where retaining walls are necessary, smaller sections of retaining wall should be used. Any retaining structures in steeply sloped areas must be designed by a qualified professional.

14. Disturbed slopes should be reinforced and revegetated, especially where gullied or where bare soil is exposed. Planting should be done in accordance with the recommendations of a Landscape Architect or Registered Professional Forester, and a permit issued by the District.

15. Native species, including trees, shrubs and other plants, should be used for any new planting.

16. Any structural mitigation measures must be designed by a qualified professional.

17. Water should be diverted away from slopes, yards and structures in a controlled manner and ponding should be avoided near slopes.

18. Flow should be contained by capturing roof and pavement drainage.

19. Property, roof drainage and landscaping should be designed and maintained to shed water away from slopes (especially steep slopes).

20. Buildings should be connected to the storm drainage system or alternative methods approved by the District.

21. Concentrated water (such as roof drainage) should be discharged toward storm drains or street gutters and not over sloped lands.

22. The extent of paved or hard-surfaced areas should be limited, and absorbent or permeable surfaces should be used instead to encourage infiltration where appropriate and reduce runoff.

23. Lots should be graded so water is directed toward the street and away from slopes.

Lynn Valley Headwaters, park road (left); Slope failure on slope next to Mosquito Creek (centre); Landslide (right).
Note:

1. This map illustrates the title determination of the slope hazard areas and therefore cannot be used as a substitute for any engineering or land use assessment. The title determination plan includes risk factors.

2. This map shows areas subject to slope hazard risk. 

3. This map shows areas subject to slope hazard risk. 

4. This map shows areas subject to slope hazard risk. 

Potential Slope Hazard Area

Affected properties are those which contain a steep slope with a horizontal distance of less than 50m from the top or bottom of the steep slope and a slope of 20 degrees or greater with a vertical rise of at least 10m. 

This map will be refined further which may result in changes to the steep slope areas within the Slope Hazard Development Permit Areas and Part Two Definitions. 

Development Permit Areas and Part Two Definitions - 

There may be some parcels that are within the Slope Hazard Development Permit Areas that are not shown on this map. 

For more information, please refer to the Part Two Definitions for description of criteria.

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Source: The District of North Vancouver GIS Department.
Assessment Reports

1. **Preliminary assessment** reports and **detailed assessment** reports should address the potential for fire, landslip, rockfall, slope failure, debris flow, debris flood, or flooding, or other hazard (as relevant to the site and the particular development permit designation), and the impact of the proposed development on or by such natural hazard conditions should be analyzed and assessed.

2. The appropriate method of assessment and level of effort should be determined by the applicant’s **qualified professional** based on all the relevant circumstances, including, without limitation, the type of hazard, the nature and extent of proposed development, the particular development permit designation(s), and local site conditions. In some cases it may be appropriate to carry out screening studies based on assessment of the level of hazard or partial risk to determine if the proposed development may lead to the potential for loss of life caused by natural hazards. Where a potential for loss of life exists, the applicant’s **qualified professional** may be required to provide a detailed quantitative risk assessment using the risk tolerance criteria or factor of safety (FOS) calculations in respect of the proposed development.

3. **Preliminary assessment** reports and **detailed assessment** reports should meet all report guidelines published by the APEGBC or any replacement or successor body from time to time, and must specify that the land and the proposed development may be safely used for the purpose intended.

4. The design flow for floods should be the 200-year return period peak instantaneous flow or the flood of record, except as otherwise recommended by the applicant’s **qualified professional**, provincial standards or guidelines. New culverts and other watercourse crossings should be capable of passing this flow with no surcharging. New bridges should be capable of passing this flow with an acceptable freeboard allowance.

5. In connection with development in the Creek Hazard DPA, a **preliminary assessment** may be completed by a **qualified professional** as an initial step to determine whether risks are broadly acceptable. For creeks prone to debris flows or debris floods, if the preliminary assessment suggests that risks are broadly acceptable, then further risk assessment may not be required. For flood hazards, a **preliminary assessment** may also suffice, if the proposed development is at a greater elevation than the flood construction level identified by a **qualified professional** and no erosion risk is identified. Where a qualitative hazard assessment and/or **preliminary assessment** report demonstrates that risk is not broadly acceptable, a **detailed assessment** should be required.

6. In connection with development in the Slope Hazard DPA, a **preliminary assessment** including a partial risk assessment or qualitative hazard assessment should be completed by a **qualified professional** as an initial step in estimating whether a slope hazard may be present. If the **preliminary assessment** demonstrate that risks are broadly acceptable, further risk assessment may not be required. Where a qualitative hazard assessment and/or **preliminary assessment** report demonstrates that risk is not broadly acceptable, a **detailed assessment** should be required.
7. In connection with development in the Fire Hazard DPA, a preliminary assessment should be completed by a qualified professional as an initial step to assess existing conditions and impacts on wildfire hazard of any proposed new building or structure and of all other associated development including all landscaping, utilities and other services for the purpose of determining whether risks are broadly acceptable. If the preliminary assessment demonstrate that risks are broadly acceptable, further risk assessment may not be required. Where a qualitative hazard assessment and/or preliminary assessment report demonstrates that risk is not broadly acceptable, a detailed assessment should be required.

8. Any detailed assessment report by a qualified professional should, at a minimum:

a) include plan(s) at 1:100 minimum scale and 1m contour interval:
   i. delineating any wildfire risk area(s), potential debris flow and debris flood hazard areas, potential flood hazard areas or potential slope hazard areas, as the case may be, on or adjacent to the parcel, including details on the features and extent of said areas;
   ii. delineating parcel boundaries and adjacent streets and rights of way;
   iii. identifying any existing development including locations and dimensions of existing buildings, permanent structures, driveways, parking areas, utilities, retaining walls; and
   iv. indicating the proposed location of all proposed development, including, without limitation, site clearing, excavations, roads and driveways, foundations and buildings, utility services, stormwater detention works, drainage works, parking areas or impervious surfaces, retaining walls or other works;

b) provide all other relevant site information including topography, natural features, infrastructure and surface drainage;

c) include any relevant climatic, topographical, hydrometric, geological, terrain/slope data, hydrogeological, ecological or other site information;

d) identify and assess the potential for landslide, debris flow, debris flood, flood, erosion, unstable slopes or other hazard on the subject property and applicable surrounding lands and identify how the proposed development will be designed and constructed to promote safety of the development and of adjacent/downstream properties;

e) determine whether any proposed alterations to the site will affect slope stability or be at risk from debris flows or debris floods, or flood hazards;

f) clearly identify suitable building envelopes, setbacks and flood construction levels and identify any areas that should remain free of development;

g) provide a clear description of the assumptions and methodology used to undertake the assessment, and the potential magnitude and intensity of any potential hazard events;

h) provide a review of the historic nature, extent, magnitude, frequency and potential effect of hazards or constraints that may affect the property;
i) identify required or recommended mitigation measures and establish criteria for the design, construction, and long-term maintenance of any development or mitigative works proposed on the site (including, without limitation, erosion control during and after construction);

j) review all applicable historical hazard event information and relevant previous reports affecting the site and surrounding area;

k) assess the nature, extent, magnitude, frequency and potential effect of all applicable creek hazards that may affect the property, including the effects on perimeter drainage, storm water management;

l) use current climate data and modeling in connection with the assessment;

m) where the proposed development is located in debris flow/debris flood hazard areas, demonstrate that the proposed development complies with the District's current risk tolerance requirements;

n) identify the location and amount of any proposed removal or placement of soil or other fill, and confirm that the change will not adversely affect other properties;

o) identify proposed mitigation measures to reduce debris flow, debris flood or flood risks (up to the flood construction level) and to reduce slope instability, as the case may be, including but not limited to works to stabilize the watercourse edge or elevate the building site;

p) state that proposed mitigative works will not transfer risk to other properties;

q) establish criteria for the design, construction, and long-term maintenance of any development or mitigative works proposed on the site;

r) provide detailed measures to safeguard neighbouring properties and structures from any hazard related to development on the subject property;

s) clearly outline the short-term and long-term maintenance requirements, including regular maintenance and any special maintenance requirements after an extreme event;

t) identify any hazard on the subject site that may be related to municipal infrastructure (for example, culverts or storm drainage works);

u) provide a demonstrated review of all relevant background reports;

v) provide detailed recommendations to address bank erosion protection and flood-proofing up to flood construction levels, in accordance with all provincial and other guidelines that may be in place from time to time;

w) provide a professional opinion, subject to conditions and qualifications contained in the report, that the land may be safely used for the purpose intended and meets provincial guidelines (where applicable);

x) address any other information that the director deems relevant or necessary;

y) in respect of fire hazards, include:
i. the extent and nature of existing landscaping including details of trees and ground cover

ii. the exterior materials of existing and proposed buildings (siding and roofs);

iii. the locations and dimensions of proposed buildings, driveways, parking areas and utility services relative to any wildfire risk area(s) on or adjacent to the parcel;

iv. a description of all trees and vegetation within the wildfire risk area(s) on the parcel highlighting those recommended for removal or mitigation in order to create a defensible space around existing and proposed development;

v. a plan for the expedient removal of all wood, vegetation and construction debris resulting from the proposed development;

vi. a hazard assessment of the site and adjacent forest fuel conditions;

vii. identification of the fire-resistant construction materials and practices, in accordance with these guidelines;

viii. identification of the defensible space, in accordance with these guidelines, including details of proposed landscaping; and

ix. any temporary encroachment caused by clearing, grading and other construction-related activities, and measures to mitigate and/or compensate for such encroachment.

9. The applicant may be required to submit written terms of reference indicating the scope of work and professional expertise to be used for the preparation of a preliminary assessment or a detailed assessment. The terms of reference must be approved by the director prior to the information being prepared.

10. All reports and information shall be prepared and provided at the applicant’s cost. All reports, opinions and plans shall be signed and sealed by the appropriate qualified professional.

11. The District may require the submission of plans and reports in electronic format for inclusion in the District’s hazard database.
Development Approval Information Area

Land within the Wildfire Hazard DPA, Creek Hazard DPA and Slope Hazard DPA are also designated collectively as a Development Approval Information Area in accordance with Section 920.01 of the Local Government Act. Applicants for wildfire hazard, creek hazard and slope hazard development permits may be required by the District to provide, at the applicant’s expense, information in order to demonstrate compliance with the applicable guidelines.

Requirements

The types of plans, studies and other information that may be required in support of development applications, in addition to (or as part of) a preliminary assessment report or a detailed assessment report, include:

1. environmental assessment and mitigation plan by a qualified environmental professional;

2. geotechnical stability assessment by a qualified professional Engineer or Geoscientist;

3. hydrological assessment of drainage patterns and potential flood and hydraulic hazard by a qualified professional Engineer or Geoscientist;

4. assessment of fire hazards and mitigation measures by a registered forest professional, qualified by training or experience with at least two years experience in the assessment, fuel management prescription development and mitigation of wildfire hazards in British Columbia;

5. structural design and assessment by a qualified professional engineer for structural works;

6. site information based on a survey plan prepared by a certified B.C. Land Surveyor;

7. current state of title certificate and copies of all restrictive covenants registered on title, including relevant schedules and attachments;

8. a peer review of a qualified professional’s report; and

9. reports or other information from additional qualified professionals such as designers (as defined in the District Building Regulation Bylaw) or B.C. Registered Professional Landscape Architects, as appropriate to the development permit application.
PART 5 | Form and Character of Commercial, Industrial and Multi-Family Development

A  Guidelines for Commercial and Mixed-Use Buildings
B  Guidelines for Multi-Family Housing
C  Guidelines for Ground-Oriented Housing
D  Guidelines for Industrial and Business Park Development
E  Guidelines for Town and Village Centres
Context

The intent of this development permit area is to guide the form and character of commercial, industrial and multi-family development (including intensive residential development), and their relationship to the public realm and surrounding neighbourhood in the best way possible to achieve the vision, goals and strategic directions as articulated in the Official Community Plan. The District aspires to be a community with a high quality of built environment that reflects the outstanding natural endowment of the North Shore.

Organization

Certain broad design principles and objectives are applicable to all urban development throughout the District, but there may also be significant differences from neighbourhood to neighbourhood that need to be recognized. Accordingly, the Form and Character DPA is organized by development typology (form of development) as well as by specific geographic areas. General or District-wide guidelines apply to all development regardless of location and these are supplemented with specific guidelines that apply in the designated Town and Village Centres or other areas for which unique urban design guidelines have been prepared.

Objectives for Form and Character of Development

The Form and Character DPA and corresponding Development Approval Information Area are established to address the following objectives:

ACCESSIBILITY - Striving to achieve barrier-free development and accessibility for all

Many people in our community experience some degree of difficulty in moving about whether due to age, injury, visual or other physical challenges and may have to rely on the use of mobility devices such as wheelchairs, strollers or scooters. The design of buildings and the state of pedestrian conditions in the public realm should serve the broadest possible cross section of society allowing people to function in their day-to-day activities with dignity and independence.

Accessibility means:

» Age friendly development
» Ease of approaching, entering and exiting buildings
» Encroachment and barrier-free pedestrian routes
» Barrier-free access to public spaces
» Integration of trees, plants and natural elements for shade, sensory and health benefits

CONNECTIVITY - Enhancing the block and the street

Pedestrian connectivity has to be provided at a much finer grain than for automobiles, i.e. the basic street network. In the context of a development and its relationship to the street and the neighbourhood the importance of direct pedestrian routes cannot be overstated. Where blocks are long, there should be at least one clearly marked pedestrian connection mid-block providing convenient access through the property.
A pedestrian friendly development:

» Puts the pedestrian first
» Facilitates transit and non-vehicular modes of transportation
» Has a walkable, interconnected block pattern
» Has enhanced way-finding
» Oriented buildings and their entries to the street
» Connects or is enhanced by natural amenities and features

DESIGN EXCELLENCE - Creating outstanding and sustainable built form and character

Buildings that are functional for their intended use, appropriately fit into their surroundings and aesthetically attractive demonstrate design excellence. It takes tremendous amounts of energy and other resources to construct a building. Buildings are also major consumers of energy for heating, cooling and lighting. Building design influences the quality of life of residents or workers and the community at large when in a prominent location. Given that their lifetime can exceed 100 years, buildings represent a legacy for future generations.

Outstanding and sustainable development:

» Is appropriately scaled and massed within the context of its location
» Has well articulated, timeless architecture
» Has variation and unique features from one building to the next
» Incorporates green roofs, where appropriate, to maximize environmental benefits
» Is solarly-oriented and designed to maximize passive heating and cooling
» Incorporates opportunities for innovative rainwater management
» Integrates the aesthetic, environmental and health benefits of trees and other natural elements
» Incorporates and celebrates important natural features in design
» Uses durable, locally sourced or recycled building materials
» Provides discrete vehicle access to buildings and parking areas

GOOD NEIGHBOUR - Harmonizing with the scale and character of surrounding development

Development should be designed in a manner that is neighbourly and is in harmony with the scale and character of its surroundings and minimizes impacts on adjacent properties. Development often occurs incrementally; therefore, the design must carefully consider both existing and future relationships with surrounding properties and with the public realm. Potential impacts such as overviewing, noise, odour, glare and unsightly building designs or outdoor uses should be minimized through careful design.
Neighbourly development:

» Respects the tranquility, privacy and access to sunlight of nearby properties

» Provides transitions to neighbouring massing and scale

» Identifies and minimizes impacts on view corridors

» Provides a street presence with visual interest

PLACEMAKING - Achieving a distinctive look and feel in the District’s Town and Village Centres

The Town and Village Centres will each have a unique sense of place and identity based on their physical setting, landmarks, cultural history and other community assets, and be reflective of the shared values of its residents. A centre cannot be said to have a sense of place unless people care deeply about it and think of it as “theirs”. Sense of place is created by mental associations of positive experiences. There must be things to do and opportunities to meet people and socialize; in other words, reasons to want to go and spend time there. From an urban design perspective, the key is a well defined public realm.

A place worth caring about has:

» Lasting architectural character

» Places to gather, play, relax, enjoy nature or garden

» Building heights and siting in proportion to street width

» Coordinated and attractive landscaping, street furniture and amenities

SAFETY AND SECURITY - Improving safety and reducing opportunities for crime

Quality building design and site planning can play a role in reducing opportunities for crime and, nearly as importantly, the perception or fear of crime. There are trade-offs, however. Crime reduction strategies, if taken to the extreme, can result in stark or harsh conditions such as minimal landscaping, excessive lighting or unattractive fencing.

Safe and secure development has:

» Natural surveillance: putting “eyes on the street”

» Access control: clearly guiding people and vehicles to and from proper entrances

» Territorial control: distinguishing public areas from private areas

» Maintenance: regular maintenance discourages neighbourhood decline
Exemptions

A Form and Character development permit is not required in the following circumstances:

1. If the intended use is limited to single-family residential or institutional uses

2. Interior alterations or renovations to buildings

3. Site improvements such as landscaping, paving and pathways, when the total cost is less than $25,000

4. Accessory buildings less than 50 square metres in size provided they are consistent with the architectural form and character of the principle buildings

5. Temporary buildings or structures intended for construction offices or marketing displays for a period of time that does not exceed the duration of construction

6. Minor exterior renovations that do not significantly alter the building form and character

If unsure, property owners may submit a written description of a proposed development activity and District staff will advise in writing whether the development is exempt from the requirement for a development permit.
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A Guidelines for Commercial and Mixed-Use Buildings

Shopping streets tend to be the focal point of the community... (and) new development should seek to enhance and animate the public realm.

1. Public Realm and Streetscape Elements

Discussion:

Most medium and higher density residential, commercial or mixed-use buildings are located in highly visible and active locations such as shopping streets within the Town or Village Centres or along major thoroughfares. Shopping streets tend to be the focal point of the community, places where neighbours meet, and as such there needs to be a variety of places available to sit and chat. Opportunities to meet and socialize exist in both the public realm, for example seating areas or benches, and on private property with courts and plazas. These public and quasi-public spaces provide opportunities for merchandise display, cafe seating areas, landscaping, informal gathering, public art, and access to premises, and should be designed to be accessible and comfortable to all users.

New development should seek to enhance and animate the public realm. Buildings should be oriented to and relate to the street grid. Where a development includes multiple buildings, they should be grouped in such a way as to form usable open spaces for the enjoyment of residents and visitors.

Streets that are well defined or “enclosed” by street trees and building façades are more interesting and comfortable for pedestrians than those that are not. Heights of buildings and their setbacks from the property line should be considered in relation to the width of the street and the distance to the building face directly across the street.
Traditional shopping streets are characterized by closely-spaced small shops whereas contemporary retail practice often includes larger formats with only one entrance and blank walls. This has a deadening effect on the public realm. Building façades should be designed in ways that express individual storefront identity. Street trees and planting also improve the character, aesthetics and enjoyment of the pedestrian, bicycle and vehicular realms of the streetscape.

A1.1 Unified Streetscape: Within a given area, a unified streetscape concept for building sites, public open spaces, landscaping elements and universally accessible street furniture (benches, bike racks etc.) should be achieved (see Figure 1).

A1.2: Accessible Pedestrian Routes: Ensure pedestrian routes are smooth, level and clear of encumbrances to ensure direct passage for those with visual impairments or who require mobility aids.

A1.3: Corner Treatment: On shopping streets corner bulges or plazas should be considered at the crossroads of important streets depending on location of adjacent bus stops and type of pedestrian crossing (see Figure 2).

A1.4: Designing for Transit Ridership: Where a bus stop is located adjacent to a building that has a lobby, the lobby should be designed to provide direct sight lines to enhance the safety and comfort of transit riders. When appropriate, developers should consider designing the bus shelter so that it is coordinated with the building design or by providing awnings or canopies that are of sufficient height and width to directly shelter transit riders.

A1.5: Midblock Plazas: Where a development frontage exceeds 90 metres and there is sun exposure, provision of plazas or courts preferably in a central location is encouraged (see Figures 3 and 4 and A1.10).

A1.6: Corner Storefronts: On corner sites, commercial storefront entries should “turn the corner” to address the adjacent street in a pedestrian-friendly way. Both frontages should be designed as building “fronts” and the buildings should address the corner with strong massing (see Figures 5 and 6).
A1.7: Commercial Setback: On both front and flanking streets a 4 metre minimum distance from the curb face to the building façade, which may be a combination of public and private property, is encouraged for commercial and commercial/mixed-use developments to accommodate sidewalks, street furniture and utilities (see Figure 7).

A1.8: Enclosure: In order to define and enclose the road space, a strong streetwall is encouraged with a 2 or 3 storey massing at the street side(s) of the building, depending on the desired character of the area, and a step back at the third or fourth floor (see Figures 8 and 9).

A1.9: Unique Building Identity: On shopping streets, the building format should reflect a 10 metre storefront pattern. Building façades should be designed with variations in materials, colour, fenestration and roof forms to express individual storefront or dwelling unit identity (see Figure 10).

A1.10: Breaks in Streetwall: Buildings exceeding 45 metres in length should provide a significant break in the street façade to diminish the visual impact of excessive length (see Figure 11 and A1.5).

A1.11: Storefronts: In order to enliven shopping street environments, larger outlets should be lined at the sidewalk by smaller outlets with their own entries and identity. A rhythm of storefronts from 5 to 10 metres is most appropriate (see Figure 12).
2. Site Planning Elements

Discussion:

Site planning includes pedestrian and vehicle access; landscaping and open space provision; services and utilities; and parking and loading. Good site planning is essential to the optimal functioning of a development and needs to coordinate with public realm objectives and building design. Good site planning also takes advantage of unique natural features, topography and adjacencies to provide opportunities for useable open space, play and urban agriculture.

Outdoor spaces which are defined by trees and landscaping of private and common open space are essential for residential livability and should be provided in all residential and mixed-use developments. Landscaping also provides a means of transitioning from private property to the public realm and to neighbouring properties and, if coordinated, provides design continuity within a given local area. Finally, trees and landscaping provide aesthetic, environmental and health benefits, frame outdoor spaces, soften the appearance of paved areas and help to integrate buildings with their setting.

Vehicle parking and loading areas should look and feel subordinate to the intended use of a property and should be designed to have limited impact on neighbouring development and the local streetscape. Primary vehicular access to property should be from the rear lane or, where no lane exists, from flanking streets. Vehicle access from the front street is strongly discouraged. Generally, parking should be underground but where surface parking is unavoidable it should be designed as a court at the rear of the property, with suitable paving, tree planting and landscape treatment. Pedestrian access from parking areas to building entrances or lobbies should be safe, accessible, convenient and as direct as possible.
A2.1: Sustainable Landscape Design: Sustainable landscape design should incorporate best practices for tree planting, rainwater management, pedestrian way-finding and lighting, accessibility and feature native and drought tolerant species to provide environmental, health benefits and visual and sensory interest through the seasons. Sustainable landscape design should be coordinated with building design, site servicing, utility placement and neighbourhood objectives such as streetscape improvements (see Figure 13).

A2.2: Semi-Private Space: A minimum of 4.5 square metres of useable, accessible private or semi-private outdoor space accessed directly from the dwelling unit should be provided for each dwelling unit. This may take the form of patios, balconies or rooftop decks (see Figure 14).

A2.3: Common Open Space: Common open space should be conveniently accessible to residents; have sun exposure; wind protection; landscaping; play opportunities; and be visible from dwelling units (see Figures 14, 15 and 16).

A2.4: Pedestrian Pathways and Wheelchair Access: Pedestrian pathways should be direct, accessible, barrier-free and safely routed from parking areas to storefronts and building lobbies. These routes should have a minimum clear width of 2 metres and be at or near the centre of the building (see Figures 17, 18, 19 and 20).

A2.5: Parking Structure Entrances: Driveway access across sidewalks on shopping streets is not permitted where access from a lane or flanking street is possible. Vehicular entrances to parking structures and loading areas should be unobtrusive, architecturally integrated and screened from view from nearby properties and sidewalks with landscaping, trellises or through other means (see Figure 21).
A2.6: Partially Above Grade Parking Structures: If parking structures must be partially above grade, exposed walls should be faced with attractive and durable materials and/or screened with planting, but in no case should more than 1 metre of a parking structure wall be exposed (see Figure 22).

A2.7: Surface Parking: Surface parking, where permitted, should be screened from view from adjacent properties, public areas and streets with trees, landscaping and architectural elements designed as integral parts of buildings such as overhangs, trellises and planters (see Figure 23).
A2.8: Oil and Grit Separators: Oil and grit separators are required in all parking and loading areas and should be located so as not to interfere with pedestrian pathways and wheelchair access.

A2.9: Utility and Service installations: Utility installations, communication equipment, and garbage and recycling facilities should be sited so as to be accessible to service vehicles but not interfere with pedestrian access and screened from view to be as unobtrusive as possible (see Figure 24). Garbage and recycling facilities should be sited to permit use by all residents.

3. Building Form and Architectural Elements

Discussion:

New development in the District will typically be infill development, where acknowledgement of local scale and context is important. New development is likely to be more dense than earlier development because of changing economic conditions. Where this is the case, new development should acknowledge the existing fabric of the area, especially adjacent buildings and buildings across the street, and reflect long-term objectives for the area. At the same time, some variety between buildings in terms of their architectural styling and the palette of materials, textures and colours is encouraged to contribute interest and avoid monotony or repetitive building design, especially for redevelopment along major corridors.

Fenestration (windows and other openings) is a primary element of architectural expression and character. Fenestration also allows natural daylight to penetrate and is a critical consideration in heat loss and gain. Transparency provided by building fenestration is essential to animate shopping streets and to provide surveillance (eyes on the street). Blank walls are strongly discouraged on both fronting and flanking street elevations.

Weather protection provides pedestrian comfort on shopping streets. Structural canopies, fabric awnings and building extensions that are either too shallow or too high off the ground should be avoided. In addition, means of weather protection are important elements in the exterior “face” and streetscape character of buildings, and so should be fully integrated into the overall architectural expression of the building, rather than appearing simply “tacked on”.

Figure 23

Figure 24
Outdoor and building lighting is essential for wayfinding and for safety and security at night. But lighting can also be a source of irritation if it is intrusive or stark. Hence it is imperative that all sources of outdoor lighting be considered and planned in advance, at the time of development permit application.

In order to avoid appearing as an afterthought, balconies should be designed as integral parts of buildings. The most successful way to achieve integration is when balconies are partly recessed into the building façades. Enclosed balconies should be avoided, as these limit views and daylight access and increase the visual bulk of buildings.

Roofs are character-defining elements of buildings. Whether roofs are steeply or gently pitched or flat makes a difference to the sense of “fit” in the immediate context and to their impact on views. Elevator penthouses and mechanical equipment on roofs can be highly visible from nearby residences and should be designed carefully.

Visual and acoustical privacy and access to natural light and air are essential elements of livability. This is particularly true in multi-family and mixed-use developments where window exposure may be limited. The design of ground-oriented multi-family development should include consideration of privacy both within the development, and for adjacent dwelling units.

**A3.1: Variation in Building Design:** There should be subtle design variation between neighbouring buildings to avoid a repetitive appearance.

**A3.2: Scale:** New and taller development should relate and harmonize with the height and scale of neighbouring buildings by incorporating transitional setbacks, building forms and heights (see Figures 25 and 26).
A3.3: **Setbacks:** Front setbacks should relate to, and harmonize with (but not necessarily equal), setbacks of existing adjacent development (see Figure 27).

A3.4: **Level Transition from Sidewalk:** On sloping sites, ground floor slabs should be stepped so that there is a level transition between the sidewalk and the building lobby or storefront entry. Similarly, rooflines should follow the slope of the site (see Figure 28).

A3.5: **Minimize Blank Façades:** The width of blank walls should generally be limited to a maximum of 10% of the linear dimension of a building façade facing a street (see Figure 29).

A3.6: **Endwalls:** Exposed endwalls of buildings should be designed and finished to be aesthetically pleasing. Material and texture choices, art, mosaics and green walls are encouraged for this purpose (see Figure 30).

A3.7: **Building Materials and Transitions:** Building and structures should be faced with substantial and durable materials such as masonry, stone, ceramic tile, fibre-cement siding, metal and wood. Changes of exterior materials, colours and textures should occur at interior corners and offsets, not in the same horizontal or vertical plane. Detailing should be ample to avoid a “wallpaper” look (see Figures 31 and 32).
A3.8: Colours and Finishes: Bright and jarring colours and heavy swirling texture stucco patterns are discouraged.

A3.9: Transparent Fronts: Viewing into storefronts and lobbies is encouraged, and should not be obscured by reflective glazing, or window signs (see Figure 33).

A3.10: Solar Orientation: Building massing, windows and openings should capitalize on the solar orientation of the building (see Figure 34).

A3.11: Balconies: Balconies facing streets should be recessed into the main building façade. Guardrails should be transparent to maximize exposure to sunlight for each unit (see Figure 34).
A3.12: Weather Protection: Commercial and mixed-use buildings should provide weather protection along the entire street frontage and particularly in the vicinity of a transit stop (see Figure 35).

A3.13: Canopies and Awnings: Use of transparent, structural canopies or three or four-point fabric awnings is recommended. Canopies and awnings should have a minimum horizontal projection of 2 metres and vertical clearance over the sidewalk should not exceed 3 metres (see Figures 35 and 36).

A3.14: Integration of Awning and Canopy Design: Canopies and awnings should be architecturally integrated with the structure and fenestration of buildings and structures (see Figure 36).

A3.15: Minimum Awning Clearance: On sloping sidewalks, canopies or awnings should not be continuously horizontal. Instead, they should follow the contours of the land while maintaining a minimum clearance (see Figure 37).

A3.16: Signage and Lighting: Signage and lighting should be fully considered and integrated with the building design (see Figure 38).

A3.17: Rooftop Equipment: The size, placement and treatment of rooftop mechanical equipment and the installation of telecommunication facilities should be fully considered and integrated design elements of a building. They should be located and screened to minimize their visual impact and reduce impacts on views from surrounding properties (see Figure 39).
A3.18: Height of Elevator Penthouses and Roof Access Stairs: Elevator penthouses, roof decks and roof access stairs should be kept as low as possible in height and be sited to minimize overlook and view impacts.

A3.19: Noise Levels: Building designs should demonstrate that the A-weighted 24-hour equivalent LEQ sound level (the average sound level over the period of the measurement) in those portions of the dwelling listed below do not exceed the noise levels expressed in decibels set opposite such portions of the dwelling units. Example techniques include use of triple glazing, improved insulation etc.

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A3.20: Window Placement: Windows should be offset to protect privacy. Spatial arrangements and other techniques, such as screening between adjoining balconies or private outdoor spaces, is encouraged. In courtyard developments, the distance between facing windows should be no less than 9 metres (see Figures 40 and 41).

A3.21: Layered Landscaping: Layered landscaping treatments and slightly elevated overlook of the public realm are encouraged to improve residential livability. However, changes in elevation should not exceed 1.5 metres (see Figure 42).
Multi-Family development must fit the neighbourhood context, enhance the public realm and provide on-site amenities.

Discussion:

This section provides design guidelines for low-rise, mid-rise and high-rise multi-family residential buildings. The intent is to ensure that all new development enhances the community through design that is neighbourly, is in context with the surrounding area, enhances the public realm and provides appropriate on-site amenities for residents.

For the purposes of these guidelines low-rise is defined as six or fewer storeys; “mid-rise” as under twelve storeys and “high-rise” as twelve or more storeys. The first three sections of the guidelines apply to all forms of multi-family development while the last section is pertinent to mid-rise and high-rise buildings only.
1. Site Planning

B1.1: Context: New development should fit the neighbourhood context. Consideration should be given to the local topography, vegetation and environmental features and to the established character of the built form including heritage buildings and local choices of colours, architectural styling and building materials (see Figure 43).

B1.2: Connectivity: The siting of new development should take into consideration how to enhance the pedestrian, bicycle and vehicle connections in the area, particularly those that lead to key destinations (see Figure 44).

B1.3: Solar Orientation: When siting development, careful consideration should be given to maximizing the benefits of sunshine exposure to public open spaces, and to minimizing the impacts of shading on adjacent properties (see Figure 45). To this end, applications should be accompanied by a shadow analysis that illustrates the impacts on March 21st, June 21st, and September 21st (spring and fall equinox and summer solstice) at 10 am, 12 noon, 2pm and 6pm (see Figure 45). (For high rises, also see related guideline B 4.4 Solar Orientation.)
B1.4: Building Separation and Overlook: In order to maintain privacy between residential units, window placement in buildings within 9 metres (30 feet) of each other, or in courtyards, should be offset, not directly facing (see Figure 46).

B1.5: Hierarchy of Public and Private Space: In considering the connections through a development site, the adjacencies to public spaces and public streets, the project must define those spaces that are entirely public, and those which are semi-private and private, and design them accordingly.

B1.6: Common Outdoor Space: Residential developments should consider providing communal outdoor space that is conveniently accessible and in a visible, sunny location with suitable wind protection (see figure 47).

Larger residential projects should also consider providing:

- play structures;
- garden plots;
- dog walk areas; and
- social gathering areas.
2. Public Realm and Streetscape Elements

B2.1 Unified Streetscape: Within a neighbourhood, a unified streetscape concept for public open spaces, landscaping elements and street furniture (benches, bike racks etc.) should be achieved in order to complement and enhance the neighbourhood's character (see Figure 48).

B2.2: Corner Sites: On corner sites, both frontages should be designed to face the street and the building should address the corner with strong massing (see Figure 49).

Where two intersecting streets have different architectural character (building heights, setbacks and key architectural elements) the building on the corner should make an effort to address both situations as it turns the corner (see Figure 50).

B2.3: Maximum Building Width: In order to create an interesting streetscape, large sites should be broken into multiple buildings. Low or mid-rise buildings should not exceed 45 m in length or width and high-rise buildings should not exceed 30 m in length or width (see Figure 51).
B2.4: Accessible Pedestrian Routes: Pedestrian routes should be smooth, level and clear of encumbrances to ensure direct passage for those with visual impairments or who require mobility aids.

B2.5: Sustainable Landscape Design: Landscape design should be coordinated with building design, site servicing, utility placement and neighbourhood streetscape objectives and should incorporate:

- rainwater management;
- pedestrian way-finding and lighting;
- accessibility design features;
- the right space for the right tree;
- the use of appropriate native species;
- the consideration of species that do not require irrigation after they are established;
- species that provide visual and sensory interest throughout the seasons; and
- consideration of long term maintenance.

B2.6: Building Setback to the Street: To ensure there is sufficient room for a pleasant streetscape building facades should be setback a minimum distance of 4 metres (13 feet) from the ultimate curb face. The setback may be a combination of public and private property, and should be deep enough to accommodate a sidewalk, street trees, street furniture, utilities and semi-private outdoor space. To ensure buildings relate to the street and help “frame” the street buildings should be set back no more than 10 metres (33 feet) from the curb, with the expectation that there is approximately 4 metres from curb edge to property line and up to 6 metres to accommodate front patios and stoops in front of the main building face (see Figure 52).

B2.7: Integrated Streetscape and Parkade: Where an underground parkade will be close to street trees, it should be either stepped back or stepped down, to ensure the street trees and boulevard landscaping have sufficient growing medium to thrive (see figure 53).

Figure 52

Figure 53
B2.8: Partially Above Grade Parking Structures: If parking structures must be partially above grade, exposed walls should be faced with attractive and durable materials and/or screened with planting. Parkades should not be more than 1 metre (3 feet) above grade (see Figure 54).

B2.9: Parking Structure Entrances: Vehicular entrances to parking structures should be unobtrusive, architecturally integrated and screened from view with landscaping, trellises or through other means (see Figure 55).

B2.10: Designing for Transit Ridership: Where there is an adjacent bus stop, lobbies should be designed to provide direct access and clear sight lines to enhance the safety and comfort of transit riders. Where appropriate, developers should consider designing the bus shelter so that it is coordinated with the building design.

3. Building Form And Architectural Elements

B3.1: Variation in Building Design: There should be subtle design variation between neighbouring buildings to avoid repetition while maintaining a harmony to the streetscape.

B3.2: Scale: New development should relate to, and harmonize with, the height and scale of neighbouring buildings by incorporating complementary building forms and transitional heights (see Figures 56 & 57).
**B3.5: Setbacks:** Street-front setbacks should relate to, and harmonize with (but not necessarily equal), setbacks of existing adjacent development (see Figure 58).

**B3.3: Legibility:** Design of new development should ensure the identity, function and access to the building is easily understood (see Figure 59).

**B3.4: Unit Identity and Relationship to the Street:** Buildings should be designed to provide a rhythm to the street frontage. Ground level units are encouraged to have front doors on the street, and designs that celebrate the unit identity. To add to the “eyes on the street” unit layouts that provide living space that overlooks the street are encouraged (see Figure 60).

**B3.6: Stepping down a slope:** On sloping sites, building roof lines should step down the slope in keeping with the topography (see Figure 61).
B3.7: **Endwalls:** Where there is an exposed end-wall, it should be designed and finished to be aesthetically pleasing. Material and texture choices, art, mosaics and green walls are encouraged for this purpose and key architectural elements like cornices, or colour bands should extend around the corner of the building onto the blank face of the wall (see Figure 62).

B3.8: **Building Materials and Transitions:** Building and structures should be faced with substantial and durable materials such as masonry, stone, ceramic tile, fibre-cement siding, metal and wood. Changes of exterior materials, colours and textures should occur at interior corners and offsets, not in the same horizontal or vertical plane. Detailing should be ample to avoid a “wallpaper” look (see Figure 63).
B3.9: **Transparent Fronts:** Viewing into and out of lobbies is encouraged, especially where lobbies overlook passenger drop off areas or bus stops (see Figure 64).

B3.10: **Weather Protection:** Weather protection that is architecturally integrated with the building design should be provided at the front doors and lobby entrances (See also B2.10, Designing for Transit Ridership).

B3.11: **Lighting:** Lighting should be fully considered and integrated with the building design.

B3.12: **Signage on a Residential Building:** Where live/work units or home based businesses are anticipated, the potential for signage should be considered and integrated with the building design in a manner that does not diminish the residential character of the building (see Figure 65).

B3.13: **Adaptable Design:** All new development should follow the District’s adaptable design standards for designing buildings and units to ensure a supply of adaptable and accessible units is developed.

B3.14: **Private Outdoor Space:** Private or semi-private outdoor space should be provided for each dwelling unit in the form of patios, balconies or rooftop decks that allow for outdoor seating. The minimum dimensions should be 1.8 m x 2.5 m with a minimum area of 4.5 m² (48 sq. ft) (see Figure 66).
B3.15: **Balconies:** Balconies facing streets should be recessed into the main building façade. Guardrails should be transparent to maximize exposure to sunlight for each unit (see Figure 67).

B3.16: **Privacy of New Units:** New development should recognize the contribution to livability that privacy provides, and design windows, patios and balconies accordingly (see Figure 68).

B3.17: **Layered Landscaping:** Layered landscaping treatments and slightly elevated overlook of the public realm are encouraged to improve residential livability. However, changes in elevation should not exceed 1.5 metres (see Figure 69).

B3.18: **Surface Parking:** Surface parking, where permitted, should be screened from view with trees, landscaping and architectural elements such as overhangs, trellises and planters (see Figure 70).
B3.19: Rooftops: Recognizing that rooftops are often visible, mechanical and utility equipment should be screened and integrated into the design and opportunities for rooftop gardens should be explored (see Figure 71).

B3.20: Height of Elevator Penthouses and Roof Access Stairs: Elevator penthouses, roof decks and roof access stairs should be kept as low as possible in height and be sited to minimize overlook and view impacts.

B3.21: Noise Levels: Building designs should demonstrate that the A-weighted 24-hour equivalent LEQ sound level (the average sound level over the period of the measurement) in those portions of the dwelling listed below do not exceed the noise levels expressed in decibels set opposite such portions of the dwelling units. Example techniques include the use of triple glazing, or improved insulation.

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B3.22: Rainwater Run-off: In accordance with the Development Services Bylaw and environmental requirements, oil and grit separators are required in all parking and loading areas and should be located so as not to interfere with pedestrian pathways and wheelchair access.
B3.23: Utility and Service installations: New development should be designed to carefully integrate utility installations, communication equipment and garbage, compost and recycling areas into the overall design of the project. These services should:

- be as unobtrusive as possible;
- be easy and safe for residents to use;
- be easy to service;
- be easy to keep clean;
- be animal proof; and
- be situated to minimize their impacts on neighbours. (see Figure 72 & 73).

4. Mid and High Rise Residential Tower Guidelines

In addition to the preceding general residential guidelines that apply to all residential development, tower elements including mid rise towers (6-12 storeys in height) and high rise towers (12 storeys and taller) should also comply with the following guidelines:

B4.1 Minimum Lot Frontage: It is recommended that development sites for towers have a minimum frontage of 60 metres (200 feet).
**B4.2 Maximum Building Frontage:** Further to section B2.3 Maximum Building Width, mid and high rise buildings should not have tower frontages in excess of 30 metres (98.5 feet) (see Figure 74).

**B4.3 Building Separation:** In order to minimize overlook between residential units, there should be a minimum separation between high rise buildings of at least 30 metres (98.5 feet) (see Figure 75).

**B4.4 Solar Orientation:** Further to section B1.3 Solar Orientation, which also highlights the need to maximize the benefits of sunshine and minimize the impacts of overshadowing, where towers are proposed that have a long side, that long side is encouraged to have a north-south orientation to reduce the impacts of shading on adjacent areas (See Figure 76).

It is also important for towers to reduce the potential for heat gain on southern and western exposures to both ensure units are liveable and reduce energy consumption. This may result in southern and western elevations having different but complementary treatments that may include: reduced glazing, larger balconies, louvers, and cross ventilation.
B4.5: **Maximum Building Footprint:** In order to ensure towers have a slim appearance, the total building footprint for a tower should not exceed 800 square metres (8,600 square feet).

B4.6: **Articulation of the Floor-plate/Building Footprint:** In addition to B4.5 above, where any portion of a tower footprint exceeds 25 metres x 25 metres (80 x 80 feet), the overall footprint should be articulated, or stepped.

B4.7: **Vertical Elements:** Architectural elements should connect across the vertical length of the building from top to bottom and towers should connect to the ground plane, and not be completely hidden behind low rise, or town house units (see Figure 77).

B4.8: **High Rise – Corner Treatment:** Where high rise towers are located at the corner, deeper setbacks from the sidewalk should be considered (see Figure 78).

B4.9: **Articulation of the Building:** Sculptural elements, banding, building articulation, use of materials and stepping back of portions of the building should be considered to lessen the appearance of bulk and add visual interest. (See Figure 79)
**B4.10: Sculpting the Top of the Tower:** To ensure buildings have a slim appearance at the skyline, consideration should be given to stepping back the size of the floor-plate of the top 4 stories, so that the uppermost storey has a maximum size of 600 square metres (6,460 square feet) (see Figure 79).

**B4.11: Balconies:** While the inclusion of balconies in high rise development is both desirable and required, it is important that balconies are not so large that they significantly add bulk to the look of the building, and therefore it is recommended that in total balconies do not exceed 10% of the building’s footprint.

Consideration of insetting the balconies to offset their bulk and ensure they are well integrated into the building is encouraged (see Figure 80).
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C Guidelines for Ground-Oriented Housing

The built-form of ground-oriented multi-family development should be integrated with existing neighbourhoods.

1. Public Realm, Streetscape Elements and Neighbourhood Fit

Discussion:

The built-form of ground-oriented multi-family development should be integrated with existing neighbourhoods, while enhancing architectural variety. Development should reflect the streetscape character of the neighbourhood in which it is located, or in the case of larger developments, it should create its own successful streetscape character.

Ground-oriented housing should be designed so that it complements the neighbourhood character, with minimum impact on adjacent properties. Development will often occur incrementally as pre-existing lots on record are assembled and consolidated. Accordingly, the design must carefully consider both the existing and future relationships to surrounding properties.
C1.1: Height and Massing: The height and massing of buildings should be in keeping with a single family dwelling or townhouse height, which is typically less than 12 metres. Architectural treatments that reduce apparent building height such as the use of trim, colour accents, secondary roof elements, building recesses and stepped building forms are encouraged (see Figure 81).

C1.2: Roof Treatment: The gable orientation and roof pitch should be sympathetic to the design of neighbouring buildings and help to maximize the space and light between buildings (see Figure 81).

C1.3: Street Orientation: Units are encouraged to be oriented towards, and have a visual connection to the street (see Figure 82).

C1.4: Corner Lots: Buildings on corner lots should “wrap the corner” providing an opportunity to have units facing both streets (see Figures 83).

C1.5: Minimum Frontage: Generally, development parcels should have a minimum frontage of 20 metres.

C1.6: Setbacks: The front yard setback should relate to, or appropriately transition from, the established pattern in the area.
2. Site Planning and Landscaping

Discussion:

Good site planning and landscaping contribute to neighbourhood character and aesthetics, resident livability and environmental sustainability. In principle, site planning should strive to minimize building coverage, preserve natural features and minimize rainwater run-off. Mature trees shade and cool homes in the summer and absorb carbon dioxide and trap dust particles. Trees and other landscaping provide habitat, aid with energy conservation and absorb rain water, reducing stormwater run-off into creeks. Landscape plans should complement the building design and harmonize with the local setting and be prepared by a BC Registered Landscape Architect.

C2.1: Tree Retention: Healthy mature trees and natural features should be retained where possible.

C2.2: Sustainable Landscape Design: Sustainable landscape design should incorporate best practices for tree planting, rainwater management, accessibility and feature native and drought tolerant species. Sustainable landscape design should also be coordinated with building design, site servicing and utility placement.

C2.3: Street Interface: Landscaping and fencing should be kept low and open in the front yard to foster a strong relationship to the street and maintain visibility through to the front of the building (see Figure 84).

C2.4: Privacy: Incorporate planting and fencing to maximize privacy between dwelling units and neighbouring sites (see Figure 85).

C2.5: Shared Outdoor Space: Units should be clustered to create interesting shared outdoor spaces as well as usable and accessible private outdoor spaces. Encourage/integrate informal gathering, play and urban gardening opportunities (see Figure 86).

C2.6: Private Outdoor Space: At least 9 square metres of usable private outdoor space should be provided for all units (see Figure 87).

C2.7: Outward Facing Aspect: Units should be oriented such that windows from the principle living space of each unit are separated by a minimum of 9 metres from those of any other unit (see Figure 88).
C2.8: Rear Yard Setbacks: Rear yard setbacks should be at least 6 metres, with some variation so that a visual wall is not created along the rear property line.

C2.9: Side Yard Setbacks: Side yard setbacks should be a minimum of 1.2 metres, and up to 3 metres when facing a side street or a single family home.

C2.10: Pedestrian Access: The main pedestrian access route should be from the street rather than the lane or parking area.

C2.11: Parking: Parking spaces should be located off a private driveway, and should not be visible from the street (see Figure 89).

C2.12: Parking access: When parking is accessed from the front street the number of driveways should be kept to a minimum (see Figure 89).

C2.13: Shared Driveways: Where adjacent to another potential redevelopment site, the driveway should be designed so that it could in future be shared with the adjacent property (see Figure 89).

C2.14: Oil and Grit Separators: Oil and grit separators are required in all parking areas.
3. Architectural Character

Discussion:

The built form and character of new ground-oriented multi-family development should be consistent with and in harmony with the general rhythm, scale and height of the existing buildings in the neighbourhood. Ground-oriented housing is usually located in or adjacent to single family neighbourhoods. Building design therefore should generally have a single family character and incorporate west coast references while responding to local conditions such as topography, vegetation and heritage resources.

Consideration should be given to unit identity, roofscape, and other architectural elements, including fenestration, materials, and colour. Dormers and similar roof projections should read as subordinate or secondary architectural elements.

Ground-oriented housing should be designed in consideration of the needs of all residents regardless of their state of health, mobility or disabilities. Units should incorporate basic features that allow the units to be adapted to accommodate special needs without expensive retrofitting.

C3.1: Massing: The front façade of buildings should be broken up and portions stepped back to reduce the impression of bulk (see Figure 90).

C3.2: Variations in Design: Subtle design variations should be incorporated between neighbouring buildings to avoid a repetitive appearance.

C3.3: Cladding: Buildings should be clad primarily in natural materials although stucco accents may be used as a subordinate finish.

C3.4: Varied Rooflines: Varied roof lines with overhangs are encouraged.

C3.5: Roofing Materials: Laminated asphalt shingles or fire retardant treated cedar shakes are recommended as roofing materials. Tile roofing is discouraged.

Figure 90
C3.6: Noise Levels: Designs should demonstrate that the noise levels (A-weighted 24-hour equivalent LEQ sound level (the average sound level over the period of the measurement) in those portions of the dwelling listed below should not exceed the noise levels expressed in decibels set opposite such portions of the dwelling units. Examples include use of triple glazing, improved insulation etc.

<table>
<thead>
<tr>
<th>PORTION OF DWELLING UNIT</th>
<th>NOISE LEVEL (DECIBELS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>bedrooms</td>
<td>35</td>
</tr>
<tr>
<td>living, dining, recreation rooms</td>
<td>40</td>
</tr>
<tr>
<td>kitchen, bathrooms, hallways</td>
<td>45</td>
</tr>
</tbody>
</table>

C3.7: Heating and Ventilation Systems: Ventilation, heating and cooling systems should be designed and insulated to minimize noise and located to be visually unobtrusive to neighbouring developments.

C3.8: Accessible Entrance: A level, no step entrance should be provided to each dwelling. If not possible, then platform areas should be provided at the top and bottom of ramps to facilitate the turning of wheelchairs, strollers and other mobility devices (see Figure 91).

C3.9: Weather Protection: A canopy should be provided over the front entrance.

C3.10: Front Door Width: The front door opening should be no less than 0.9 metre in width.

C3.11: Accessible Doorbell: The front doorbell should be no higher than 1 metre above the entry way

C3.12: Legible Address: The address should be indicated in easy-to-read, 10 centimetre or taller numbers, shown in a clearly contrasting colour.

Figure 91
D Guidelines for Industrial and Business Park Development

The intent of these guidelines is to encourage employment opportunities through provision of well-designed, attractive, high-quality development.

Discussion:

The intent of these guidelines for industrial and business park development is to encourage employment opportunities through provision of well-designed, attractive, high-quality development that is visually integrated with surrounding land uses and minimizes negative environmental impacts.

These guidelines apply to development on properties zoned for business park, mixed commercial/industrial, light industrial, and heavy or port industrial related uses. These design guidelines apply in addition to the general or District-wide design principles and guidelines.

1. Building Siting and Relationship to Street:

D1.1: Corner Sites: Higher-visibility corner sites should be accentuated with building elevations that relate to both street frontages (see Figure 92).

D1.2: Building Entrances: Primary building entrances, offices, reception, sales and showroom space should face the street, be easily identifiable and be directly accessible to pedestrians, not separated by parking.

D1.3: Individualization: Individual tenancies should be differentiated by varying colours, materials and finishes and by projecting or recessing entrances from the main building façade (see Figure 93).
2. Architectural Character:

D2.1: Differentiate Building facades: Landscaping, including tree planting and/or living walls should be used to break up or soften building façades (see Figure 93).

D2.2: Weather Protection: Weather protection should be provided at all pedestrian entrances to buildings (see Figure 94).

D2.3: Blank Walls: Blank walls should be avoided and long building walls differentiated by using a variety of materials, textures, colours, window treatments and roof forms.

D2.4: Relationship: The scale, height and massing of new buildings should consider relationships to adjacent buildings (see Figure 95).

D2.5: Decorative Lighting: Up-lighting of trees or backlighting of walls to highlight tree silhouettes is encouraged to enhance the appearance of solid walls.

D2.6: Signage: Signage, landscaping and lighting should be fully considered and integrated with the building design (see Figure 96).
3. Pedestrian and Vehicle Circulation:

D3.1: Vehicular Access: Primary vehicle access points to business parks or large multi-tenancy sites should be clearly identifiable and delineated with way-finding signage, decorative or textured paving treatment and landscaping (see Figure 97).

D3.2: Connections: Well defined, accessible, barrier-free and safe pedestrian connections should be provided from the street and parking areas to the main building entrances and to nearby trail systems where appropriate (see Figure 98).

D3.3: Way-finding Signage: On large multi-tenant sites way-finding signage should be provided.

D3.4: Pedestrian Pathways in Parking Areas: Within parking areas, pedestrian routes should be clearly identified, barrier-free and differentiated through techniques such as the use of decorative paving materials, paving patterns and landscaping (see Figure 98).

D3.5: Pathway Lighting: Pedestrian paths should be lit with low landscape lighting or bollard type fixtures.

D3.6: Loading and Delivery: Loading and delivery areas, and access to them, should be separated as much as possible from parking areas, especially visitor parking.
4. **Landscaping:**

**D4.1: Requirements:** For large multi-tenant sites, 10 - 15% of the site area should be landscaped (see Figure 99).

**D4.2: Integrated Plan:** The landscaping plan for a site should follow an overall concept that links site components together and compensates for run-off associated with extensive paved areas through provision of rain gardens or other techniques.

**D4.3: Outdoor Seating:** Wherever possible, site planning should include accessible outdoor seating areas for use by employees.

**D4.4: Native Species:** Native and drought-tolerant species should be a focus of the landscape plan.

**D4.5: Landscaping Strip:** Where possible, there should be a landscaping strip of a minimum 3 metres in width along all property lines abutting streets (see Figure 100).

**D4.6: Site Definition:** Landscaping should be used to accent site entry points, define pedestrian corridors, frame circulation aisles and break up long rows of parking into small pockets of ten or fewer spaces (see Figure 101).

**D4.7: Unused Areas:** All boulevards and areas not built upon or used for parking, loading, storage or maneuvering aisles should be landscaped including trees where feasible (Figure 102).

**D4.8: Screen Parking:** Landscaping should be used to screen parking lots; outdoor storage (where permitted); garbage and recycling areas; and utility boxes (see Figure 103).
5. Parking and Loading Areas:

D5.1: Location: The majority of parking spaces should be located at the rear or side of buildings.

D5.2: Loading Areas: Loading areas should be located at the rear or interior of a site (see Figures 104 and 105).

D5.3: Lighting: Free-standing lighting within parking areas should avoid glare to minimize impacts on neighbouring properties.

D5.4: Oil and Grit Separators: Oil and grit separators are required in all parking and loading areas.

6. Fencing and Screening:

D6.1: Storage: Outdoor storage, where permitted must be screened with fencing and landscaping (see Figure 106).

D6.2: Utility and Service Installations: Utilities and service installations such as electrical transformers, gas metres, electrical and communication services should be located so as to be accessible to service vehicles but not interfere with pedestrian access and screened to minimize visibility (see Figure 103).

D6.3: Rooftop Mechanical Equipment: Rooftop mechanical equipment and telecommunication facilities should be hidden from public view with screening designed as an integral component of a building’s architecture using materials compatible in quality and colour with building façades.

D6.4: Solid Waste and Recycling Containers: Solid waste and recycling containers, when located outside of buildings, should be sited in completely enclosed bear-proof structures (see Figure 107).
The Town and Village Centres will each have a unique sense of place and identity based on their physical setting, landmarks, cultural history and other community assets.

These guidelines have been retained from ‘Schedule B’ of the District Official Community Plan (Bylaw 6300) and are intended to be updated as part of the more detailed Town and Village Centre Implementation planning processes.

Guidelines for Town and Village Centres has been amended by Bylaw 8072.
4.3.1.1 Marine Drive Corridor

New development within the Marine Drive Corridor Development Permit Area must conform to development guidelines that are intended to visually create the impression of a lively and diverse shopping district, minimize vehicle/pedestrian conflicts and improve pedestrian conditions within the Marine Drive Corridor. The intent is to encourage a higher quality of development along Marine Drive and Capilano Road, more in keeping with a lively and diverse retail-shopping street than a highway strip commercial district. The guidelines are intended to promote the expression of a unique Marine Drive Corridor identity through consistently applied streetscape elements.

4.3.1.1. Vision For Marine Drive

The following computer generated images are artist’s conceptions intended to illustrate what Marine Drive might look like if redevelopment of the strip malls and auto dealerships to mixed-use buildings with apartments located over top of retail shops and small cafes takes place. The simulations permit the comparison of existing conditions with how the character of the street would change if more street trees are added, streetlights are replaced with decorative ones and buildings are sited at the front with parking lots at the rear. Four locations were chosen to demonstrate the types of changes that could take place over time on Marine Drive.

MacKay Avenue is Marine Drive’s eastern entry but the existing development there does not recognize this. The buildings are sited at the curb along most of the block but no consistent image is presented for the block as a whole. The existing one-storey buildings are too low in relation to the width of the street to provide streetwall definition.

The addition of a prominent building situated at the corner provides definition at the intersection and complements the existing Avalon/Indigo building across the street. Planting the median and adding mature street trees contribute to the character of the street.

More street oriented infill buildings provide continuity on the north side of Marine Drive. The addition of banners and decorative street lighting combine to create a visually appealing streetscape.

Adding more street-oriented infill buildings, people on the street and more street trees complete the transformation to a lively and vibrant gateway to the District of North Vancouver.
Marine Drive Design Guidelines

This Philip Avenue location is representative of typical development conditions on Marine Drive. On the south side of the street the buildings are situated at the rear of the property, behind expansive parking lots. The street is uninviting to pedestrians due to the narrow sidewalks and lack of interesting attractions.

A slight widening of the sidewalk, adding street trees and a conversion of the non-descript storefronts to ones with merchandise displays makes the street more visually appealing.

Some street-oriented infill development, adding more trees and changing the lighting to decorative poles that are lower in height yields more of a pedestrian scale to the street character. Placing a building on the southwest corner provides definition to the intersection, which imparts a sense of place.

An infill building with a prominent feature sited at the intersection completes the transformation. With these changes Marine at Philip takes on the character of an urban village instead of a highway commercial strip.
Today Capilano Road between Marine Drive and Fullerton Avenue is devoid of character. Pedestrian conditions are austere and the streetscape is nearly featureless. The traffic island is unattractive and there is no pedestrian crossing.

Removing the traffic island and adding a pedestrian crossing reorganizes the intersection. Eliminating the overhead wiring on Curling Road removes an eyesore.

Infill development and lower scale street lighting provide more appropriate character and definition to Curling Road. The street oriented infill building on Capilano Road is an aesthetic improvement and eliminates several driveway accesses onto Capilano Road.

A corner building replaces the gas station. This addition enhances the streetscape by completing the streetwall on Curling and Capilano Roads providing much needed continuity and recognizing the intersection.
Marine Drive Design Guidelines

Pemberton Avenue has potential to become an interesting shopping street with its wide street width that would allow for a centre median as well as accommodating on-street parking without sacrificing travel lane capacity. Most of the existing buildings are one storey and there are hardly any street trees or other landscaping.

Placing mixed use buildings and street trees on the east side of the street presents a more coherent image than the existing mixture of low profile buildings that generally do not relate to one another. The addition of street trees and banners add colour and interest to the street.

Establishing parking bays and a planted median in the centre of the street breaks up the expansive roadway and de-emphasizes the importance of motor vehicles. A well marked pedestrian crossing at mid-block further signifies a pedestrian priority.

The addition of street-oriented shop fronts on the west side of the street generates activity on the street completing the transformation of Pemberton Avenue from a transi-tional commercial/light industrial street to a people friendly and lively neighbourhood retail district.

4.3.1.2 Design Objectives:

a) To promote a unique Marine Drive Corridor identity through a consistently applied streetscape theme.
b) To acknowledge gateway and key intersections through the use of unique design features.
c) To create a more attractive and comfortable environment for shoppers and pedestrians.
d) To improve safety conditions for pedestrians, cyclists and motorists.
e) To co-ordinate siting, character and scale of buildings including signage and landscaping.
f) To preserve and enhance the liveability of adjacent residential neighbourhoods.
g) To achieve an attractive, environmentally sustainable built environment.
h) To achieve linkages between open space components and other public amenities.
Marine Drive Design Guidelines

4.3.1.1.3 Streetscape

The streetscape is defined as the visual character of a street. The main elements are landscaping, especially street trees, building facades and amenities or utilities in the public roadway such as sidewalks, bus shelters, street furniture and lighting. A transportation and resources streetscape theme, which reflects the early development history of Lower Capilano, is the starting point for the Marine Drive design guidelines. The theme suggests strong, robust, practical, purposeful things. Other characteristics include motion, linearity, and dynamic qualities.

The appearance and character of Marine Drive should bear a relation to Lower Capilano’s heritage and/or natural landmarks to most effectively express a Lower Capilano community identity. Standardized sidewalk and pavement treatment, street lighting, tree planting and street furniture provides continuity, linking one block to the next and setting Marine Drive apart in comparison to other commercial centres like Edgemont Village or Deep Cove for example.

Selecting a transportation streetscape “theme” that reflects the history and positive characteristics of Lower Capilano is an important starting point of the design guidelines for future redevelopment along Marine Drive. A transportation theme suggests strong, robust, practical, purposeful things. Other characteristics include motion, linearity, and dynamic qualities.
Public Art

Public art is more meaningful when it reflects the history or reinforces the positive character of the area in which it is placed. Public art objectives for Marine Drive support the program for streetscape improvements that is based on a transportation theme. Possible applications for public streetscape infrastructure include specially designed bus shelters, benches, tree grates, pavement tiles, interpretive or heritage plaques and street signs.

Gateway and other special intersections have the best potential to combine public art with other urban design objectives. They offer prominent and highly visible locations with the available space to accommodate public amenities such as benches and freestanding art pieces.

Sidewalks and Special Paving Areas

Wide sidewalks are a requirement for the pedestrian safety, comfort and ease of circulation that every successful shopping street must have. A consistent sidewalk appearance throughout the length of Marine Drive also contributes an important unifying design element. Decorative bands of exposed aggregate or brick at regular intervals lend continuity and rhythm to the streetscape. Extending the same standards into courtyards, entries and hard landscaping areas on private property is recommended to complement and reinforce the streetscape identity that is being established.

STREET TREES AND SIDEWALK CONCEPT

1 Decorative keystone (Possible public art project)
2 Scoring pattern within broom finish concrete
3 Broom finished concrete
4 Exposed aggregate banding
5 Area for street lights, benches, bike racks, etc.
6 Low maintenance native shrubs, groundcover and street trees (As per overall tree plan)
Street Furniture and Lighting

Street furniture and lighting are important public amenities that are visually prominent, regularly repeated features of the streetscape. Coordination of the style and colour scheme of the street furniture is a cost effective means of providing continuity and reinforcing the transportation streetscape theme on Marine Drive. Their style and appearance therefore should be traditional looking, practical and durable.

New light poles will be installed as redevelopment occurs. In the interim the existing poles will be repainted black and pedestrian scale lighting attached to selected poles to increase pedestrian safety at night. Banners hung from selected poles would add visual interest and colour to the streetscape and reinforce the streetscape theme.
Street Trees and Landscaping

Street trees and other landscaping soften the visual impact and help integrate the buildings and pavement into the overall streetscape. Landscaping can also serve as a buffer between various land uses or to screen unattractive sights such as service areas and utility kiosks.

Street trees are one of the more visually prominent features of the streetscape as well as a valuable amenity that adds to property values. Regularly spaced trees located at curbside on both sides of the street create a continuous street tree canopy, buffer pedestrians from moving traffic, and provide shade, colour and texture to the streetscape.

Landscaping on private property should be complimentary to the public streetscape through the use of similar colours, plant materials and other details. Rooftop gardens and other usable amenity spaces in mixed-use buildings provide a useful resident amenity and present a more attractive sight when viewed from higher buildings.
Marine Drive Design Guidelines

Signage

Business signage can and should be an asset to the general appearance and character of the streetscape. Fascia signs contribute rhythm, scale and proportion to otherwise mono-lithic or bland building facades.

The use of pedestrian oriented signage is encouraged. Pedestrian oriented signage is designed to be readable by pedestrians standing adjacent to the business and by slow moving traffic. Canopy and awning signage is oriented to pedestrians on the opposite side of the street.

The material, colour and detailing of signs should reinforce the building’s architectural style and character. Signage should complement the features of a building and not cover or obscure its architectural detailing.

4.3.1.3.1 Streetscape Guidelines

- Public art should reflect the history and reinforce the positive character of Lower Capilano.
- Gateway and other prominent intersections are the preferred locations for combining public art with other urban design objectives.
- Wide sidewalks having decorative accents and banding at regular intervals as illustrated in the Development Servicing Bylaw are required along Marine Drive, Pemberton Avenue and Capilano Road frontages.
- A complimentary paving scheme should be extended into courtyards, entries and hard landscaping areas on private property to complement and reinforce the streetscape identity that is being established.
- Contrasting paving materials should be utilized wherever foot traffic is not physically separated from vehicle traffic including pedestrian crossings, driveway crossings and pedestrian routes through parking lots.
- Street trees should normally be spaced 8 to 10 metres apart.
- Benches should be provided in groupings of two or more and located in or near to building entrances, bus stops or other logical pedestrian areas. At least two benches should be located on each block.
- There should be a minimum of 2 trash containers on each block installed near to any grouping of benches and/or next to bus shelters.
- There should be a minimum of two bike racks on each block and they should be located near building entrances.
- Private landscaping must be complimentary and integrated with the street trees and other landscaping elements in the public realm.
- Business signage should be pedestrian oriented, meaning it should be designed to be readable from a pedestrian perspective rather than from a traveling automobile.
- Freestanding signs are not allowed.
- The material, colour and detailing of signs must reinforce the building’s architectural style and character.
- Signage must complement the features of a building and not cover or obscure its architectural detailing.
- Window signage must not obscure or clutter the window nor block the passage of light.
- Signs must be made of high quality, durable materials such as metal, stone or hardwood is recommended and the colours and finishes must be complementary to those of the building.
- Signs on multiple tenant buildings must have a common style. Signs on each storefront must be similar in height, proportion, material composition, lighting and colour scheme to reinforce the cohesiveness of the building facade.
- Where wall signs are externally lit, light must be directed toward the sign and away from passers by and motorists. Sign illumination levels must be kept to a minimum to avoid excessive ambient light on the street.
Marine Drive Design Guidelines

Building Siting and Relationship to the Street

The relationship that buildings form with the street through their ground level design and siting characteristics affects the pedestrian experience (ambiance) and establishes the visual character of Marine Drive. Siting buildings at, or close to, the front property line creates a streetwall, visually framing the street in proportion to its width and providing spatial enclosure.

Urban streetscapes have a two or three storey streetwall punctuated by occasional mid block openings to create quasi-public open spaces such as courtyards or mid-block pedestrian passages. Variety in the streetwall is achieved through building articulation such as recessed entries, bay windows, canopies and roofline treatment.

A lively street has appropriate lighting (safety and security), display windows (pedestrian interest), sidewalk cafes and public seating (socialization opportunities), numerous building entrances (connection to the street) and ample sidewalks (pedestrian priority). Glass storefronts and display windows help establish a pedestrian orientation to a street by providing interest through visual openness.

4.3.1.4.1 Building Siting Guidelines

a) Buildings must be sited at, or close to, the front property line to create a streetwall of two or three storeys punctuated by occasional mid block openings to create quasi-public open spaces such as courtyards or mid-block pedestrian passages.

b) Variety in the streetwall must be achieved through building articulation such as recessed entries, bay windows, canopies and roofline treatment.

c) If insufficient width is available in the public right-of-way to accommodate street tree planting, utilities and sidewalk installation, buildings may have to be set back from the property line accordingly.

d) Site planning for large parcel developments should incorporate mid-block pedestrian passages through properties to the rear.

e) Site planning for large properties must incorporate useable open space components like outdoor restaurant seating, plazas, courtyards, wide pathways and arcaded storefronts.

f) Main commercial building entrances must be directly onto Marine Drive or at the corner intersection. Residential entrances may be appropriately sited on the adjacent side street.

g) Recessed storefront entries are encouraged.

h) At least 2/3 of the commercial building frontage at ground level must consist of doorways or display windows.

i) Display windows should be well lit so as to provide ambient lighting onto the street for pedestrians.
Marine Drive Design Guidelines

Proportion and Scale of Buildings

The rhythm of building articulations and spaces between them provides a human scale and creates an interesting visual environment for pedestrians. The logical basis for establishing rhythm is the lot pattern or typical property frontage. Windows, doorways or building recesses should occur with regular frequency. A monolithic appearance is to be avoided by breaking up the bulk of large buildings through the regular repetition of "vertical" elements like entrances, regularly spaced windows, alternating wall patterns or materials and other design features.

On the south side of Marine Drive buildings with upper floor setbacks allow more sunlight to penetrate onto sidewalks and courtyards. On the north side of Marine Drive orienting the building height and mass more toward the front property line will maximize privacy and sunlight penetration to the adjacent residential neighbourhood.

At feature intersections like gateways and designated nodes, building prominence is enhanced by the use of height and vertical design elements while at the same time this emphasizes the intersection as a focal point. Diagonal building setbacks accompanied by prominent building entrances at these intersections can provide public open space such as small plazas.

4.3.1.5.1 Proportion and Scale Guidelines

a) A monolithic appearance is to be avoided by breaking up the bulk of large buildings through the repetition of vertical elements like entrances, regularly spaced windows, alternating wall patterns and materials and other design features.

b) Infill buildings must take into account the scale, façade composition, doorway and window rhythms, building materials and colours of nearby buildings.

c) Setbacks to third storey or higher floors on buildings on the south side of Marine drive are required to allow more sunlight to penetrate onto the street.

d) On the north side of Marine Drive orienting more of the building height and mass toward the front of commercial properties is encouraged.

e) The prominence of designated node and gateway intersections must be recognized through an emphasis on height and vertical design elements of buildings.

f) Diagonal building setbacks and prominent building entrances are encouraged at major intersections to provide public open spaces such as small plazas and, when complemented on opposite corners of the intersection, to recognize the intersection as a focal point.
Architectural Character

Creative building architecture set within a unifying framework of design guidelines inspired by an early twentieth century warehouse style to complement the transportation and resource industry heritage of Lower Capilano’s early development are intended to reinforce a Lower Capilano identity. Building styles are to be functional and simple, with strong massing and flat roofs. Masonry (especially brick), heavy timbers, steel and iron are examples of building materials that are consistent with the Marine Drive theme.

Effective weather protection such as canopies and awnings should be provided along the entire building frontage to add colour and interest. On south facing properties, gallerias or colonnaded shopping arcades can provide protection from the natural elements but still receive natural illumination. Use of colonnades or other grade level setbacks is also one way to free up space for wider sidewalks when the road allowance is insufficient for this purpose without incurring the loss of development potential that would result if the buildings were sited behind the property line.

4.3.1.6.1 Architectural Guidelines

a) Building design must be inspired by the transportation and resource industry heritage of Lower Capilano’s early development. This translates to functional and simple architecture with strong massing and flat roofs.

b) Masonry (especially brick), heavy timbers, steel and iron are examples of building materials that are consistent with the Marine Drive theme.

c) Weather protection must be provided along the entire commercial building frontage. Fabric awnings and canopies or supports for glass structures must utilize strong dark colours like black, dark green or burgundy.

d) Incorporation of green building measures, which conserve energy and resources such as passive heating and lighting systems, energy efficient and low water fixtures and appliances, on-site storm water infiltration and recycled building products is encouraged.
Parking Areas

Surface parking areas that are visible or accessible from Marine Drive break the streetwall and create empty zones that detract from street definition and interrupt pedestrian flow. Parking areas should be sited behind buildings and wherever possible should not be accessible or visible from Marine Drive. Parking lots that are visible from adjacent streets or back onto residential properties should be well screened by walls, fences or landscaping. Parking areas must be well lit to ensure safety, security and maximize use.

Interspersing landscaping in large surface parking lots can soften their impact by breaking the parking down into smaller clusters of ten or fewer spaces. Parking aisles should be separated with planted medians.

4.3.1.7.1 Parking Area Guidelines

a) Surface parking areas must be sited behind buildings and may not be vehicle accessible or visible from Marine Drive.
b) Parking aisles must be separated by planted medians that are at least 1.5 metres. Heartly, drought-tolerant landscaping that provides habitat for birds and insects should be utilised.
c) Parking areas that would be visible from adjacent streets or back onto residential properties must be well screened by walls, fences or landscaping.
d) Parking areas must be well lit to ensure safety and security but care must be taken to avoid glare or spill-over to neighbouring properties.
e) Well marked pedestrian routes must be provided in large parking lots.
f) Parking structures must be designed so that all parked vehicles are hidden from view.
g) Permeable pavings and surfaces should be used to enhance on-site storm water management.

Parking entry incorporated in street facade
Development Approval Information Areas

Land within the Form and Character DPA is also designated as a Development Approval Information Area in accordance with Section 920.01 of the Local Government Act. Applicants for zoning amendments, form and character development permits or temporary use permits may be required by the District to provide, at the applicant’s expense, information respecting the impact of the proposed development activity on the community on matters such as, but not limited to, transportation patterns and traffic flow; local infrastructure; utilities capacity; community services, and public facilities including schools and parks.

Any such information deemed by the District to be necessary for the purposes of determining requirements to be addressed in a development permit shall be identified and conveyed to the applicant during the preliminary development application process.
PART 6 | Energy and Water Conservation and Greenhouse Gas Emission Reduction Development Permit Area
Context

The purpose of this development permit area is to complement Council’s Green Building Strategy as it applies to new buildings, including private sector and Municipal building projects and, to foster the conservation and efficient use of energy and water to reduce building-generated greenhouse gas emissions.

The construction, operation and maintenance of buildings takes a toll on the natural environment and represent a significant contributor to the creation of greenhouse gas emissions. In 2007, buildings in the District were estimated to contribute approximately 50% of the community’s greenhouse gas emissions.

The District is seeking to reduce community GHG emissions by 8% from the 2007 levels by 2020, 13% by 2030 and 21% by 2050, through initiatives under its own influence, including: land use and transportation planning, development/building guidelines and waste reduction strategies. The District also supports community wide efforts to reduce GHG emissions by 33% by 2030.

Encouraging developers and builders to incorporate a wide range of measures, designed to work together to reduce a building’s impact on the environment, is critical to reducing that portion of the District’s greenhouse gas emissions attributable to the construction, operation and maintenance of buildings.

Objectives For Energy And Water Conservation And Greenhouse Gas Emission Reduction

The Energy and Water Conservation and GHG Emissions Reduction DPA and corresponding Development Approval Information Area are established to address the following objectives:

1. reduce consumption in new buildings;
2. create a positive impact on the natural environment and natural earth systems;
3. make the best possible use of existing infrastructure systems and minimize the need for system capacity expansion and extensions;
4. reduce the costs associated with the on-going operation and maintenance of buildings;
5. encourage occupant comfort and health and the efficient use of materials and resources in new buildings; and
6. encourage and support innovation in building design and development.
Exemptions

All development is exempt other than:

1. any development for which an amendment of the Zoning Bylaw or the District’s Official Community Plan is required; and

2. the construction and installation of a new ICI building or structure for which a building permit is required pursuant to the District’s Building Regulation Bylaw.

Despite the foregoing, owners, developers and designers are encouraged to consider these guidelines in site development, building, landscaping and engineering decisions relating to all developments within the Energy and Water Conservation and GHG Emission Reduction DPA, whether or not an energy and water conservation development permit is required.

Guidelines

The following guidelines apply within the Energy and Water Conservation and GHG Emission Reduction DPA. These guidelines are not intended to be a definitive listing. Rather, they suggest issues to be considered and designers may respond to these guidelines in a variety of different ways. Creativity is encouraged.

Except where specific standards are referenced, these guidelines are not prescriptive. Designers are directed to consider a variety of synergistic approaches, particularly, passive design strategies, rather than active mechanical systems, to reduce a building’s energy and water consumption and greenhouse gas emissions and improve occupant thermal comfort.

While these guidelines relate specifically to energy and water conservation and ghg emission reductions, it is important to consider other measures which reduce a building’s overall carbon footprint by incorporating a variety of strategies to make the best use of the site, improve indoor air quality and utilize materials which can be sourced locally or regionally and reused/recycled at the time of construction and upon demolition.

A qualified professional retained by the applicant is required to provide a written report summarizing the proposed measures to be incorporated in the proposed development.

Development should be designed and constructed so that the energy budget for proposed buildings and structures, once complete, will be at least 33% better than the applicable standard in the Model National Energy Code for Buildings or at least 24% better than the applicable standard in ASHRAE 90.1 - 2007.
For Energy Conservation the following guidelines apply:

1. an integrated design process should be utilized to identify opportunities to reduce a building’s energy consumption;

2. the effectiveness of the building envelope, including glazing, to reduce heat loss should be maximized;

3. overall building energy performance and interior thermal comfort should be maximized through a combination of passive design strategies, including, but not limited to:

   » the sizing and placement of windows and the incorporation of operable windows to increase opportunities for natural ventilation, reducing the reliance on mechanical HVAC systems;

   » the orientation of buildings to take maximum advantage of site specific climatic conditions especially in terms of solar access and wind flow, when possible;

   » the use of thermally broken window frames and high performance glazing;

   » the incorporation of roof overhangs, fixed fins or other solar shading devices to ensure that south facing windows are shaded from peak summer sun but enable sunlight penetration during winter months;

   » design building massing and solar orientation to improve the passive performance of the structure

4. various measures should be utilized to reduce the heat island effect of a building’s roof and heat transfer into the building, including: green roofs; Energy Star-rated or high albedo roofing material; or, other appropriate measures;
5. opportunities for the distribution of natural daylight into a building’s interior spaces to reduce the energy consumption of electric lighting should be maximized. Avoid the use of heavily tinted or reflective glazing that reduces solar heat gain but also reduces the penetration of daylight and increases glare;

6. solar thermal or solar electric technologies should be incorporated, but, where it is not possible to incorporate solar technologies during initial construction of a building, the building should be designed to be solar ready;

7. on-site renewable energy systems should be pursued where feasible;

8. mechanical systems should be designed to enable interconnection to future district energy systems in those areas identified by the District as having potential for such systems;

9. on-site landscaping should be designed to promote opportunities for passive heating/cooling without negatively affecting the potential for solar thermal or solar electric systems on the site and on surrounding properties;

10. the planting of appropriate trees within parking lots should be maximized to provide shade, store carbon and reduce heat build-up; and

11. daylight-responsive controls should be incorporated in all regularly occupied spaces sited adjacent to windows/skylights.

For Water Conservation the following guidelines apply:

1. an integrated design process should be utilized to identify opportunities to reduce a building’s water consumption and incorporate strategies for the capture and use of stormwater for landscaping purposes;

2. the stormwater and building water discharge should be managed on site to the extent possible. Measures could include:
   » maximizing pervious surfaces to enhance stormwater infiltration opportunities
   » incorporating bioswales and rain gardens for infiltration
   » using drought-tolerant and native plants and other xeriscaping techniques to minimize the need for landscape irrigation;
   » maximizing the use of topsoil or composted waste for finish grading to assist in infiltration and increase the water holding capacity of landscaped areas;

3. where a site is adjacent to open space or a watercourse, infiltrated stormwater should be directed to that receiving environment if appropriate; and

4. automated control systems should be utilized where temporary or permanent mechanical irrigation systems are required.
For Greenhouse Gas Emission Reductions the following guidelines apply:

1. building materials which are durable for the use intended should be selected;
2. locally or regionally sourced building materials should be used to reduce transportation energy costs;
3. existing building materials should be reused where practical;
4. building materials which may be reused or recycled upon building demolition should be selected;
5. a construction waste management plan should be developed and areas for the collection of recyclable materials during construction should be provided on site; and
6. building products which have low, or no-VOC off-gassing potential should be selected.

Development Approval Information Area

Land within the Energy and Water Conservation and GHG Emission Reduction DPA is also designated as a Development Approval Information Area in accordance with Section 920.01 of the Local Government Act. Applicants for energy and water conservation development permits may be required by the District to provide, at the applicant’s expense, information in order to demonstrate compliance with the energy and water conservation guidelines.

Any such information deemed by the District to be necessary for the purposes of determining requirements to be addressed in a development permit shall be identified and conveyed to the applicant during the preliminary development application process.
Amending Bylaw & Date of Adoption: Bylaw 7985 (September 9, 2013), Bylaw 8110 (June 1, 2015), Bylaw 8159 (June 27, 2016), Bylaw 8178 (May 1, 2017), Bylaw 8279 (Feb 5, 2018), Bylaw 8230 (Mar 12, 2018), Bylaw 8244 (May 28, 2018)

Original Bylaw & Date of Adoption: Bylaw 7900 (June 27, 2011)
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AUTHORITY AND PURPOSE OF SCHEDULE C

The District of North Vancouver is required under Section 866 of the Local Government Act to include a Regional Context Statement in its Official Community Plan. This legislation establishes that the function and requirement of the Regional Context Statement is to identify the relationship between the Official Community Plan and the Regional Growth Strategy and, if applicable, identify how the Official Community Plan will be made consistent with the Regional Growth Strategy over time. This document is included as Schedule C of the District’s OCP to meet that requirement with respect to Metro Vancouver 2040: Shaping our Future Regional Growth Strategy (Bylaw 1136, 2011).

The District of North Vancouver may amend this Official Community Plan to adjust the boundaries of the District’s regional land use designations within the Urban Containment Boundary, provided such adjustments satisfy the requirements set out in section 6.2.7 of the Regional Growth Strategy (Metro Vancouver 2040: Shaping our Future, Bylaw 1136).

The District of North Vancouver may amend this Official Community Plan to adjust the boundaries of the District’s Urban Centres or Frequent Transit Development Areas, provided such adjustments satisfy the requirements set out in section 6.2.8 of the Regional Growth Strategy (Metro Vancouver 2040: Shaping our Future, Bylaw 1136).
INTRODUCTION

The District of North Vancouver is a member municipality of Metro Vancouver and Council has endorsed the Regional Growth Strategy. The District provides a number of significant regional assets and will continue to play a valuable role within the wider Metro Vancouver region. Our extensive and pristine alpine areas provide a high quality drinking water supply and outstanding recreational opportunities. Our major highway and railway transportation corridors, in addition to nationally significant deep water port terminals, help connect and strengthen the regional economy.

Traditionally, the District has functioned as an inner-suburb of Metro Vancouver, providing predominantly residential land uses within close commuting proximity to the City of North Vancouver and the downtown peninsula. While the character of our residential neighbourhoods will be sensitively preserved, the OCP recognizes and promotes the maturation of the District of North Vancouver into a more complete and diverse community. These directions work very effectively in concert with the broader vision and strategy for a sustainable future for the region expressed in the 2011 Regional Growth Strategy.

COMPACT GROWTH MANAGEMENT

Metro Vancouver 2040: Shaping our Future Goal 1: Create a Compact Urban Area

» The District OCP manages growth to achieve an efficient and compact urban structure with 75-90% of residential development directed to four compact centres. Growth is restricted outside the Urban Containment Boundary. The character of established low density neighbourhoods is preserved.

SUSTAINABLE ECONOMY

Metro Vancouver 2040: Shaping our Future Goal 2: Support a Sustainable Economy

» The District OCP facilitates greater opportunities for local economic development and employment. Concentrated populations and enhanced transit and pedestrian access support businesses in centres. Industrial land is protected and economic activity intensified and diversified.

THE NATURAL ENVIRONMENT AND CLIMATE CHANGE

Metro Vancouver 2040: Shaping our Future Goal 3: Protect the Region’s Environment and Respond to Climate Change Impacts

» The District OCP protects local environmental assets through the establishment of an Urban Containment Boundary. Conservation, recreation and ecological functions are preserved. Growth is directed to established urban areas through coordinated land use, transportation and infrastructure planning to reduce energy consumption and greenhouse gases.
COMPLETE COMMUNITIES

Metro Vancouver 2040: Shaping our Future Goal 4: Develop Complete Communities

» The District OCP establishes a network of commercial residential mixed use centres to enable residents to meet their day-to-day needs close to home. Jobs, services and amenities are concentrated in transit supportive centres. A greater diversity of housing types provides options for a balanced population.

TRANSPORTATION CHOICE

Metro Vancouver 2040: Shaping our Future Goal 5: Support Sustainable Transportation Choices

» The District OCP enables greater alternatives to the car through transit supportive settlement patterns and high pedestrian and bicycle design standards. Pedestrian, bicycle, transit and road networks are managed and integrated to provide safe and efficient options for all modes and users.

The remaining sections 1 to 5 of this Schedule, and the accompanying Regional Features Map, identify more closely the consistency of District OCP policies and objectives with the five regional goals contained in the proposed Regional Growth Strategy Metro Vancouver 2040: Shaping our Future (Bylaw 1136).
Regional Goal 1: Create a Compact Urban Area

The growth management and land use policies contained in the District’s OCP (chapters 1 and 2) direct future development and redevelopment in the District in a way to create a compact urban area. This OCP affirms an Urban Containment Boundary, restricts uses and development outside this boundary, and directs residential, office and retail growth to a transit efficient Network of Centres.

SPECIFIC ACTIONS

<table>
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<tr>
<th>RGS Roles for Municipalities</th>
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<td><strong>Strategy 1.1.3 a</strong></td>
<td>Urban Containment Boundary illustrated on Regional Features Map</td>
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<tr>
<td>Depict the Urban Containment Boundary</td>
<td></td>
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<tr>
<td><strong>Strategy 1.1.3 b</strong></td>
<td>Urban Containment Boundary established and growth restricted outside it (Policy 1.1 and 1.2)</td>
</tr>
<tr>
<td>Provide population, dwelling unit and employment projections</td>
<td>Parks, Open Space and Natural Areas and Rural Residential Land Use designations applied to areas outside Urban Containment Boundary (District wide Land Use Map, Parks and Trails Map)</td>
</tr>
</tbody>
</table>

The OCP identifies capacity for an additional 20,000 population, 10,000 housing units, and 10,000 jobs for year 2030 (Chapter 1). The assumed baseline population for the OCP is 85,000 (2006 census counted 82,500; 2011 census has since confirmed 84,500). The OCP therefore provides capacity for a population of 105,000 by 2030. The assumed baseline employment for the OCP is around 26,000 (2006 census counted 22,000 fixed workplace jobs, and between 4,000 and 5,000 no fixed workplace jobs are assumed). The OCP therefore provides capacity for 36,000 jobs by 2030. The assumed baseline dwelling unit count is 30,500 (2006 census counted 30,000 units, 2011 census confirmed 30,500). The OCP therefore provides capacity for 40,500 by 2030. These figures meet or are generally consistent with RGS guidelines provided in Table A.1 up to year 2031. RGS projections for year 2041 are beyond the planning horizon of this plan. Section 12.1 of the OCP anticipates formal reviews of the OCP to occur every five years. The District will work towards consistency with the RGS projections to 2041 in subsequent OCP reviews. Current 2041 RGS figures (114,000 population 45,000 dwelling units, 40,000 jobs) are recognized as being consistent with the trajectory described in the OCP.
Strategy 1.2.6 a

Provide dwelling unit and employment projections for Urban Centres and Frequent Transit Development Areas (FTDAs)

75-90% of residential growth is directed to four centres on a ‘Network of Centres’ (Target 1, Map 1 – Network of Centres Concept). The three DNV growth centres with regional designations (i.e. Lynn Valley Municipal Town Centre, and Lower Lynn and Lower Capilano/Marine Drive FTDAs) are anticipated to account for up to 75% of new residential development (up to approximately 25% in Lynn Valley, 30% in Lower Lynn, and 20% in Lower Capilano/Marine Drive). This nodal growth pattern generally supports the RGS region-wide guideline (Table 2) of 68% of residential growth to occur within Urban Centres and Frequent Transit Development Areas. One of the District’s four growth centres (Lynn Valley) is designated as a Municipal Town Centre in the RGS, and two (Lower Lynn and Lower Capilano/Marine) are FTDAs. Implementation planning that has occurred since OCP adoption had refined the vision for Lynn Valley as a predominantly low to medium rise centre. As the OCP designates Lower Lynn as a Town Centre and this area is beginning to redevelop as such with high rise and higher density forms, it is the District’s intention to seek an amendment to the RGS in the future to recognize this area as a Municipal Town Centre.

Medium and higher density residential and mixed use land use designations are applied to these centres, including Residential Level 6 (up to 2.5 FSR), Commercial Residential Mixed Use Level 2 (up to 2.5 FSR), and Commercial Residential Mixed Use Level 3 (up to 3.5 FSR), as shown in OCP Map 2.

Policies direct residential growth to these centres (Policies 1.3, 2.1.2, 2.2.3, 2.2.4, 2.2.5).

RGS guidelines (Table 2) indicate employment growth region-wide is anticipated to occur at specific regional locations beyond the boundaries of the District, such as the Metropolitan Core (10% of job growth), Surrey Metro Core (5% of job growth) and across Regional City Centres (19% of job growth). RGS Table 2 also anticipates 16% of the region’s overall job growth may occur within the 17 Municipal Town Centres, of which Lynn Valley Town Centre is one. RGS Table 2 also indicates 27% of regional job growth may occur in Frequent Transit Development Areas, which includes Lower Lynn Town Centre and Lower-Capilano Village Centre. The District’s intent, as it develops over time, is for Lower Lynn in addition to Lynn Valley to achieve regional status as a Municipal Town Centre. The OCP provides significant policy support for job growth in our Municipal Town Centre and FTDAs, Office and retail development are directed to these centres (Policies 2.1.3, 3.1.3, 3.1.4). Higher density Commercial Residential Mixed Use land use designations are applied to these centres, including Commercial Residential Mixed Use Level 2 (up to 2.5 FSR) and Commercial Residential Mixed Use Level 3 (up to 3.5 FSR) to facilitate office and retail development, as shown in OCP Map 2.
OCP policies and land use designations are anticipated to direct employment growth to Lynn Valley Municipal Town Centre and Lower Lynn and Lower Capilano - Marine Drive FTDAs in a manner consistent with the job distribution described in the RGS Table 2, and the District will work towards detailed job allocation between these centres in subsequent OCP reviews.

Employment growth is also anticipated in locations immediately adjacent to OCP growth centres. The Marine Drive frequent transit corridor, anchored by the Lower-Capilano FTDA provides frequent transit access to Light Industrial Commercial designated lands on Pemberton Avenue. Light Industrial Commercial lands on Pemberton Avenue are all situated between 100m and 800m of frequent transit on Marine Drive. Maplewood Village Centre also has significant employment growth potential through relatively high density Commercial Residential Mixed Use designations (Commercial Residential Mixed Use Level 2, up to 2.5 FSR) and Light Industrial Commercial areas both within and adjacent to the centre boundary. Light Industrial Commercial areas outside the centre boundary are immediately adjacent (across the street) and will benefit from the same transit improvements facilitated by residential and commercial growth within the centre.

In addition to policies and land use designations encouraging employment growth in centres and corridors, a strong emphasis in the OCP is placed on preserving and intensifying economic activity in the District’s Industrial and Light Industrial Commercial employment lands (Chapter 3), policies that are consistent with RGS Strategy 2.2.

The OCP provides for approximately 3000 units in Lower Lynn Town Centre, up to approximately 2500 new units in Lynn Valley Town Centre; and 2000 in Lower Capilano-Marine Drive Village Centre and corridor, the latter both FTDAs. It also accommodates an estimated 1500 units in Maplewood Village Centre. The target of concentrating 75-90% of growth to these centres provides flexibility and units may be adjusted within the proposed range as needed. Implementation plans further guide development form, density, transportation improvements and amenities. The OCP targets an increase from a baseline of 22,000 fixed workplace jobs, and 26,000 to 27,000 total jobs (including jobs with no fixed workplace) to 36,000 total jobs in 2030 which is consistent with RGS Table A.1. The OCP directs these jobs to the Municipal Town Centre and FTDAs as described above. RGS projections for year 2041 are beyond the planning horizon of this plan. Section 12.1 of the OCP commits to formal reviews of the OCP to occur every five years. Consistency with the RGS projections to 2041 will be achieved through these reviews and 2041 RGS figures are recognized as being consistent with the trajectory described in the OCP.
Strategy 1.2.6 b i
Identify location and boundaries of Centres

Urban Centres illustrated on Regional Features Map

Lynn Valley is identified at the Municipal Town Centre

Lower Lynn is as a FTDA (Policy 2.4.1). The District’s intent, as it develops over time, is for Lower Lynn (in addition to Lynn Valley) to achieve regional status as a Municipal Town Centre

Lower Capilano-Marine is a FTDA

Strategy 1.2.6 b ii
Focus growth and development in Centres

Lynn Valley (the District's Municipal Town Centre) is designated a Town Centre (Policy 2.1.1). The District’s intent is to request Lower Lynn, which is also designated as a Town Centre in the District’s OCP, be designated as a Municipal Town Centre in the RGS once development in this centre has advanced.

Medium and higher density residential and Commercial Residential Mixed Use land use designations are applied, including Residential Level 6 (up to 2.5 FSR), Commercial Residential Mixed Use Level 2 (up to 2.5 FSR), and Commercial Residential Mixed Use Level 3 (up to 3.5 FSR), to focus residential and commercial development as shown on Land Use Map (OCP Map 2).

Mix and intensity of land uses, and transit oriented infrastructure and design, facilitated to support frequent transit (Policy 1.4, Section 5.1)

Residential growth directed to Centres, including focus on affordable and rental housing (Policies 2.1.2, 7.2.7)

Infrastructure investment directed to Centres (Policy 2.1.4) and infrastructure planning coordinated with Centres planning (Section 11.1)

Major office and retail development directed to Centres, specifically regionally designated FTDA and the Municipal Town Centre (Policies 2.1.3, 3.1.3, 3.1.4)

New park and open space planned for Town Centres (Policy 4.2.2)

Objective established for Town Centres to create complete communities with diverse housing, employment and recreation (Objective for Section 2.1)

District Council has approved implementation plans for Lower Lynn Town Centre (2013), Lower Capilano Marine Village Centre (2013) and Lynn Valley Town Centre (2013) to provide specific guidance on development of these centres including transportation strategies, form and character of development, infrastructure improvements, community amenities and parks and open spaces. An implementation plan for Maplewood Village Centre will also be prepared.
| Strategy 1.2.6 b iii | Major office development directed to centres specifically regionally designated FTDAs and the Municipal Town Centre (Policies 2.1.3, 3.1.4)
<table>
<thead>
<tr>
<th>Encourage office development in Centres</th>
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<tbody>
<tr>
<td>Higher density mixed use land use designations are applied to centres to facilitate office development, Commercial Residential Mixed Use Level 2 (up to 2.5 FSR) and Commercial Residential Mixed Use Level 3 (up to 3.5 FSR) as shown on Land Use Map (OCP Map 2).</td>
</tr>
</tbody>
</table>
| Strategy 1.2.6 b iv | Parking reductions in centres and corridors considered (Policy 5.1.8)
<table>
<thead>
<tr>
<th>Reduce parking in Centres where appropriate</th>
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<tbody>
<tr>
<td>Since OCP adoption the District has developed Parking Principles for Centres, which include reduced parking standards where warranted by transit service</td>
</tr>
<tr>
<td>Strategy 1.2.6 c i</td>
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<tr>
<td>Identify Frequent Transit Development Areas (FTDAs)</td>
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<tr>
<td>Strategy 1.2.6 c ii</td>
</tr>
<tr>
<td>Focus growth and development in Frequent Transit Development Areas (FTDAs)</td>
</tr>
<tr>
<td>Lower Lynn is proposed as a FTDA (Policy 2.4.1). OCP designates Lower Lynn a Town Centre (Policy 2.1.1). The District’s intent, as it develops over time, is for Lower Lynn (in addition to Lynn Valley) to achieve regional status as a Municipal Town Centre.</td>
</tr>
<tr>
<td>Lower Capilano/Marine is proposed as a FTDA (Policy 2.4.1). OCP designates Lower Capilano/Marine a Village Centre (Policy 2.2.1)</td>
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<tr>
<td>Lower Lynn and Lower Capilano/Marine are situated at both bridgeheads and positioned to be major nodes on the lower level frequent transit corridor.</td>
</tr>
<tr>
<td>Higher density residential and Commercial Residential Mixed Use land use designations are applied, including Residential Level 6 (up to 2.5 FSR), Commercial Residential Mixed Use Level 2 (up to 2.5 FSR), and Commercial Residential Mixed Use Level 3 (up to 3.5 FSR), to focus residential and commercial development as shown on Land Use Map (OCP Map 2).</td>
</tr>
<tr>
<td>Land use policies, including residential growth and affordable and rental housing (Policies 2.1.2, 7.2.7), office and retail development (Policies 2.1.3, 3.1.3, 3.1.4), and infrastructure investment (Policy 2.1.4) provide transit support</td>
</tr>
<tr>
<td>Transit policies established to facilitate frequent service (Policy 1.4, Section 5.1, 5.4.2, 5.4.3, 5.4.4, 5.5.2)</td>
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<td><strong>Strategy 1.2.6 c iii</strong></td>
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<tr>
<th><strong>Strategy 1.2.6 d i</strong></th>
<th>Identify the General Urban Area</th>
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<td></td>
<td>Urban Area illustrated on Regional Features Map</td>
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<tr>
<th><strong>Strategy 1.2.6 d ii</strong></th>
<th>Ensure development outside Centres and Frequent Transit Development Areas (FTDAs) is generally lower density</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Land Use designations are generally of lower density outside the Municipal Town Centre and proposed Frequent Transit Development Areas. Commercial Residential Mixed Use designations are lower density at 1.75 FSR (compared to 2.5 FSR and 3.5 FSR within centres/FTDAs), and residential densities are lower at 0.55 FSR to 1.75 FSR, with some existing 2.5 FSR (compared to 1.2 FSR to 3.5 FSR within centres/FTDAs) as shown on Land Use Map (OCP Map 2) and Regional Features Map (OCP Map 14).</td>
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<tr>
<th><strong>Strategy 1.2.6 d iii</strong></th>
<th>Identify small scale Local Centres where appropriate</th>
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<tbody>
<tr>
<td></td>
<td>The Network of Centres (Chapter 2) contains existing Village Centres that provide and are encouraged to continue to provide a mix of housing, local serving commercial uses, and remain significant nodes on the transit network. These are largely reflected in RGS Map 11.</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th><strong>Strategy 1.2.6 d iv</strong></th>
<th>Exclude non-residential major trip-generating uses outside Centres and Frequent Transit Development Areas (FTDAs)</th>
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<tbody>
<tr>
<td></td>
<td>Major office and retail uses (Policies 2.1.3, 3.1.3, 3.1.4) and community infrastructure investment (Policy 2.1.4) are directed to centres. The existing non-residential major trip generating uses of Capilano University, Capilano Suspension Bridge and Grouse Mountain are already established on the transit network. New non-residential major trip generating uses, defined as non-residential major trip generating uses excluding those related to tourism, recreation and/or education, are excluded outside of centres consistent with the land use designations in Map 2, DNV OCP Land Uses. Further definition and policy guidance regarding major office and retail uses is anticipated to occur in subsequent OCP reviews.</td>
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<tr>
<th><strong>Strategy 1.2.6 d v</strong></th>
<th>Encourage infill development</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sensitive infill may be enabled through potential intensification of established centres (Section 2.2), neighbourhoods (Policy 2.3.5, 2.3.6, and 7.1.2) and transit corridors (Policies 2.4.2 and 2.4.3)</td>
</tr>
<tr>
<td><strong>Strategy 1.2.6 e</strong></td>
<td>Ensure Industrial, Mixed Employment, or Conservation and Recreation policies prevail in Centres and Frequent Transit Development Areas (FTDAs)</td>
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<tr>
<td><strong>Strategy 1.2.6 f i</strong></td>
<td>Buffering is encouraged between employment and non-employment lands (Policy 3.4.3)</td>
</tr>
<tr>
<td><strong>Strategy 1.2.6 f ii</strong></td>
<td>Target established of achieving a 35% mode share of transit, walking and cycling trips (Target 5)</td>
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<td><strong>Strategy 1.2.6 f iii</strong></td>
<td>Transit priority measures are to be implemented where appropriate (Policies 5.4.4, 5.5.2)</td>
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<tr>
<td><strong>Strategy 1.2.6 f iv</strong></td>
<td>District and renewable energy systems are supported where appropriate (Policies in Section 10.2, Policy 11.2.4)</td>
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<tr>
<td><strong>Strategy 1.3.3 a</strong></td>
<td>Rural areas illustrated on Regional Features Map</td>
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</tbody>
</table>
| **Strategy 1.3.3 b** Limit development in Rural areas | Growth restricted outside Urban Containment Boundary (Policy 1.2) and Rural Residential land use designation does not envision intensification of use through subdivision.  

Infrastructure extension beyond the Urban Containment Boundary limited (Policy 11.1.2) and Rural Residential land use designation does not envision intensification of use through the extension of services.  

Rural Residential Land Use designations applied to residential areas outside Urban Containment Boundary as shown on Land Use Map (OCP Map 2) and Regional Features Map (OCP Map 14). |
| **Strategy 1.3.3 c i** Specify allowable density and form of land uses in Rural areas | Rural Residential Land Use designations applied to residential areas outside Urban Containment Boundary (Land Use Map in Schedule A), providing for low density detached housing on large lots (up to 0.35 FSR) |
| **Strategy 1.3.3 c ii** Support agricultural uses in agricultural areas | The District does not have any agricultural areas. Urban agriculture and other food initiatives are supported (Policies 6.3.12, 6.3.13, 6.3.14, 6.3.15) |
Regional Goal 2: Support a Sustainable Economy

The urban structure, employment lands and economic development policies contained in the District’s OCP (chapters 1, 2, 3 and 8) place a strong emphasis on supporting sustainable economic activity in the District. This OCP protects employment lands for economic activity, seeks to intensify and diversify activity in these lands, encourage office development within a Network of Centres, and create a positive investment climate.

SPECIFIC ACTIONS

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<th>Strategy 2.1.4 a</th>
<th>Support appropriate economic activity in Urban Centres, FTDAs, Industrial and Mixed Employment Areas</th>
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<td>New retail, service and major office development concentrated in two OCP Town Centres: Lynn Valley Municipal Town Centre, and Lower Lynn FTDA (Policy 2.1.3).</td>
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</tr>
<tr>
<td>Appropriate industrial and light industrial commercial economic activity is protected, intensified, diversified, and a high quality business environment ensured through 12 policies in Chapter 3. Note: the District does not have lands within Metro Vancouver’s ‘Mixed Employment’ designation.</td>
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</tr>
<tr>
<td>Economic development is promoted by: maintaining community competitiveness and providing competitive government services (17 policies in Chapter 8), encouraging appropriate and compatible economic activity including office, retail and live-work uses in and adjacent to centres, and industrial and light industrial uses in employment lands (Policy 8.1.3 b and c)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Strategy 2.1.4 b</th>
<th>Support the development of office space in Urban Centres</th>
</tr>
</thead>
<tbody>
<tr>
<td>New retail, service and major office development concentrated in two OCP Town Centres: Lynn Valley Municipal Town Centre, and Lower Lynn FTDA (Policy 2.1.3).</td>
<td></td>
</tr>
<tr>
<td>Land use designations of Commercial Residential Mixed Use Level 2 (2.5 FSR) and Commercial Residential Mixed Use Level 3 (3.5 FSR) provide medium to high density opportunities for commercial development. These designations are only applied in the District’s centres. Schedule A (Town and Village Centre Policies) includes policies promoting office development in Lynn Valley Municipal Town Centre, and commercial floorspace in Lower Lynn and Lower Capilano FTDAs.</td>
<td></td>
</tr>
<tr>
<td>Policy 3.1.4 directs major office uses to the Network of Centres</td>
<td></td>
</tr>
<tr>
<td><strong>Strategy 2.1.4 c</strong></td>
<td>Discourage major commercial and institutional development outside of Urban Centres and FTDAs</td>
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<tr>
<td></td>
<td>Retail, service, major office and community infrastructure investment are directed to centres (Policies 2.1.3, 2.1.4, 3.1.3, 3.1.4)</td>
</tr>
<tr>
<td></td>
<td>Infrastructure provision is integrated with land use and transportation planning (Policy 1.6) and coordinated with the District’s centres (Section 11.1)</td>
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<tr>
<td></td>
<td>A target of providing one community hub type facility within easy access of every centre is established (Chapter 6, Policy 6.3.6)</td>
</tr>
<tr>
<td></td>
<td>Commercial and Commercial Residential Mixed Use designations applied outside of centres are generally of a lower density (1.75 FSR) than those applied within centres (2.5 FSR and 3.5 FSR)</td>
</tr>
<tr>
<td></td>
<td>Institutional and/or commercial development within Capilano University is integrated with the District’s Network of Centres (Policy 2.2.8). Capilano University is connected via transit corridors to the Network of Centres (OCP Map 1) and is deemed suitable for development where this is integrated with the District’s urban structure. Capilano University is identified on Regional Growth Strategy Map 11, Local Centres, Hospitals and Post-Secondary Institutions and OCP Map 14 (Regional Features Map).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Strategy 2.1.4 d</strong></th>
<th>Support the economic development of Special Employment Areas, post-secondary institutions and hospitals through land use and transportation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The economic development of Capilano University is to be integrated with the District’s urban structure, i.e. the Network of Centres concept that coordinates land use and transportation planning (Policy 2.2.8). Capilano University is identified on Regional Growth Strategy Map 11, Local Centres, Hospitals and Post-Secondary Institutions.</td>
</tr>
<tr>
<td></td>
<td>Expansion of post-secondary institutions (Capilano University) is encouraged (Policy 8.1.6)</td>
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<td></td>
<td>Goods movement and improved access to key port areas and airports are supported (Policies 5.5.3, 8.1.4, 8.1.5)</td>
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<td></td>
<td>Infrastructure and transportation improvements in employment lands (District and RGS industrial land, including the port) are promoted (Policy 3.4.1)</td>
</tr>
<tr>
<td></td>
<td>General land use policies (including housing, parks) are directed to promote economic development by attracting investment to the community (Section 8.1)</td>
</tr>
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<tr>
<th><strong>Strategy 2.2.4 a</strong></th>
<th>Identify Industrial areas</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Industrial areas illustrated on Regional Features Map</td>
</tr>
<tr>
<td>Strategy 2.2.4 b i</td>
<td>Support and protect industrial uses</td>
</tr>
<tr>
<td>------------------</td>
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</tr>
<tr>
<td>Strategy 2.2.4 b ii</td>
<td>Support appropriate accessory uses to Industrial</td>
</tr>
<tr>
<td>Strategy 2.2.4 b iii</td>
<td>Exclude inappropriate uses from Industrial</td>
</tr>
<tr>
<td>Strategy 2.2.4 b iv</td>
<td>Encourage better utilization and intensification of Industrial</td>
</tr>
<tr>
<td>Strategy 2.2.4 c</td>
<td>Identify Mixed Employment areas</td>
</tr>
<tr>
<td>Strategy 2.2.4 d</td>
<td>Policies for Mixed Employment areas</td>
</tr>
<tr>
<td>Strategy 2.2.4 e</td>
<td>Help reduce environmental impacts and promote energy efficiency</td>
</tr>
<tr>
<td>Strategy 2.3.6 a</td>
<td>Identify Agricultural areas</td>
</tr>
</tbody>
</table>
Strategy 2.3.6 b i
Assign regional land use designations for agriculture
N/A - The District does not have Agricultural areas

Strategy 2.3.6 b ii
Discourage subdivision of agricultural land
N/A - The District does not have Agricultural areas

Strategy 2.3.6 b iii
Improve infrastructure services to agricultural areas
N/A - The District does not have Agricultural areas

Strategy 2.3.6 b iv
Manage the agricultural-urban interface
N/A - The District does not have Agricultural areas

Strategy 2.3.6 b v
Support agricultural economic development opportunities
Community gardens, urban agriculture and farmers markets are promoted (Policies 6.3.12, 6.3.13)

Strategy 2.3.6 b vi
Encourage use of agricultural land
N/A - The District does not have Agricultural areas

Strategy 2.3.6 b vii
Support information programs on food and local agriculture
Initiatives promoting healthy local foods and food production supported (Policy 6.3.12)
Collaboration with agencies and partners to provide food access (Policy 6.3.14)
A food policy to support community and environmental health to be developed (Policy 6.3.15)
Regional Goal 3: Protect the Region’s Environment and Respond To Climate Change Impacts

The Environmental Management and Climate Action policies contained in the District’s OCP (chapters 9 and 10) seek to preserve our vast natural assets and mitigate and adapt to climate change. This OCP preserves natural areas for conservation and recreation, protects and enhances ecosystems and habitats, and manages land use and infrastructure to reduce greenhouse gases, adapt to climate change and to manage risks from natural hazards. The Conservation and Recreation areas illustrated on the Regional Features Map (Map 14) include regionally significant natural assets, major parks, watersheds and ecologically important areas. Since the adoption of the OCP, District Council approved the Parks and Open Space Strategic Plan (POSSP) in 2012 which is a strategic action plan to implement OCP policies. Centres implementation plans being developed following the OCP include consideration of integrated stormwater management and green infrastructure measures.

SPECIFIC ACTIONS

Strategy 3.1.4 a
Identify Conservation and Recreation areas

Conservation and Recreation areas illustrated on Regional Features Map

Strategy 3.1.4 b i to vi
Include land use policies for Conservation and Recreation areas generally consistent with public service infrastructure, environmental conservation, recreation, education and research, commercial, tourism and cultural uses, and limited agriculture

Conservation and Recreation areas have Parks, Open Space, and Natural Areas land use designation which provides for a range of uses including the protection of ecologically important habitats, the regional drinking water supply, and outdoor recreation (Map 2, DNV OCP Map). Map 3, DNV Parks and Trails Concept Map identifies different types of park and conservation areas and trail linkages.

A significant portion of Conservation and Recreation areas exist outside the urban containment boundary, where uses include outdoor recreation, watershed and resource management, conservation, and research (Policy 1.2)

Strategy 3.1.4 c
Where appropriate, buffer Conservation and Recreation areas from adjacent activities

Schedule B of the OCP, Development Permit Areas (DPAs), includes DPAs for the Protection of the Natural Environment, its Ecosystems and Biodiversity (Natural Environment and Streamside) and for Protection of Hazard Conditions (Wildfire, Creek and Slope Hazard) which serve to manage how development occurs in these areas to protect natural systems and avoid natural hazards.
<table>
<thead>
<tr>
<th><strong>Strategy 3.2.4</strong></th>
<th>Manage ecologically important areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy direction to map ecologically important areas and develop a management plan (Policy 9.1.1)</td>
<td></td>
</tr>
<tr>
<td>Policies in Section 9.1 established to protect biodiversity, including ecosystem and habitat management and restoration (Policies 9.1.5, 9.1.7)</td>
<td></td>
</tr>
<tr>
<td>Policy sections address distinct elements of the District's natural environment, its forests and soils (Section 9.2), its aquatic systems (Section 9.3), and its potential natural hazards (Section 9.4)</td>
<td></td>
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<thead>
<tr>
<th><strong>Strategy 3.2.5</strong></th>
<th>Develop and manage municipal components of regional greenways and trails</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greenways and trails system managed and coordinated with regional and other authorities (Policies 4.1.3, 4.1.4, 4.1.5, 4.1.14, 4.1.15)</td>
<td></td>
</tr>
<tr>
<td>New trails planned for in growth areas (Policy 4.2.2)</td>
<td></td>
</tr>
<tr>
<td>Region-wide cycling network coordinated (Policy 5.3.4)</td>
<td></td>
</tr>
<tr>
<td>Pedestrian and bicycle networks integrated with trails system (Policies 5.2.6, 5.3.5)</td>
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<thead>
<tr>
<th><strong>Strategy 3.2.6</strong></th>
<th>Identify measures to protect, enhance and restore ecologically important systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition, such as eco-gifting, or dedication of parkland considered to preserve ecological functions (Policies 4.2.6, 4.2.7, 9.1.3)</td>
<td></td>
</tr>
<tr>
<td>Conservation tools such as covenants, land trusts and tax exemptions supported where appropriate (Policy 9.1.6)</td>
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<tr>
<th><strong>Strategy 3.2.7</strong></th>
<th>Consider watershed, ecosystem and/or integrated stormwater management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy and Target established to prepare integrated stormwater management plans for all urban watersheds (Target 9, Policy 9.3.1)</td>
<td></td>
</tr>
<tr>
<td>Policies in Section 9.3 established to manage watershed and foreshore aquatic systems (Section 9.3)</td>
<td></td>
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<thead>
<tr>
<th><strong>Strategy 3.3.4 a</strong></th>
<th>Identify land development and transportation strategies to reduce greenhouse gases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Targets to reduce greenhouse gas emissions by 33% by 2030 (Target 10), which works towards regional target</td>
<td></td>
</tr>
<tr>
<td>Growth management strategy to direct 75-90% of anticipated residential development to four transit friendly centres (Target 1, Policy 1.3, 1.4). Centres include the Municipal Town Centre and two proposed FTDAs.</td>
<td></td>
</tr>
<tr>
<td>High quality pedestrian, bicycle, and transit facilities and infrastructure provided in centres to promote alternatives to the car (Section 5.1)</td>
<td></td>
</tr>
<tr>
<td>Transit, bicycle, pedestrian mode share of 35% established for 2030 (Target 5)</td>
<td></td>
</tr>
</tbody>
</table>
| **Strategy 3.3.4 b** | Network support for alternative energy vehicles provided as necessary (Policy 5.5.8)  
| Identify land use and transportation infrastructure policies to reduce energy consumption and greenhouse gases, and improve air quality | Green building practices promoted (Policy 10.1.1, and Centres policies in Schedule A)  
| | Building retrofits and energy ratings for home sales encouraged (Policies 10.1.2, 10.1.3)  
| | Section established to support alternative energy systems, including district systems (Section 10.2)  
| | High quality pedestrian, bicycle, and transit facilities and infrastructure provided in centres to promote alternatives to the car (Section 5.1), includes design expectations (Policies 5.1.3, 5.1.4, 5.1.5, 5.2.4, 5.3.6)  
| | Pedestrian and bicycle access to transit enhanced (Policies 5.2.7, 5.3.7, 5.4.5, 5.5.6)  
| | Air quality considered in land use and transportation planning (Policies 9.5.2, 9.5.3) |
| **Strategy 3.3.4 c** | Infrastructure provision integrated with land use, transportation planning, energy conservation considerations and urban design (Policy 1.6)  
| Focus infrastructure and amenity investments in centres and corridors | Infrastructure investment directed to centres (Policy 2.1.4)  
| | Infrastructure planning, management and investment, coordinated with the Network of Centres and corridors connecting them (Policies in Section 11.1)  
| | Specific Community Amenity Contributions strategies to be developed for growth centres (Section 12.3.3) |
| **Strategy 3.3.4 d** | Target established to prepare integrated stormwater management plans for all urban watersheds (Target 9, Policy 9.3.1)  
| Support integrated stormwater management and water conservation | Green building practices promoted (Policy 10.1.1, and Centres policies in Schedule A), includes water conservation |
| **Strategy 3.4.4** | Natural hazard risks managed in development (Policies 9.4.1, 10.4.1) and through development permit areas (Schedule B)  
| Encourage settlement patterns that minimize climate change and natural hazard risks | Climate change risks to be assessed to inform community planning and design (Policy 10.4.2) |
Strategy 3.4.5
Consider climate change and natural hazard risk assessments in planning municipal assets

Climate change risks to be assessed to inform asset management and infrastructure planning (Policy 10.4.2)

Regional Goal 4: Develop Complete Communities

The establishment of a Network of Centres through growth management and urban structure policies, and the housing, social well-being and community infrastructure directions to support those centres, contained in the District’s OCP (chapters 1, 2, 6 and 7) work together to establish complete communities. This OCP leverages residential growth to provide more diverse and affordable housing options, and promotes social well-being and community health through accessible services and amenities.

SPECIFIC ACTIONS

Strategy 4.1.7 a
Work towards meeting future housing demand estimates

OCP identifies capacity for an additional 10,000 units over a 20-year planning horizon, which fully accommodates the 10-year housing demand estimate of 4,000 units over the next 10 years. The District will work towards addressing the sub-components of this demand (Strategy 4.1.7 a i to iv) as described below.

Housing Action Plan(s) are also directed to be undertaken (Policies 2.3.5, 7.1.2) and are identified as an implementation strategy to achieve OCP housing goals and objectives (Section 12.3.1).

Strategy 4.1.7 a i
Articulate the need for housing diversity

The District’s urban structure directs Commercial Residential Mixed Use and multifamily developments to centres (Policies 2.1.2, 2.2.4, 2.2.5)

A broad range of housing types are provided for (Policies in Section 7.1)

Balanced and diverse housing supply promoted as an economic benefit (Policy 8.1.1)

Schedule A, Town and Village Centre Policies includes housing policies for each centre which encourage family, seniors, rental, affordable and adaptable/accessible housing relative to specific centres current and future profiles. More detailed housing policies are being developed in Centres Implementation plans.

Target established to move from 70/30 to 55/45 percent split of single to multifamily units by 2030 (Target 2)
<table>
<thead>
<tr>
<th>Strategy 4.1.7 a ii</th>
<th>Increase diverse supply through infill and increased density</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Commercial Residential Mixed Use and multifamily developments in centres (Policies 2.1.2, 2.2.4, 2.2.5, Target 2) increase supply and diversity of housing by allowing increased density and more compact housing than existing predominantly single family stock. Neighbourhood Infill Plans and Housing Action Plans to be undertaken to identify sensitive infill options (such as coach houses, duplexes) in appropriate locations including sites adjacent to centres, corridors, commercial, institutional uses (Policies 2.3.5, 2.3.6, 2.4.3, 7.1.2, Section 12.3.1).</td>
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<thead>
<tr>
<th>Strategy 4.1.7 a iii</th>
<th>Assist senior governments in providing affordable rental</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Collaboration with senior levels of government to achieve housing goals promoted (Policies 7.3.6, 7.4.1, 7.4.5) Rental housing supported through Section 7.2, with specific direction to include rental and affordable housing policies in plans for transit-oriented centres (Policies 7.2.7, 7.3.2). Housing policies in sections on Lynn Valley and Lower Lynn Town Centres and in Maplewood and Lower Capilano-Marine Village Centres promote provision of affordable and rental housing Density bonus provisions and other incentives applied as appropriate to incentivize affordable housing (Policy 7.3.3)</td>
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<thead>
<tr>
<th>Strategy 4.1.7 a iv</th>
<th>Facilitate affordable housing through diverse municipal measures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>District land and facilities to facilitate and help leverage affordable housing (Policies 7.4.3, 7.4.4) Parking reductions in centres considered (Policy 5.1.8) and applied as appropriate as an incentive to affordable housing (Policy 7.3.3) Financial incentives such as reduced development cost charges considered (Policy 7.3.7)</td>
</tr>
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<tr>
<th>Strategy 4.1.8 a to f</th>
<th>Prepare and implement Housing Action Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Direction to undertake Housing Action Plan(s) provided for (Policies 2.3.5, 7.1.2) with Housing Action Plan(s) identified as an implementation strategy to achieve OCP housing goals and objectives (Section 12.3.1). Consistency with regional expectations of the Housing Action Plans described in 4.1.8 sub-bullets a to f will be achieved through the District’s Housing Action Plans.</td>
</tr>
<tr>
<td>Strategy 4.2.4 a</td>
<td>Support compact Commercial Residential Mixed Use communities</td>
</tr>
<tr>
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<tr>
<td>Residential and commercial growth is directed to a network of transit oriented centres (Policies 1.3, 1.4)</td>
<td></td>
</tr>
<tr>
<td>Land use and urban design considerations are made to ensure centres have high quality transit, pedestrian and bicycle infrastructure and service opportunities (Section 5.1 and Policies in sections on Lynn Valley and Lower Lynn Town Centres and in Maplewood and Lower Capilano-Marine Village Centres)</td>
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<thead>
<tr>
<th>Strategy 4.2.4 b</th>
<th>Locate community hubs and affordable housing in transit accessible areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community infrastructure investment is directed to centres (Policy 2.1.4) and infrastructure planning is coordinated with the Network of Centres (Section 11.1)</td>
<td></td>
</tr>
<tr>
<td>Target for a community hub facility within easy access of each centre established (Target 6)</td>
<td></td>
</tr>
<tr>
<td>Provision of rental and affordable housing focussed in centres (Policies 7.2.7, 7.3.2 and policies in sections on Lynn Valley and Lower Lynn Town Centres and in Maplewood and Lower Capilano-Marine Village Centres)</td>
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<thead>
<tr>
<th>Strategy 4.2.4 c</th>
<th>Provide public spaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>New park and open space provided in centres (Policy 4.2.2)</td>
<td></td>
</tr>
<tr>
<td>Public realm and pedestrian environment improved (Policies 5.1.5, 5.1.6)</td>
<td></td>
</tr>
<tr>
<td>Target for a community hub facility within easy access of each centre established (Target 6)</td>
<td></td>
</tr>
<tr>
<td>Public space in public facilities retained (Policy 6.3.8)</td>
<td></td>
</tr>
<tr>
<td>Outdoor and indoor facilities integrated to contribute to public realm (Policy 6.3.10)</td>
<td></td>
</tr>
<tr>
<td>Policies in sections on Lynn Valley and Lower Lynn Town Centres and in Maplewood and Lower Capilano-Marine Village Centres support community facility, open space and public realm enhancements</td>
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<thead>
<tr>
<th>Strategy 4.2.4 d</th>
<th>Support active living</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy and active living promoted (Policy 6.2.4)</td>
<td></td>
</tr>
<tr>
<td>Extensive and high quality parks and outdoor recreation opportunities provided (Sections 4.1 and 4.2)</td>
<td></td>
</tr>
<tr>
<td>Enhanced pedestrian and bicycle environments provided (Sections 5.1, 5.2, 5.3 and policies in sections on Lynn Valley and Lower Lynn Town Centres and in Maplewood and Lower Capilano-Marine Village Centres)</td>
<td></td>
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<tr>
<td>Strategy 4.2.4 e</td>
<td>Support food production and distribution</td>
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<tr>
<td>Local food production and distribution supported through community gardens, urban agriculture, farmers markets and other initiatives (Policies 6.3.12, 6.3.13, 6.3.14, 6.3.15)</td>
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</tbody>
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<tr>
<th>Strategy 4.2.4 f</th>
<th>Assess health implications in planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memorandum of understanding signed between District and local health authority to integrate health perspectives into OCP planning process and content development (Introduction, Acknowledgements section). OCP urban structure of a network of pedestrian and cycle friendly centres has positive health implications (Chapters 2 and 5) Air quality improvements promoted through regional directives, land use and transportation planning, promotion of clean fuel, and anti-idling initiatives (Section 9.5)</td>
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<tr>
<th>Strategy 4.2.4 g</th>
<th>Support universally accessible community design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age and disability friendly community and services/facilities provided for (Policies 6.3.2, 6.3.3) Adaptive Design provided for in residential development (Policy 7.1.5) Centres and corridors encouraged to be universally accessible (Policy 5.1.4) Universal accessibility at transit stops worked towards (Policy 5.4.8)</td>
<td></td>
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<tr>
<th>Strategy 4.2.4 h</th>
<th>Identify small scale local centres</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Network of Centres established (Policy 1.3) comprising two Town Centres (Lynn Valley and Lower Lynn - Policy 2.1.1) and six Village Centres (Maplewood, Lower Capilano/Marine drive, Queensdale, Deep Cove, Parkgate, Edgemont - Policy 2.2.1) In addition to the Municipal Town Centre (Lynn Valley Town Centre), Lower Lynn Town Centre and Lower Capilano/Marine Village Centre are proposed as FTDAs A transit supportive mix of uses is provided in each centre according to their scale (Policies 1.4, 2.1.2, 2.1.3, 2.2.3, 2.2.4, 2.2.5)</td>
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<thead>
<tr>
<th>Strategy 4.2.4 i</th>
<th>Recognize Special Employment Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>There are no Special Employment Areas of regional significance in the District Local Centres (as per regional Map 11) that are not FTDAs are recognized as Village Centres (Section 2.2) Capilano University is recognized as being integrated with the District's transit friendly Network of Centres (Policy 2.2.8)</td>
<td></td>
</tr>
</tbody>
</table>
Regional Goal 5: Support Sustainable Transportation Choices

This OCP coordinates land use and transportation planning to enable greater alternatives to the car, and provides for safe and efficient goods and vehicle movement (Chapters 2 and 5). The Network of Centres provides a compact and connected urban form that supports walkable communities, hubs for the bicycle network and enhanced transit potential. Managing the road network strategically enhances port access and supports people and goods movement. The Plan Implementation Strategies in 12.3 of the OCP include preparation of Strategic Action Plans in specific policy areas including Transportation. Following adoption of the OCP, the Transportation Plan was prepared and approved by Council in 2012. It contains detailed strategies to implement OCP transportation policies and encompasses areas pertaining to: Walking, Cycling, Transit, Road Safety, Road Designation, Road Network, Transportation Demand Management and Funding, Implementation and Monitoring.

SPECIFIC ACTIONS

**Strategy 5.1.6 a**
Encourage a greater share of transit, cycling and walking trips and support TransLink’s Frequent Transit Network

Target established of achieving a 35% mode share of transit, walking and cycling trips (Target 5)

An appropriate mix and intensity of land uses established to support enhanced transit (Policy 1.4) and transportation planning integrated with land use (Policy 1.6)

Urban structure of a Network of Centres facilitates greater transit between centres and walking/cycling within (Chapter 2)

High quality transit, pedestrian and bicycle facilities and infrastructure promoted within the Network of Centres (Section 5.1)

Mobility maps and associated policies in sections on Lynn Valley, Lower Lynn, Maplewood and Lower Capilano-Marine centres support transit, cycling and walking

**Strategy 5.1.6 b**
Support transportation system demand management and supply measures

Parking reductions in centres and FTDAs considered (Policy 5.1.8, Regional Features Map)

Centres Implementation Plans include parking strategies and considering parking reductions where appropriate and frequent transit available.

Transit priority measures provided where appropriate (Policies 5.4.4, 5.5.2)

Policies supporting pedestrian facilities in Section 5.2

Policies supporting bicycle infrastructure including end of trip facilities (Policy 5.3.6) in Section 5.3

Policies in sections on Lynn Valley, Lower Lynn, Maplewood and Lower Capilano-Marine centres support transit, cycling and walking
**Strategy 5.1.6 c**
Manage and enhance municipal infrastructure to support of transit, cycling and walking

- Municipal infrastructure provision integrated with land use, transportation, parks planning and urban design (Policy 1.6)
- Infrastructure investment focussed in transit, cycle and pedestrian friendly centres (Policy 2.1.4)
- Pedestrian, bicycle, and transit needs considered in all road projects (Policies 5.2.1, 5.3.1, 5.4.1, 5.5.1)
- Transit supportive road treatments provided for (Policies 5.4.4, 5.5.2)
- Pedestrian and bicycle infrastructure enhanced (Policies 5.1.6, 5.1.7, 5.2.2, 5.2.3, 5.3.2, 5.3.3)
- Parks and trails integrated with pedestrian and bicycle networks (Policies 5.2.6, 5.3.5)

**Strategy 5.2.3 a**
Map goods and service vehicle movement routes

- Roads and Goods Movement Concept Map is included in the OCP as Map 5, which indicates routes for goods and service vehicles
- Detailed network maps are included in the Transportation Plan (described as an OCP implementation strategy, Section 12.3.1)

**Strategy 5.2.3 b**
Support efficient movement of goods, services and passengers

- Land use and integrated transportation policies creating a Network of Centres optimize passenger and goods movement on the road network by facilitating transit, pedestrian and bicycle transportation, thereby taking pressure off road network (Sections 2.1, 2.2, 5.1, 5.2, 5.3, 5.4)
- Goods movement facilitated (Policy 5.5.3)
- Arterials managed to maintain flow and mobility (Policy 5.5.5)
- Partner with regional, provincial and federal authorities to facilitate bridgehead and port access (Policies 5.5.3, 5.5.10)
- Detailed network management policies will be prepared through the Transportation Plan (described as an OCP implementation strategy, Section 12.3.1)
- Employment Lands Policy 3.4.1 to promote infrastructure, transportation and municipal service improvements in employment lands
Strategy 5.2.3 c
Support development of transportation system, management strategies

Transit priority and network management supported through features such as signal timing and lanes (Policies 5.4.4, 5.5.2)

Detailed network management policies will be prepared through the Transportation Plan (described as an OCP implementation strategy, Section 12.3.1)

Strategy 5.2.3 d
Support protection of rail rights-of-way and waterway access

Policy 5.5.3 to facilitate effective goods movement and work with federal and provincial agencies to improve access to key port, industrial and commercial areas, while encouraging goods movement by rail or water

Industrial land uses as indicated on Map 2, DNV OCP Land Use Map which protects port uses.

Map 5 – DNV Roads and Goods Movement Concept Map maintains rail corridors.

Goods movement and transportation improvements promoted for employment areas, including port (Policies 3.4.1, 8.1.4)

Detailed network management policies prepared through the Transportation Plan (described as an OCP implementation strategy, Section 12.3.1). Council approved the Transportation Plan in 2012.
The Regional Features Map shows the LRSP Green Zone areas in the District’s 1998 Regional Context Statement and the "Residential Green Zone" areas as well. The "Conservation and Recreation Green Zone" areas are existing Green Zone in the LRSP and Conservation and Recreation in the proposed RDS. The "Residential Green Zone" areas are a combination of Conservation and Recreation areas that are additional to the Green Zone in the proposed RDS. The purpose of this map is to support the Regional Context Statement by providing a visual representation of the areas designated as Parks, Open Space, and Natural Areas in the District OCP Land Use Map (Map 2).
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