# Table of Contents

## Agenda and Reports

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
</table>
| 1) | **Public Hearing Agenda**  
   Will be published November 3, 2020                                         |
| 2) | **Staff Report** - September 29, 2020  
   This report provides an overview of the project and the land use issues related to the review of this Rezoning Bylaw. |
| 3) | **Bylaw 8449**, which rezones the subject site from RS3 to CD129 to enable the development of a three-unit ground-oriented residential development. |
| 4) | **Notice**                                                                     |

## Additional Information

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
</table>
| 5) | **Minutes** - Regular Meeting of Council held October 19, 2020  
   Will be added once adopted by Council and signed by the Mayor and Clerk |
| 6) | **Land Use**  
   - Official Community Plan Land Use Designation Map  
   - Lynnmour / Inter-River Local Plan Reference Policy Document |
| 7) | **Traffic and Parking**  
   - Inter-River Sub Area Transportation Study |
| 8) | **Construction Management Plan**  
   - Creus Engineering Ltd. – March 2020 |
| 9) | **Design**  
   - Form and Character Guidelines for Ground Oriented Housing DPA  
   - Lynnmour / Inter-River Area One Design Guidelines for Multiplexes and Townhouses |
| 10) | **Design**  
   - Site Plan  
   - Material Board illustrating proposed building materials for the project  
   - Architectural Plans for the project  
   - Landscape Plans for the project  
   - Civil Key Plan |
| 11) | **Arborist Report and Wildfire Hazard Assessment** - report for the trees and hedge on site and immediately adjacent to the site by B.A. Blackwell & Associates Ltd. dated April 14, 2020. |
| 12) | **Energy and Water Conservation and Greenhouse Gas Emissions Reduction Response** |
| 13) | **Geotechnical and Flood Hazard Assessment Report** - Prepared by Ground Up Geotechnical, dated September 24, 2018, speaking to the soil conditions and flood construction level for the site. |
| 14) | **Past Public Input**  
- Information Report on Public Information Meeting (to provide information about the meeting prior to the meeting)  
- Public Information Meeting - Facilitator’s Report (reporting on the public information meeting) |
| 15) | **Public Input** - Correspondence / submissions from the public since 1st Reading given October 19, 2020 |
The District of North Vancouver
REPORT TO COUNCIL

September 29, 2020
File: 08.3060.20/012.19

AUTHOR: Ashley Bellwood, Planning Assistant

SUBJECT: Bylaw 8449: Rezoning for a Three-Unit Ground-Oriented Housing Project at 840 St. Denis Avenue

RECOMMENDATION

THAT "District of North Vancouver Rezoning Bylaw 1400 (Bylaw 8449)" is given FIRST reading;

AND THAT "District of North Vancouver Rezoning Bylaw 1400 (Bylaw 8449)" is referred to a Public Hearing.

REASON FOR REPORT

Implementation of the proposed project requires Council’s consideration of:
- Bylaw 8449 to rezone the subject property; and
- Issuance of a development permit.

The rezoning bylaw is recommended for introduction and referral to a Public Hearing. A development permit would be forwarded to Council for consideration if the rezoning proceeds.

SUMMARY

Ms. Carman Kwan of Architectural Collective Inc. has applied on behalf of the owners of the property to develop the site as a three-unit ground-oriented residential development compromising one duplex and one single unit.
The development site is located on St. Denis Avenue, north of East Keith Road and Highway 1. Surrounding properties include a multi-family residential development to the north and single-family residential homes to the south; park land adjacent to Lynn Creek to the west; and Lynnmour Elementary School to the east.

EXISTING POLICY

Official Community Plan

The Official Community Plan (OCP) designates the site as "Residential Level 3: Attached Residential" (RES3), which envisions ground-oriented multifamily housing of up to approximately 0.8 FSR.

The Lynnmour/ Inter-River Local Plan reference policy document supports the redevelopment of single lots that are sized between 743.3 m² (8,001 sq. ft.) and 1,114.8 m² (12,000 sq. ft.) with duplex or triplex development to a maximum density of 0.5 FSR.

The proposal is consistent with the provisions of both the Official Community Plan and the reference policy document, as it proposes a density of 0.5 FSR.

The proposed units all contain three bedrooms, which will be attractive to families, and as such responds to Goal #2 of the OCP to “encourage and enable a diverse mix of housing types...to accommodate the lifestyles and needs of people at all stages of life.” It also addresses the intent of the housing diversity policies in Section 7.1 of the OCP by providing neighbourhood infill near Town and Village Centres (Policy 7.1.2).
Zoning

The subject property is currently zoned Single Family Residential 7200 Zone (RS3). Rezoning is required to accommodate the project and Bylaw 8449 proposes to create a new Comprehensive Development Zone 129 (CD129) tailored specifically to this project. The proposed CD129 zone prescribes permitted uses and zoning provisions including a maximum density of 0.5 FSR, height, setbacks, and parking requirements.

ANALYSIS:

Site Plan and Project Description

The project consists of three residential units within two buildings. A duplex building is located at the front of the site, and a second building with a single unit at the rear. The units are each two storeys in height and have an attached single-car garage. A total of six on-site parking spaces are provided, in a configuration of three garages and three unenclosed spaces, all accessed through a driveway from St. Denis Avenue.

All of the units have three bedrooms on the second floor, and range in size from 146 m² (1,549 sq. ft.) to 160 m² (1,723 sq. ft.), excluding garages. Two of the units have decks on the second floor that face the driveway or the street, and away from the multi-family development to the north. The buildings are approximately 9.14 m (30 ft.) in height. Project renderings are included on the following page.
The subject property is located within the following Development Permit Areas (DPA's):

- Form and Character of Multi-Family Development (Ground-Oriented Housing);
- Energy and Water Conservation and Greenhouse Gas Emission Reduction; and
- Protection of Development from Hazardous Conditions (Wildfire Hazard and Creek Hazard).

a) Form and Character of Multi-Family Development (Ground-Oriented Housing):

Under the BC Building Code, a project of this size is not required to be designed by a registered architect, and therefore, was not considered by the Advisory Design Panel. The application was reviewed by the District’s Urban Design Planner for conformity with the Official Community Plan’s design guidelines for ground-oriented housing and the Lynnmour / Inter-River Area One Design Guidelines for Multiplexes and Townhouses. Staff note that the proposed development provides a suitable transition from the existing multi-family site to the north and the existing single family site to the south.
b) Energy and Water Conservation and Greenhouse Gas Emission Reduction:

The proposal is consistent with the Official Community Plan guidelines for Energy and Water Conservation and Greenhouse Gas Emission Reduction, and the proposal will meet Step 3 of the BC Energy Step Code, in accordance with the District’s Construction Bylaw.

The applicant is proposing to include rough-ins for “Level 2” electric vehicle charging stations for the exterior parking spaces and conduits to allow for future solar panel installation. These features will be secured through a development covenant should the application proceed through the rezoning process.

c) Protection of Development from Hazardous Conditions (Wildfire Hazard):

The proposal is consistent with the Official Community Plan guidelines for Protection from Natural Hazards (Wildfire Hazard). A Wildfire Hazard Assessment Report by B.A. Blackwell & Associates Ltd. was submitted as part of the application and the project is designed in accordance with the recommendations of the report.

d) Protection of Development from Hazardous Conditions (Creek Hazard):

The proposal is consistent with the Official Community Plan guidelines for Protection from Natural Hazards (Creek Hazard). A Creek Hazard Assessment Report by Ground Up Geotechnical was submitted as part of the application and the project is designed in accordance with the recommendations of the report.

A detailed development permit review, outlining the project’s compliance with the applicable DPA guidelines, will be provided for Council’s consideration at the Development Permit stage should the rezoning advance.

Accessibility

The District’s Accessible Design Policy for Multifamily Housing applies only to multifamily rezoning applications proposing four or more ground-oriented multi-family units. As this project is proposing three ground-oriented multifamily units, compliance with the policy is not mandatory.

Due to flood protection requirements, all habitable space needs to be built above a minimum flood construction level and cannot be accessed without stairs. While not required by the policy, the applicant is proposing to include provisions for stair lifts at the exterior unit entrances. Provisions for a stair lift within each unit are also included. These features will be secured through a development covenant should the application proceed through the rezoning process.
Vehicle Parking

The application provides six parking stalls for residential uses (including one visitor parking stall), as required by the Zoning Bylaw. All parking provided is at surface level, and is in a combination of three private single car-garages and three unenclosed parking stalls. The Zoning Bylaw permits a maximum of two small car parking spaces. As the proposal includes three, the CD129 zone is written to permit a maximum of three small-car parking spaces.

The Lynnmour/ Inter-River Area One Guidelines indicate that any single lots developing on their own must design their driveway so that it can be later shared if the neighbouring property develops. The applicant has designed the driveway to accommodate future development to the south, and shared access will be secured via an easement.

Bicycle Parking and Storage

The District's Bicycle Parking and End-of-Trip Facilities policy requires a minimum of six bicycle parking spaces. The development proposes to provide one secured bicycle locker for each dwelling unit, for a total of three dedicated bicycle parking spaces. Additional bicycle parking, in compliance with the policy, will be available within the garage and private storage space in each unit. By providing secured bicycle storage for the residents of the site, the proposal supports the use of alternate transportation to access nearby amenities in Lynn Creek Town Centre via new cycling infrastructure nearby.

Off-site Improvements

The application will provide improved street frontages with street tree plantings, streetlight upgrades, sidewalk and boulevard improvements, as well as curb, gutter, and paving installations along the property frontage on St. Denis Avenue.

The estimated total value of off-site works (engineering and landscaping) is approximately $85,000. This estimate has been provided by the applicant, and the full scope (and value) of required off-site construction will be determined through the detailed design work at the Building Permit stage.

The project will pay Development Cost Charges (DCC's) at the applicable rate at the date of Building Permit submission, should the rezoning be successful. The District's DCC's, at the 2020 rate, are currently estimated at $37,159.95.

Community Amenity Contribution

The District's Community Amenity Contribution (CAC) Policy outlines expectations for contribution for projects which result in an increase in density. A CAC of $3,089.24 is included in the proposed CD129 Zone. It is anticipated that the CAC's from this
development will be directed toward the affordable housing fund; park and trail improvements; public art; or other public realm infrastructure improvements.

**Landscaping**

Landscaping is proposed in accordance with the Wildfire Hazard Development Permit Area and FireSmart Guidelines. A more detailed review of the landscape plan will be included in the development permit report should the rezoning proposal proceed.

Five on-site trees, including one large diameter tree and four smaller trees, as well as one additional tree on the neighbouring property to the south are slated for removal. Neighbour consent has been provided for removal of the off-site tree. As compensation for the removal of the large diameter tree, the applicant is proposing to replant four deciduous trees.

![Landscape Plan](image)

**Concurrence:**

The project has been reviewed by staff from the Environment, Building and Permits, Legal, Engineering, Community Planning, Urban Design, Transportation, and Fire Departments.

As District of North Vancouver Rezoning Bylaw 8449 affects land lying within 800 m of a controlled access intersection, approval by the Provincial Ministry of Transportation and Infrastructure will be required after third reading of the bylaw and prior to bylaw adoption.
Construction Traffic Management Plan:

In order to reduce development’s impact on pedestrian and vehicular movements, the applicant is required to provide a Construction Traffic Management Plan (CTMP) as a condition of a development permit. The CTMP must outline how the applicant will coordinate with any other projects in the area (including Highway 1 improvements) to minimize construction impacts on pedestrian and vehicle movement on St. Denis Avenue. The plan is required to be approved by the District prior to issuance of a building 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 residents.

Public Input

The applicant held a facilitated Public Information Meeting on June 26, 2019.

Notices were distributed to neighbours in accordance with the District’s policy on Non-Statutory Public Consultation for Development Applications. Two signs were installed to notify passers-by of the meeting; one was placed on the site and the other was placed at the corner of St. Denis Avenue and E. Keith Road. Advertisements were placed in the North Shore News.

The meeting was attended by one resident. Comments provided noted support for the development as long as it integrated well with the surrounding neighbourhood. The facilitator’s report is attached as Attachment C.

Following the Public Information Meeting, the applicant revised their design to include balconies at the second floor level in two of the units. The applicant contacted adjacent neighbours for comments on the change; the neighbour to the south confirmed that they had no concerns and the neighbour to the north did not provide any comments. For reference, the second floor balconies that were added are situated on the south side of the development, away from the neighbour to the north.

Implementation

Implementation of this project will require a rezoning, as well as issuance of a development permit and registration of legal agreements.

Bylaw 8449 (Attachment B) rezones the subject site from RS3 to a new Comprehensive Development Zone 129 (CD129) which:
- establishes the permitted residential use;
- allows home occupations as an accessory use;
- establishes the maximum permitted floor area on the site;
- establishes setback and building height regulations; and,
- establishes parking regulations specific to this project.
A legal framework will be required to support the project and it is anticipated that a development covenant will be used to secure items such as the details of off-site servicing requirements. Additional legal documents required for the project will include:

- development covenant to reference the general form and layout of project as well as requirements for off-site servicing;
- flood protection covenant;
- stormwater management covenant; and
- easement granting the property to the south access through the proposed driveway to accommodate future potential development.

CONCLUSION:

This project assists in implementation of the objectives of the District’s Official Community Plan and reflects the expectations outlined in the Lynnmour/ Inter-River Local Plan reference policy document. The rezoning proposal is now ready for Council’s consideration.

Options:

The following options are available for Council’s consideration:

1. Give Bylaw 8449 First Reading and refer Bylaw 8449 to a Public Hearing (staff recommendation);
2. Refer Bylaw 8449 back to staff; or,
3. Give Bylaw 8449 no readings and abandon Bylaw 8449.

Ashley Bellwood
Planning Assistant

Attachments:
A. Architectural and Landscape Plans
B. Bylaw 8449 – Rezoning
C. Facilitator Report for Public Information Meeting
SUBJECT: Bylaw 8449: Rezoning for a Three-Unit Ground-Oriented Housing Project at 840 St. Denis Avenue

September 29, 2020

<table>
<thead>
<tr>
<th>REVIEWED WITH:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Planning</td>
</tr>
<tr>
<td>Development Planning</td>
</tr>
<tr>
<td>Development Engineering</td>
</tr>
<tr>
<td>Utilities</td>
</tr>
<tr>
<td>Engineering Operations</td>
</tr>
<tr>
<td>Parks</td>
</tr>
<tr>
<td>Environment</td>
</tr>
<tr>
<td>Facilities</td>
</tr>
<tr>
<td>Human Resources</td>
</tr>
<tr>
<td>Review and Compliance</td>
</tr>
</tbody>
</table>

External Agencies:
- Library Board
- NS Health
- RCMP
- NVRC
- Museum & Arch.
- Other:

Document: 4446080
The Corporation of the District of North Vancouver

Bylaw 8449

A bylaw to amend District of North Vancouver 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 1400 (Bylaw 8449)”.

Amendments

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

(a) Part 2A, Definitions is amended by adding CD129 to the list of zones that Part 2A applies to.

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

“Comprehensive Development Zone 129 CD129”

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

“4B 129 Comprehensive Development Zone 129 CD129

The CD129 zone is applied to:

Lot 4 of Lot 5, Block A, District Lot 613, Plan 2459 PID: 013-739-808

4B 129 – 1 Intent

The purpose of the CD129 Zone is to establish specific land use and development regulations for a three-unit ground-oriented housing project.

4B 129 – 2 Permitted Uses:

The following principal uses shall be permitted:

a) Uses Permitted Without Conditions:

Not applicable.
b) Conditional Uses:

*Residential use*

**4B 129 – 3 Conditions of Use**

a) **Residential:** Residential uses are only permitted when the following conditions are met:

i. Each dwelling unit has access to private or semi-private outdoor space;

ii. Balcony and deck enclosures are not permitted.

**4B 129 – 4 Accessory Use**

a) Accessory uses customarily ancillary to the principal uses are permitted.  
b) Home occupations are permitted in residential units.

**4B 129 – 5 Density**

a) The maximum permitted density is limited to a floor space ratio (FSR) of 0.45 and a maximum of one unit;  
b) For the purpose of calculating gross floor area, the following are exempted:

i. Garages to a maximum of 27 m² (290 sq. ft.) per unit;  
ii. Storage areas to a maximum of 9.29 m² (100 sq. ft.) per unit;  
iii. Residential garbage enclosures and bicycle storage lockers; and  
iv. Porches, patios, verandas and balconies.

c) For the purposes of calculating FSR the lot area is deemed to be 844.12 m² (9,086 sq. ft.) at the time of rezoning.

**4B 129 – 6 Amenities**

a) Despite Subsection 4B 129 – 5, the maximum permitted density in the CD129 Zone is increased to 422.1 m² (4,543 sq. ft.) of gross floor area, and three units, if $3,089.24 is contributed to the municipality to be used for any of the following amenities (with allocation and timing of expenditure to be determined by the municipality in its sole discretion): the affordable housing fund; public art; natural environment, park, trails, pedestrian or other public realm or infrastructure improvements, including flood protection; and/or municipal, recreation or community services, or social service facility or improvements.
4B 129 – 7 Setbacks

a) Buildings shall be set back from property lines to the closest building face in accordance with the following table:

<table>
<thead>
<tr>
<th>Setbacks</th>
<th>Minimum Required Setback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front (west)</td>
<td>4.57 m (15 ft.)</td>
</tr>
<tr>
<td>Rear (east)</td>
<td>6.1 m (20 ft.)</td>
</tr>
<tr>
<td>Side (north)</td>
<td></td>
</tr>
<tr>
<td>- for buildings located within 26.6 m (77 ft.) of the west property line</td>
<td>1.2 m (4 ft.) for the first storey; and 1.8 m (6 ft.) for the second storey.</td>
</tr>
<tr>
<td>- for buildings located more than 26.6 m (77 ft.) from the west property line</td>
<td>3.4 m (11.2 ft.)</td>
</tr>
<tr>
<td>Side (south)</td>
<td></td>
</tr>
<tr>
<td>- for buildings located within 26.6 m (77 ft.) of the west property line</td>
<td>5.4 m (17.7 ft.)</td>
</tr>
<tr>
<td>- for buildings located more than 26.6 m (77 ft.) from the west property line</td>
<td>4.0 m (13.1 ft.)</td>
</tr>
</tbody>
</table>

b) Decks, balconies, and patios may encroach into the setback requirements noted in Section 4B 129-7, but must be set back a minimum of 1.0 m (3.3 ft.) from any property line.

4B 129 – 8 Height

The maximum permitted height as calculated from the average grade of a particular building is regulated as follows:

(a) For buildings or portions of buildings located within 26.6 m (77 ft.) of the west property line:
   i. 9 m (29.5 ft.)

(b) For buildings located more than 26.6 m (77 ft.) from the west property line:
   ii. 8.1 m (26.5 ft.)

4B 129 – 10 Flood Construction Requirements:

No basement or habitable floor space, other than garage and storage space, shall be constructed below the established flood construction level as identified in a flood hazard report prepared by a qualified registered professional engineer.
4B 129 – 11 Coverage

a) Building Coverage: The maximum building coverage is 40%.

b) Site Coverage: The maximum site coverage is 70%.

4B 129 – 12 Landscaping and Storm Water Management

a) All land areas not occupied by buildings and patios shall be landscaped in accordance with a landscape plan approved by the District of North Vancouver; and

b) All electrical kiosks, garbage and recycling container pads, and bicycle parking not located within a building shall be screened.

4B 129 – 13 Parking and Loading Regulations

a) All off-street parking spaces shall comply with the minimum standards established in Part 10 of the District of North Vancouver Zoning Bylaw, except as follows:

   i. Small car parking spaces may be provided in accordance with the requirements in Section 1007, except that up to three small car parking spaces are permitted;

   ii. The driveway shall be a minimum of 3.66 m (12 ft.) in width.”

(d) The Zoning Map is amended in the case of the lands illustrated on the attached map (Schedule A) by rezoning the land from the Single-Family Residential 7200 Zone (RS3) to Comprehensive Development Zone CD129 (CD129).

READ a first time

PUBLIC HEARING held

READ a second time

READ a third time

Certified a true copy of “Bylaw 8449" as at Third Reading

Municipal Clerk
APPROVED by the Ministry of Transportation and Infrastructure on

ADOPTED

______________________________  ________________________________
Mayor                                           Municipal Clerk

Certified a true copy

______________________________
Municipal Clerk
Schedule A to Bylaw 8449

BYLAW 8449
The District of North Vancouver Rezoning Bylaw 1401 (Bylaw 8449)

SINGLE-FAMILY RESIDENTIAL 7200 ZONE (RS3) TO
COMPREHENSIVE DEVELOPMENT ZONE 129 (CD129)
840 St. Denis Avenue, North Vancouver

Public Information Meeting Summary Report

Event Date: June 19, 2019
Time: 6:30pm – 8:30pm
Location: Lynnmour Elementary School, 800 Forsman Avenue, North Vancouver
Attendance: 1 member of the public signed in.
Comments: One comment sheet and one phone call were submitted.

Meeting Purpose:
1) To present development proposal materials to neighbours
2) To provide an opportunity for the public to ask questions about the proposal
3) To provide an opportunity for neighbours to comment on the proposal

Notification:
In accordance with District of North Vancouver policies:

Invitation Brochures
Invitations and informational packages were delivered to 45 addresses within a 100m radius from the site, meeting District requirements. Appendix A includes a copy of this package and a map of the distribution area.

Newspaper Ad
A newspaper ad was placed in the North Shore News on Wednesday, June 12, 2019 and Friday, June 14 2019. A copy of the ad is included in Appendix A.

Notification Signs
Two signs were installed on the property on June 5, 2019 providing two weeks’ notice to neighbours of the meeting. Photographs of the installed signs are provided in Appendix A.

Attendance:
1 member of the public signed in for the meeting. A copy of the redacted sign-in sheet is included in Appendix B.

The following City staff and project team members were in attendance:

District of North Vancouver:
• Ashley Rempel, Planning Assistant

Project Team:
• Bobby Purba, Developer, By Design Construction
Facilitators:
- Steven Petersson, Petersson Planning Consulting
- Katrina May, Petersson Planning Consulting

Overview:
The meeting was held in a Public Information Meeting format. Meeting participants could browse the display boards and engage with the project team directly. The member of the public who attended the meeting was able to engage in a one-on-one conversation with the developer. The facilitator noted questions and comments on a flip chart for all to see.

The participants were invited to submit written comments to the facilitator or to the municipal planner. The comment period remained open from the night of the meeting, June 19, 2019 to July 3, 2019. One comment sheet, as well as one phone call were submitted to the municipal planner.

The tone of the evening was support for this development proposal. The one community member who attended was from West Vancouver and is a member of the Edgemont and Upper Capilano Community Association. They were particularly interested in the design details of this town house proposal and in learning more about active development applications in the DNV. There has been a lot of redevelopment in this neighbourhood already, of former single-family homes into higher density low-rise or high-rise properties. This project is proposed on one of the only remaining underdeveloped sites, and likely did not generate much interest from the community as a result of the timing of the application relative to other nearby new developments that are already underway or completed. The lack of attendance by the public may be indicative of support for, or lack of opposition to, the project application.

The overall development proposal was supported by the participant.

Public Dialogue:
(Q = Question, A = Answer, C = Comment, and the number is to track the dialogue)

Q1 How did you arrive at the design for this project?
   A1 We took inspiration from the surrounding neighbourhood’s form and character.

Q2 Are you subject to a development permit for the creek, to manage storm water?
   A2 Yes we are.

Q3 What will the parking for these homes be like?
   A3 There will be a mix of open carports, encouraging owners to park on their property instead of one the street, as well as enclosed garages, for storage and security.

Q4 Where will the bicycle storage be?
   A4 The exact location is to be determined, with input from the engineering department.
Q5 Are you planning on using solar panels?
A5 This project will be solar ready. We would love to also add radiant heat, air conditioning, and more. It will depend on the price comparables of other nearby projects, and on market demand.

Q6 Would you consider using different colours or materials to provide some distinction to the units?
A6 Yes, we will distinguish each unit using design elements such as door colour, window casings, etc.

Comment Sheet and Email Summary
Participants were invited to submit comments for a two-week response period after the meeting. One comment sheet, as well as one phone call were submitted. The main themes from the comments received included:

- Support for the project
- Support for the design of the project
- The project conforms to the OCP

Conclusion
The purpose of this public information meeting was to present to neighbours the proposed rezoning application, and to provide them with an opportunity to ask clarifying questions and comment on the proposal. 45 invitations were distributed by hand to the surrounding community, and one community member signed in. Two newspaper ads notified the community of the meeting, and a sign was posted on the property. One comment form and one phone call were submitted to the municipal planner.

The public could participate in this process in several ways:
- browsing boards
- talking to the project team and DNV Planner and asking questions
- submitting written comments.

The meeting length and format was sufficient to provide the participant an opportunity to learn more, ask questions, and make the comments they wished to provide that evening. The one participant who attended asked the developer very specific questions around his design decisions and the permitting process at the DNV. There has been a lot of redevelopment in this neighbourhood already, of former single-family homes into higher density low-rise or high-rise properties. This project is proposed on one of the only remaining underdeveloped sites, and likely did not generate much interest from the community as a result of the timing of the application relative to other nearby new developments that are underway or completed already. The lack of public attendance at the meeting may be indicative of support for, or lack of opposition to, the project application. The community was given ample opportunity to express their views of the proposal.
Appendix A: Notification

Newspaper Advertisement: North Shore News, Wednesday, June 12, 2019

P&T Gardens a gem to be respected and cherished

Dear edition,

Park & Tilford Gardens is a special place for me. Growing up within walking distance of the gardens, I remember family visits. Childhood memories from the late ’70s and early ’80s are some of the many fond memories I have of growing up within walking distance of the gardens.

As a young adult, I studied horticulture and trained at Park & Tilford Gardens as a student. Later in my career, I worked at the gardens for five years as an apprentice.

The garden’s brilliant design by Justice and Webb Landscape Architects allowed me to engage a broad range of gardening styles. Horticulture students from Capilano University worked at the gardens every day and this provided me with the opportunity to learn how to trade emerging professionals.

The garden’s relationship with the local community and the Friends of the Garden taught me the value of community engagement.

I went to thank Todd Major for nurturing me through my apprenticeship at Park & Tilford Gardens. I was responsible for making sure that I was provided with opportunities to learn every facet of horticulture. I was dedicated to the garden and cared very much for the students, POGs and local community. As Director of Park & Tilford Gardens, Todd demonstrated a professional, driven and commitment to high standards that I have sought to emulate in my career.

Park & Tilford Gardens has been a cornerstone of my life and provided me with the training that has been the foundation of my horticulture career. It is a gem for the City of North Vancouver that should be respected and cherished.

Barrow, Park & Tilford Gardens. Here’s to the next 30 years!

Elena Derks

Editor, Park & Tilford Gardens
PUBLIC INFORMATION MEETING

A redevelopment is being proposed for 840 St. Denis Avenue to construct a three unit two-storey townhouse project. You are invited to a meeting to discuss the project.

Date: Wednesday, June 19, 2019
Time: 7:00 pm - 8:30 pm
Location of Meeting: Lynnmour Elementary School
800 Forsman Avenue, North Vancouver

The applicant proposes to rezone the site from a single-family zone to a new comprehensive development zone, to permit a 3-unit ground oriented housing project. Each unit is between 1,400 and 1,500 square feet in size and includes an attached single car garage and one covered parking stall.

Information packages are being distributed to residents within a 100 meter radius of the site. If you would like to receive a copy or if you would like more information, contact Bobby Purba of By Design Construction at 604-351-8814, or Ashley Rempel of the Development Planning Department at 604-990-2337, or bring your questions and comments to the meeting.

* This is not a Public Hearing. District of North Vancouver Council will receive a report from staff on issues raised at the meeting and will formally consider the proposal at a later date.
Notification Signs: Installed June 5, 2019
Notification Flyers

By Design Construction Inc. proposes to construct a 3 unit, 2 story townhouse development at 840 St Denis Avenue.

All three townhouses will be 3 bedroom units ranging from 1,400 to 1,500 square feet in size. Each unit will have its own outdoor living area. The site will be accessed from a driveway off of St Denis Avenue. Parking will be at grade with 2 parking spaces designated for each unit; each unit will have an attached single car garage and one covered parking space.

SITE PLAN

FRONT RENDERING

---

Petersson Planning Consulting
Developer's
Public Information Meeting

Proposal:
3-Unit Townhouse Development

7 PM, Wednesday, June 19
Lynnmour Elementary School
800 Forsman Avenue

By Design Construction Inc.
Bobby Purba
604-351-8614

This meeting has been required by the District of North Vancouver as part of the regulatory process.
Notification Area Map
Appendix B – Public Information Meeting Sign-in Sheet

BY DESIGN CONSTRUCTION
840 St. Denis Avenue
Public Information Meeting – June 19, 2019

Sign-in Sheet

<table>
<thead>
<tr>
<th>NAME</th>
<th>ADDRESS</th>
<th>E-MAIL (Optional)</th>
</tr>
</thead>
</table>

The personal information collected on this form is done in pursuant to the Community Charter and/or the Local Government Act and in accordance with the Freedom of Information and Protection of Privacy Act. The personal information collected herein will be used only for the purpose of this public consultation process unless its release is authorized by its owner or is compelled by a Court or an agency duly authorized under another Act.

Further information may be obtained by speaking with The District of North Vancouver’s Manager of Administrative Services at 604 980 2207.

Document: JMK5648
Appendix C – Public Comments: Written Submissions:

From: [Name redacted]
To: FAQ DNV Planning
Subject: 840 St. Denis Avenue - 3 Unit town home development
Date: July 02, 2019 11:35:04 PM

FAQ DNV Planning

I attended the Public Information meeting on June 19th and was glad to see that developers are taking on the challenge of creating extra density which we hear so much about. I understand that the proposal conforms to the OCP requirements and also rezoning to comply with RS3. Therefore I defer to the neighborhood consultation process utilized by Planning Staff in their assessment of this type of one-off application. The lack of public attendance may have indicated that the neighborhood is accepting of the proposal. Overall, as long as the project integrates harmoniously with the street scene and provides a good environment for the occupiers then I am in favor of the application.

Yours Sincerely,
The Corporation of the District of North Vancouver

Bylaw 8449

A bylaw to amend District of North Vancouver 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 1400 (Bylaw 8449)”.

Amendments

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

   (a) Part 2A, Definitions is amended by adding CD129 to the list of zones that Part 2A applies to.

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

        “Comprehensive Development Zone 129 CD129”

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

        “4B 129 Comprehensive Development Zone 129 CD129

The CD129 zone is applied to:

Lot 4 of Lot 5, Block A, District Lot 613, Plan 2459 PID: 013-739-808

4B 129 – 1 Intent

The purpose of the CD129 Zone is to establish specific land use and development regulations for a three-unit ground-oriented housing project.

4B 129 – 2 Permitted Uses:

The following principal uses shall be permitted:

a) Uses Permitted Without Conditions:

   Not applicable.
b) Conditional Uses:

*Residential use*

**4B 129 – 3 Conditions of Use**

a) *Residential*: Residential uses are only permitted when the following conditions are met:

i. Each dwelling unit has access to private or semi-private outdoor space;
ii. Balcony and deck enclosures are not permitted.

**4B 129 – 4 Accessory Use**

a) Accessory uses customarily ancillary to the principal uses are permitted.
b) *Home occupations* are permitted in residential units.

**4B 129 – 5 Density**

a) The maximum permitted density is limited to a floor space ratio (FSR) of 0.45 and a maximum of one unit;
b) For the purpose of calculating gross floor area, the following are exempted:
   
   i. Garages to a maximum of 27 m² (290 sq. ft.) per unit;
   ii. Storage areas to a maximum of 9.29 m² (100 sq. ft.) per unit;
   iii. Residential garbage enclosures and bicycle storage lockers; and
   iv. Porches, patios, verandas and balconies.
c) For the purposes of calculating FSR the lot area is deemed to be 844.12 m² (9,086 sq. ft.) at the time of rezoning.

**4B 129 – 6 Amenities**

a) Despite Subsection 4B 129 – 5, the maximum permitted density in the CD129 Zone is increased to 422.1 m² (4,543 sq. ft.) of gross floor area, and three units, if $3,089.24 is contributed to the municipality to be used for any of the following amenities (with allocation and timing of expenditure to be determined by the municipality in its sole discretion): the affordable housing fund; public art; natural environment, park, trails, pedestrian or other public realm or infrastructure improvements, including flood protection; and/or municipal, recreation or community services, or social service facility or improvements.
4B 129 – 7 Setbacks

a) Buildings shall be set back from property lines to the closest building face in accordance with the following table:

<table>
<thead>
<tr>
<th>Setbacks</th>
<th>Minimum Required Setback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front (west)</td>
<td>4.57 m (15 ft.)</td>
</tr>
<tr>
<td>Rear (east)</td>
<td>6.1 m (20 ft.)</td>
</tr>
<tr>
<td>Side (north)</td>
<td></td>
</tr>
<tr>
<td>- for buildings located within 26.6 m (77 ft.) of the west property line</td>
<td>1.2 m (4 ft.) for the first storey; and 1.8 m (6 ft.) for the second storey.</td>
</tr>
<tr>
<td>- for buildings located more than 26.6 m (77 ft.) from the west property line</td>
<td>3.4 m (11.2 ft.)</td>
</tr>
<tr>
<td>Side (south)</td>
<td></td>
</tr>
<tr>
<td>- for buildings located within 26.6 m (77 ft.) of the west property line</td>
<td>5.4 m (17.7 ft.)</td>
</tr>
<tr>
<td>- for buildings located more than 26.6 m (77 ft.) from the west property line</td>
<td>4.0 m (13.1 ft.)</td>
</tr>
</tbody>
</table>

b) Decks, balconies, and patios may encroach into the setback requirements noted in Section 4B 129-7, but must be set back a minimum of 1.0 m (3.3 ft.) from any property line.

4B 129 – 8 Height

The maximum permitted height as calculated from the average grade of a particular building is regulated as follows:

(a) For buildings or portions of buildings located within 26.6 m (77 ft.) of the west property line:
   i. 9 m (29.5 ft.)

(b) For buildings located more than 26.6 m (77 ft.) from the west property line:
   ii. 8.1 m (26.5 ft.)

4B 129 – 10 Flood Construction Requirements:

No basement or habitable floor space, other than garage and storage space, shall be constructed below the established flood construction level as identified in a flood hazard report prepared by a qualified registered professional engineer.
**4B 129 – 11 Coverage**

a) Building Coverage: The maximum building coverage is 40%.

b) Site Coverage: The maximum site coverage is 70%.

**4B 129 – 12 Landscaping and Storm Water Management**

a) All land areas not occupied by buildings and patios shall be landscaped in accordance with a landscape plan approved by the District of North Vancouver; and

b) All electrical kiosks, garbage and recycling container pads, and bicycle parking not located within a building shall be screened.

**4B 129 – 13 Parking and Loading Regulations**

a) All off-street parking spaces shall comply with the minimum standards established in Part 10 of the District of North Vancouver Zoning Bylaw, except as follows:

i. Small car parking spaces may be provided in accordance with the requirements in Section 1007, except that up to three small car parking spaces are permitted; 

ii. The driveway shall be a minimum of 3.66 m (12 ft.) in width.”

(d) The Zoning Map is amended in the case of the lands illustrated on the attached map (Schedule A) by rezoning the land from the Single-Family Residential 7200 Zone (RS3) to Comprehensive Development Zone CD129 (CD129).

READ a first time October 19th, 2020

PUBLIC HEARING held

READ a second time

READ a third time

Certified a true copy of “Bylaw 8449” as at Third Reading

Municipal Clerk
Schedule A to Bylaw 8449

BYLAW 8449

The District of North Vancouver Rezoning Bylaw 1401 (Bylaw 8449)

SINGLE-FAMILY RESIDENTIAL 7200 ZONE (RS3) TO COMPREHENSIVE DEVELOPMENT ZONE 129 (CD129)
Virtual Public Hearings
OFFICIAL COMMUNITY PLAN AND ZONING BYLAW AMENDMENTS

When: Tuesday, November 10, 2020 at 7pm
Where: 355 West Queens Road, North Vancouver, BC
How: This Public Hearing will be held virtually, with participation by electronic means only. The hearing will be streamed over the internet at app.DNV.org/councillive

Two public hearings will occur consecutively in the order noted below.

### 840 St. Denis Avenue

**What?** A Public Hearing for Bylaw 8449, proposed amendments to the Zoning Bylaw, to permit the creation of a three-unit ground-oriented residential development comprising one duplex and one single unit at 840 St. Denis Avenue.

**What changes?**
Bylaw 8449 proposes to amend the District’s Zoning Bylaw by rezoning the subject site from Single Family Residential 7200 Zone (RS3) to a new Comprehensive Development Zone 129 (CD129). The CD129 Zone addresses permitted and accessory uses and zoning provisions such as density, height, setbacks, amenities, flood construction requirements, building and site coverage, landscaping, storm water management, and parking requirements.

*Provided by applicant for illustrative purposes only. The actual development, if approved, may differ.

### 267 Orwell Street

**What?** A Public Hearing for Bylaws 8451 and 8452, proposed amendments to the Official Community Plan and Zoning Bylaw, to permit the creation of a six-storey, 90-unit, non-market rental building at 267 Orwell Street.

**What changes?**
Bylaw 8451 proposes to amend the OCP land use designation of the subject site from Residential Level 5: Low Density Apartment (RESS) to Commercial Residential Mixed-use Level 3 (CRMU3).

Bylaw 8452 proposes to amend the District’s Zoning Bylaw by rezoning the subject site from Single Family Residential 6000 Zone (RS4) to a new Comprehensive Development Zone 132 (CD132). The CD132 Zone addresses permitted and accessory uses and zoning provisions such as density, height, setbacks, building and site coverage, landscaping, storm water management, and parking requirements.

*Provided by applicant for illustrative purposes only. The actual development, if approved, may differ.

### When and How can I provide input?

We welcome your input on November 10, 2020 at 7pm. You may sign up in advance to speak at the hearing by contacting the Municipal Clerk at gordonja@dnv.org prior to noon, Tuesday, November 10, 2020. You may also provide a written submission at any time prior to the close of the hearing by sending it to the Municipal Clerk at input@dnv.org or by mail to Municipal Clerk, District of North Vancouver, 355 West Queens Road, North Vancouver, BC, V7N 4N5. After the speakers list has been exhausted, there will be an opportunity for additional speakers to make submissions by telephone. Dial-in information will be provided at the meeting over the internet to those viewing the video stream. 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.
1.0 INTRODUCTION

The Lynnmour / Inter-River Local Plan is intended to guide, enhance and protect the community’s physical and social growth and development for approximately the next ten years. The Plan has been created through a partnership between the community residents, local public service providers and District staff representatives. It is expected that this local plan will be appended to the District Official Community Plan by bylaw and will replace the Central Inter-River Official Community Plan, adopted by Council on December 2, 1985.

The Official Community Plan is a municipal bylaw adopted by Council expressing the social, environmental and economic objectives and policies respecting the general form and character of future land use patterns and related servicing requirements. Sections 875 to 881 of the Local Government Act outline the contents of the Official Community Plan and Section 882 defines the adoption procedure for official community plans.

2.0 SCOPE OF PLAN

The Lynnmour / Inter-River Local Plan is intended to serve as a guide for all land use decisions and actions in the planning area. Map 1 identifies the planning area that is bounded by Lynn Creek to the west, the North Vancouver Cemetery to the north, Seymour River to the east and the Mount Seymour Parkway/Trans-Canada Highway to the south. It includes the two main residential communities of Lynnmour North and Riverside West.

Overall goals for the future of the planning area are set down in the section entitled Plan Goals. Broader planning objectives and specific policies and implementation or action statements to achieve these objectives are outlined in the five separate sections that make up the main body of the Plan.

3.0 PLANNING PROCESS

This Plan was undertaken in partnership with interested individual residents, community representatives, local service providers and District staff from Parks and Engineering Services and Community Planning. A Plan Steering Group was formed and community issues and views were sought by taking a travelling display tent around to nine local housing complexes and public locations in June 1999. Several key community issues were identified and subsequently investigated by Capilano College student researchers or by staff or specific
service providers. The draft plan was then developed with the Steering Group to address these issues and opportunities and a public review was undertaken in September, 2000 – again using a display tent at various community locations.

Approximately 600 to 700 local residents participated in the planning process during this period. In addition, the draft plan was reviewed by various Council appointed advisory committees and local service providers before being presented to Council at a tour and workshop in early 2001.

At that time Council expressed the preference to resolve several issues of local concern prior to adopting the draft plan. A public involvement process was commenced to explore solutions to these issues, which included expansion of the Fire Training Centre, revisions to the Inter-River Park Master Plan and forest preservation. Almost simultaneously, the Jaycee House was turned over to District ownership and preparations begun to renovate the facility and negotiations started with the Lynnmour/Inter-River Community Association to operate the building as a community centre. In June and July, 2002 Council adopted a revised Master Plan for Inter-River Park and a comprehensive development plan for the Fire Training Centre. The result of these actions was to formally expand the size of Inter-River Park and to preserve the majority of the forested area at its south end.

The draft plan was then updated to reflect these and other smaller changes and reviewed by the Plan Steering Group before again being presented to Council at a workshop in October 2003.

At the second workshop Council felt it would be prudent for the community to meet with Ministry of Transportation officials before sending the draft plan on to a public hearing. Council was concerned about community impacts of possible changes to the highway system if the Squamish Nation decided to proceed with its proposed shopping centre.

Provincial staff was reluctant to meet with the public to discuss what improvements or changes they would make only if the Squamish proposal were to proceed (and no such decision had yet been made). They did however agree to meet community representatives to review the wording in the draft local plan in order to better understand the residents’ long term goals and general concerns. The meeting took place in May 2004 and did not result in any changes needing to be made to the draft Plan. Since then the Ministry has announced a series of changes to the road and highway network in order to provide improved access to the proposed shopping centre and has met with the local community to provide an opportunity for public comment on these changes. It is expected that construction of these changes will commence in late 2006 or early 2007.

Work on revised design guidelines for the proposed multiplex and townhouse area surrounding Lynnmour School commenced and the draft Plan was prepared.
in bylaw format. Bylaw 7461 was subsequently introduced to Council on November 8th, 2004 and referred to a Public Hearing scheduled for February 22nd, 2005. In early January, 2005 a consulting engineering study of gravel removal in Lynn Creek was received (The Lynn Creek Management Plan prepared by Kerr Wood Leidal Consulting Engineers, December 2004). This study identified the proposed development area (Area 1) as a flood hazard zone. Staff then requested Council postpone the Public Hearing until further information was available. Subsequently, the consulting engineering firm was retained to provide a Flood Protection Assessment and the draft Plan and Area 1 Design Guidelines were revised to reflect the recommendations contained in the report, titled Lynnmour / Inter-River Local Plan, Flood Protection Assessment – Final, March 6, 2006.

With the incorporation of these changes and additional updating to keep the draft Plan current a final public review was undertaken with the Plan Steering Committee, a public open “tent” display arranged and Council advisory groups. Due to the number of changes made throughout this review stage Bylaw 7461 was abandoned and the Lynnmour/Inter-River Local Plan was re-introduced to Council as Bylaw 7623.

4.0 COMMUNITY HISTORY AND DEVELOPMENT

In the early days (1860 – 1900) there is little recorded history about most of the area included in this community plan. However, if one considers a slightly broader area by including all the lands between Lynn Creek and the Seymour River, then several items of interest come to light.

In 1864, Hugh Burr was given a Crown grant of 169 acres on the east side of Seymour Creek, which he began to farm. He was joined in 1867 by John Linn, who received a military land grant for 150 acres of land just east of the mouth of Lynn Creek. He began to farm this property to supply the mill at Moodyville.

In 1873, construction began on a trail to connect the Lower Mainland with the Cariboo to the north. When it was finished in 1877, Robert Carson and Richard Hoey used it, in the first (and only) cattle drive from Lillooet to the Vancouver market. A cairn was erected near the Trial’s terminus on East Keith and Lillooet Roads next to the Coach House Inn (now the Holiday Inn).

By 1893, the Municipality of North Vancouver had recognised the need to have a cemetery, and the Province granted District Lot 1020 (60 acres) for this purpose. In 1907, the Municipality split into City and District, and the District granted and conveyed to the City, for one dollar, the cemetery (and municipal hall, pound, stables and public parks), provided residents of both municipalities would have the same burial rights and were charged the same fees.
From the turn of the last century until the early 1950’s not much development occurred in this area. The opening of the original Second Narrows Bridge in 1925 did generate some industrial and commercial activity at the bridgehead to the south of the planning area. This was curtailed in 1930, when a shipping accident closed the bridge for four years. When re-opened in 1934 the combined car-and-train bridge served the North Shore until 1960, when the existing Second Narrows (Ironworkers Memorial) Bridge was opened. Also, during this period, the Trans-Canada Highway was developed. This effectively divided the Inter-River area into two communities – Lynnmour South (now in the Lower Lynn Community Plan), and Lynnmour North (included in this Plan). With the new highway came the Coach House Motor Inn, which was located at the intersection of Keith and Lillooet Roads.

By the 1960’s, there were 30 or 40 houses in this planning area, including a farm on Premier Street (now Edgewater Estates), and a turkey farm on Grantham Road (now Heritage-in-the-Woods). The availability of large parcels of land meant that, by the late 60’s and early 70’s, several large townhouse projects and construction of Capilano College had begun and the residential future of the area was firmly established. In the 80’s use of the Premier Street landfill site, first opened in 1956, was beginning to wind down and its future uses were being considered. The area was studied for a municipal golf course but when another site in Seymour was chosen it became park space and eventually designed for additional playing fields.

By the early 90’s a political decision was made by the District Council not to continue allowing long term residential development in the area above the Cemetery. This allowed these “Urban Reserve “ lands to be dedicated as park space and added to Lynn Canyon Park. As well, some of the older single-family housing began to be redeveloped as low-density townhousing on Premier Street and, over on the Seymour River, large new single-family houses began to be built, particularly on the riverfront.

Over the past 140 years the Lynnmour/Inter-River area has gone from a small agricultural area to one of mostly affordable medium density housing located at the centre of the District. Once an isolated area not well connected to the rest of the Municipality, it is now at the centre of the District and is bearing the impacts of being so close to the busy major road network.

5.0 PLAN GOALS

Initial consultation with the Lynnmour/Inter-River community identified five topics of prime concern for the Plan to address. These topics are:

- Traffic and Transportation
Community Services  
Parks and Open Spaces  
Managing Community Growth  
Protecting the Natural Environment

Planning Goals related to these topics are:

Goal: To create a safer, more convenient transportation network to better meet the needs of local residents and to better protect them from traffic and other impacts caused by major regional and District facilities located in the community.

Goal: To strengthen the sense of belonging and community by providing more services locally, increasing local use of existing facilities and better recognizing the area’s natural resources and heritage.

Goal: To ensure existing park spaces better meet local needs, provide a more complete pathway system safely usable by all and preserve environmentally sensitive areas.

Goal: To support the primarily family orientation of the residential areas, while ensuring any new development contributes directly to the overall improvement of the community.

Goal: To protect the community from natural hazards such as flooding and landslides.

Goal: To recognize, preserve and enhance the bio-physical and cultural values of the community’s natural environment.

6.0 TRANSPORTATION, CIRCULATION AND UTILITIES

Lynnmour/Inter-River is a community isolated by the Provincial and District transportation networks. The Seymour River constricts circulation eastward to the two crossings on Mt. Seymour Parkway and Grantham Road; the Trans Canada Highway blocks access south; and Lynn Creek, with one vehicle crossing on Keith Road and one pedestrian crossing in Inter-River Park, limits convenient access westward.

Every morning, traffic from both east and west converges near this community in order to access the 2nd Narrows Bridge and Capilano College. Every afternoon the reverse flow also causes long backups and lengthy delays for commuters.
and local residents trying to move around and through the community. The Bridge is at or near capacity for significant parts of the day presently.

Other major transportation difficulties in this area involve vehicle and pedestrian safety at the Lilooet Road and Mt. Seymour Parkway intersection due to volume, speed, short weave areas, lack of advance signage and poor or incomplete pedestrian facilities. In the future, additional traffic may be drawn to this area if the Squamish Nation's plans to develop additional big box retail come to fruition. Most of these issues need to be addressed by the Ministry of Transportation in consultation with District staff and local residents in order to be successfully resolved. Community representatives have already met once directly with Ministry officials to make them aware of local concerns regarding the existing transportation network and of what improvements they would like to see if and when the Ministry does any work in the area.

Recreation facilities and attractions such as the existing playing fields at Inter-River Park and the Lower Seymour Conservation Reserve draw non-resident traffic into and through the community, particularly during weekends. In the future, this traffic is expected to increase substantially as the Park continues to be developed with additional fields and diamonds and use of the Reserve continues to grow (projected at 9% per annum). Additionally, due to waterworks-related projects in the LSCR and Seymour Watershed, significant heavy truck traffic will be drawn through the community on Lilooet Road for the next decade. A variety of actions to be taken by different authorities are recommended to address these issues.

The use of a residential street to access the College, pedestrian safety and improved connectivity are also neighbourhood issues, particularly for residents on Purcell Way and in the area around Lynnmour School where Keith Road and Forsman Avenue are only narrow strips of pavement without sidewalks. As well, a concern over speeding on Premier Street and the need to improve local transit connections to facilities and services in Seymour (Parkgate) and to Capilano College have also been identified. Access to the rivers located in this community for emergency and life safety reasons was also identified as needing improvement, especially on the Seymour River. Solutions to these issues are found in actions recommended primarily for the District to pursue.

The Greater Vancouver Regional District is undertaking major upgrades to the regional drinking water supply, treatment and distribution systems within the Seymour watershed. The Plan supports these initiatives and the preservation of the BC Hydro right-of-way for long term expansion. Major upgrading of District utility systems is not expected as a result of this Plan.

LI Map 1 outlines the traffic, transportation and circulation issues and solutions identified or proposed in this section of the Plan.
SECTION GOALS

- To improve transit service to the community.
- To minimise impacts of non-local traffic and to improve vehicle access and egress for local residents.
- To improve pedestrian safety and circulation.
- To integrate Inter-River into the Bicycle Master Plan network.
- To retain and improve existing utility networks.

POLICY

6.1 Continue to improve accessibility to public transit services

IMPLEMENTATION

6.1.1 Integrate the provision of convenient, accessible, well-lit, and safe access to bus services in the design of new developments and in local improvements.

6.1.2 Encourage Capilano College to update its 1991 Lynnmour Campus Traffic Study with District and Translink staff and pursue any transit improvements identified.

6.1.3 Work with Capilano College and TransLink to improve transit ridership and enhance service to the College by supporting:
   - the provision of the U-Pass program;
   - the extension of the #130 (Metrotown/Hastings/Kootenay Loop) route;
   - the extension of the #255 (Dundarave/Lynn Valley route; and
   - expansion or re-location of the on-campus bus facility to accommodate the removal of any temporary bus stop facilities provided on the public street.

6.1.4 Provide bus shelters and garbage bins at local stops without these facilities now.

6.1.5 Encourage TransLink to improve service between the Inter-River and Seymour Communities.
6.1.6 Work with Capilano College, TransLink, and the City of North Vancouver to investigate the feasibility of establishing transit to the North Vancouver Cemetery.

POLICY

6.2 Ensure all neighbourhoods are connected and well served by the pedestrian and bicycle circulation network and facilities in Inter-River

IMPLEMENTATION

6.2.1 Improve paving and lighting under the Highway #1 Bridge and in the vicinity of the Keith Road Bridge

6.2.2 Enhance pedestrian access and circulation from the main road system to major activity centres and recreation uses utilizing the District’s Pedestrian Access Guidelines as appropriate.

6.2.3 Integrate trail marker signage with sidewalks.

6.2.4 Improve existing and identify new routes to better connect the Riverside West neighbourhood to the rest of the Lynnmour/Inter-River community.

6.2.5 Improve student pick-up and drop-off safety at Lynnmour School.

POLICY

6.3 Provide improved routes for cyclists accessing Capilano College and other parts of Inter-River.

IMPLEMENTATION

6.3.1 In the short term, formalise the trail connection from Lilooet Road to the College via the soccer field. In the longer term, improve access to this area and other District property by a new south service road.
6.3.2 Provide a minimum 4.3 metre wide lane (excluding curbing) on all major roads to accommodate cyclists’ safety.

6.3.3 Implement safe cycling routes to Capilano College and other local destination in conjunction with the District Joint Bicycle Advisory Committee, Capilano College and the GVRD.

6.3.4 Consider provisions for cyclists in the development of any trail connection to Capilano College (e.g. V-grooves).

6.3.4 Request Ministry of Transportation improve the bicycle friendliness of the Highway 1/ Lillooet interchange and Keith Road.

POLICY

6.4 Protect local residential areas from impacts of traffic destined for District and Regional facilities located in Inter-River.

IMPLEMENTATION

6.4.1 Work with Capilano College to develop traffic and parking management strategies to minimise community impacts especially for residents along Purcell Way.

6.4.2 Consider provision of a new access road to Capilano College from Lillooet Road, south of Purcell Way, or other measures to reduce or eliminate a significant portion of College traffic from Purcell Way when considering the sale of District land on the northeast corner of Mt. Seymour Parkway and Lillooet Road.

6.4.3 Work with the Ministry of Transportation, Capilano College and TransLink to determine funding, design, and future operation of a south road connection between the College and Lillooet Road if this new road is built in the future.

6.4.4 Monitor and assess daily non-resident use of on-street parking near Capilano College and consider appropriate restrictions to ensure public safety.

6.4.5 Provide adequate enforcement of District “Resident Parking Only” zones and investigate alleged mis-uses of the parking system.

6.4.6 Retain the Grantham Street bridge crossing and continue to keep Seymour Boulevard closed south of Parkhurst Road unless the majority of local residents wish to consider changing this in the future.
6.4.7 Monitor and assess weekend non-resident use of on-street parking at access points to the Seymour River.

6.4.8 Monitor and assess impact of sports field development at Inter-River Park.

6.4.9 Encourage the Greater Vancouver Regional District to continue its impact mitigation plan and funding strategy to address local concerns throughout the final phases of the planned construction of the Seymour Watershed improvements (i.e., dam, filtration plant and watermain projects) and expansion of recreational uses in the Lower Seymour Conservation Reserve.

6.4.10 Encourage the Greater Vancouver Regional District to work in partnership with the District and City of North Vancouver, Capilano College and BC Hydro towards establishing a future staging area to the Lower Seymour Conservation Reserve, Seymour Watershed and City Cemetery at Capilano College and to develop a multi-use trail to the LSCR along the B.C. Hydro Right-of-Way.

6.4.11 Encourage the Greater Vancouver Regional District to provide trail and/or sidewalk improvements on Lillooet Road, north of Purcell Way, to the main entry gate to the Lower Seymour Conservation Reserve.

POLICY

6.5. Improve community access options and safety for local residents.

IMPLEMENTATION

6.5.1 Investigate alternative access points to the community other than via Lillooet Road.

6.5.2 Examine the possibility of making access at the intersection of Keith Road, Old Lillooet Road and the Highway #1 access ramp a Right In /Right Out to improve neighbourhood access.

6.5.3 Reserve unopened road allowances for pedestrian and cycle route improvements and access to local watercourses.

6.5.4 Monitor speed of vehicles along Premier Street and make cross-walk or other safety improvements as required.

6.5.5 Work with Heritage-in-the-Woods and local neighbours to improve pedestrian and vehicular safety at the Grantham Place and Seymour Boulevard intersection and at the Heritage-in-the-Woods north driveway and Seymour Boulevard.
POLICY

6.6 Improve local conditions through facilitating changes to the major road network.

IMPLEMENTATION

6.6.1 Work with Ministry of Transportation in the short term to improve pedestrian crossing safety at Mt. Seymour Parkway, Lillooet Road and Fern Street by:
- examining solutions to signalise dual northbound right turn with advance warning signs on the Highway #1 / Lillooet Road exit in the short term;
- providing a safer pedestrian route along Fern Street and its overpass; and
- pursuing a pedestrian overpass, intersection re-design or signal changes at the east leg of the Lillooet and Mt. Seymour Parkway intersection in conjunction with other major upgrades at this location in the medium to long term.

6.6.2 Work with Ministry of Transportation in the short term to provide signage at the Lillooet and Mt. Seymour intersection directing motorists to:
- access the Holiday Inn from Lillooet and Old Lillooet Road;
- egress that property via a right turn on to Old Lillooet Road and provide overhead lane signage on the northbound Highway #1 off-ramp and on the Fern Street /Highway #1 off-ramp to minimise vehicle weave; and
- the Lynnmour Jaycee House.

6.6.3 Support longer term upgrading of the Lillooet Road and Mount Seymour Parkway intersection and other road network improvements to service increasing area demands by working with Ministry of Transportation to ensure that:
- a traffic signal progression strategy is developed;
- access to the Lynnmour/ Inter-River community is enhanced from its current operation; and
- impacts of any future development on Indian Reserve #2 are mitigated to provide least impact to the Lynnmour/ Inter-River community.

6.6.4 Address short-term needs at the intersection of Purcell and Lillooet Rd. by:
- improving timing and phasing for pedestrians;
- lighting the crosswalk; and
- improving paint markings (drip line).

6.6.5 Ensure the Ministry of Transportation provides noise abatement measures along Highway 1 in any re-development of the Lillooet Rd /Mt. Seymour Parkway / Keith Road interchange.
6.6.6  As an interim measure request Ministry of Transportation plant trees in those portions of the existing interchange and road allowance where driver safety would not be affected.

6.6.7  Work with the Greater Vancouver Regional District and City of North Vancouver on the possible re-alignment of the access route to the North Vancouver Cemetery, Lower Seymour Conservation Reserve and the Seymour watershed facilities to the proposed Selkirk and Monashee Drive route in order to limit impacts on the District and Capilano College road networks.

6.6.8  Investigate the feasibility of imposing latecomer charges in favour of the GVRD for the future re-development of the private properties fronting Monashee Drive which benefit from the construction of the Selkirk Road extension by the GVRD.

POLICY

6.7  Maintain services (water, roads, hydro, gas, telephone, sanitary, storm, garbage collection and storm water management) at their existing level of quality and provide for future upgrading.

IMPLEMENTATION

6.7.1  Review current and proposed developments and ensure that existing services can be maintained at their present levels.

6.7.2  Retain the opportunity to expand the B.C. Hydro right-of-way in the planning area.

6.7.3  Support the Greater Vancouver Regional District projects for seismic upgrades to the Seymour Falls Dam, to construct the Seymour-Capilano Drinking Water Filtration Project near Rice Lake and to install new water pipes for the Seymour Water Main from the Dam to tidewater.

POLICY

6.8  Services to new development should be as unobtrusive as possible.

IMPLEMENTATION

6.8.1  Electrical transformers, connection boxes, gas meters, and other utilities should be located or screened so as to minimize visibility.
6.8.2 Electrical services to new development will be placed underground.

**POLICY**

6.9 Improve emergency access points to the riverfronts.

**IMPLEMENTATION**

6.9.1 Provide regular emergency access points to the Lynn and Seymour watercourses.

7.0 **COMMUNITY FACILITIES AND SERVICES**

Lynnmour/Inter-River residents are not generally well or conveniently served by community services. Lynnmour Elementary School continues to provide K to 7 education for Lynnmour students living north and south of the Highway, while Riverside West elementary students now have to attend either Lynnmour School or travel to Blueridge or Seymour Heights Schools in Seymour as the Maplewood School is now closed and leased for private school use.

Lynnmour School has completed the first of several planned construction phases to remove portable classrooms and rebuild other parts of the school but the continual decline in school age children in the District means school closures will likely continue and unless the local school population stabilizes or increases this building programme may be jeopardized. The school is also in the floodplain of Lynn Creek and the plan recommends certain protective measures be provided in the future.

Some local programs and services (e.g. Cubs and Brownies) are available at this school and all local high school age children must travel to Windsor Secondary in Seymour.

Before and after school care is available from Norvan Boys and Girls Club, who operate from a portable on the Lynnmour School grounds. Licensed daycare and a Moms and Tots Drop-in Program are also available at the Lynnmour Jaycee House. The Lynnmour/Inter-River Community Association has now successfully operated part of this facility for four years through a lease from the District. The building has been extensively renovated under direction of a special community management committee and is used for many local meetings, special community events, various recreational and social programs and commercial rentals. Currently, there are almost no services for young teens or seniors provided locally but with local control over this facility there is the opportunity for many more services and programs to be provided right in the community. The
plan supports the continuation of these services and for additional resources to address unmet community service needs.

Other facilities or services in the community tend to serve primarily regional functions. There are two private funeral and crematoria operations on Lilooet Road that have recently been upgraded. The City of North Vancouver, which operates the North Vancouver Cemetery, has developed a long-term plan to upgrade and expand services at this facility and to provide improved access to the Lower Seymour Conservation Reserve and watershed.

Capilano College is located just east of Lilooet Road. Current enrolment is approximately 5200 full time equivalent (FTE) students, which translates into some 7,000 students when the part-time students are included. Current growth is in the order of 60 – 70 FTE’s, or 100 total students per year. During the last ten years the College has undergone a major expansion phase, adding a 9,290 metre square (100,000 square foot) administration and classroom building, and separate library and theatre facilities. Further expansion will require that the College’s Transportation Study to be updated to address any traffic, parking or transit-related issues identified. Current issues of concern from the community’s perspective include campus access from Purcell Way, transit use of Purcell Way, overflow parking, and opportunities for local community use of College facilities jointly funded with the District (Sportsplex and weight room). The Plan provides several ways to realize improvements in these areas of concern.

The District’s Fire Training Centre is also located in this community, just south of Inter-River Park. The future of the forested lands in this area, provision for the long term training needs of the Fire and Rescue Services and the need to revise the original development plan for Inter-River Park have recently been the subject of an extensive public process and has resulted in several recent Council actions being incorporated into this Plan. The Training Centre is also in the Lynn Creek floodplain and the provision of some flood protection measures is recommended.

The plan also suggests several ways to support the few local organisations that serve this community and recommend the use of local history and public art to strengthen community identity.

**SECTION GOALS**

- To define and promote community identity for Lynnmour/Inter-River neighbourhoods.
- To increase community accesses to District of North Vancouver facilities, other community facilities and programs for Lynnmour/Inter-River residents.
• To develop new local programming and services within the Lynnmour/ Inter –River community.

• To support families and those who provide care and other services to families, in developing and maintaining safe, quality environments and activities that promote healthy, active families.

• To ensure that Lynnmour/Inter- River children and youth have access to safe, appropriate programs at the local level.

• To support expansion of institutional uses where necessary so long as it is achieved with minimal environmental damage and tree loss and minimal disruption to the adjoining neighbourhoods.

**POLICY**

7.1 Through community consultation describe what defines Lynnmour/ Inter River and identify ways to incorporate these factors into gateways and other design elements to create a unique sense of place.

**IMPLEMENTATION**

7.1.1 Consult with community groups and individuals to identify and promote the defining characteristics of the Lynnmour / Inter- River neighbourhood, including its heritage.

7.1.2 Explore ways to incorporate identified neighbourhood characteristics through public art or other design with District staff and the arts community.

7.1.3 Re-instate the historic Lillooet Trail cairn marker as a focal point for the community.

7.1.4 Encourage and support volunteer efforts to establish a local community festival and/or other neighbourhood events.

7.1.5 Support local organizations in their community development efforts.

**POLICY**

7.2 Promote communication between and among people living in various Lynnmour/ Inter-River neighbourhoods.
IMPLEMENTATION

7.2.1 Use a range of communication tools to advise local residents about services and programs available in or near the community, (e.g. community newsletters, web sites and strata council minutes).

7.2.2 Identify other means of communicating with residents of Riverside West and further north on Lilooet Road, such as additional community bulletin boards.

7.2.3 Encourage the local community association to access the District Healthy Neighbourhood Fund and/or other funding to increase communication with all area residents.

POLICY

7.3 Preserve and enhance the natural river and forest settings of the Lynnmour/Inter-River community.

IMPLEMENTATION

7.3.1 Encourage local environmental groups such as Morten Creek Salmon Enhancement Program and North Shore Streamkeepers to educate local residents and the broader community about local environmental assets and issues.

7.3.2 Promote community efforts to foster respect and stewardship for the local environment by supporting local environmental groups or initiatives.

POLICY

7.4 Through collaboration with public and private organizations, promote access to and full usage of existing facilities (including Capilano College, Jaycee House, Lynnmour School, Seylynn Hall & others) for local residents of all ages and pursue the development of new community space for meetings, activities or local service delivery.

IMPLEMENTATION

7.4.1 Retain District control of the Lynnmour Jaycee House, continue to provide financial support necessary to upgrade and have the local community operate the facility and work with community representatives, the RecCommission and local service providers to develop the facility as a local-serving community centre.
7.4.2 Explore partnership opportunities to enhance or improve operating and facility conditions and service possibilities for Norvan Boys & Girls Club possibly by utilizing the Lynnmour Jaycee House.

7.4.3 Encourage and support School District 44, Lynnmour Parent Advisory Committee and other efforts to keep Lynnmour Elementary School open and to improve it for the benefit of the whole community (e.g. investigate Joint Use Agreement possibilities).

7.4.4 Encourage School District No.44 to incorporate the recommendations found in the Kerr Wood Leidal report titled *Lynnmour / Inter-River Local Plan, Flood Protection Assessment – Final*, March 6, 2006 into any future renovations of Lynnmour School.

7.4.5 Improve community awareness of the availability of Capilano College facilities for community use.

7.4.6 Explore opportunities to improve local residents' access to Capilano College weight room facilities and for partnerships to enhance or expand this facility.

7.4.7 Request that the Recreation Commission, in consultation with the local community, identify and develop additional local recreation programs to be delivered at Capilano College and other community facilities.

7.4.8 Request that the District and Recreation Commission staff, in consultation with the local community, explore opportunities for increased use of Seylynn Hall by Lynnmour/Inter-River residents.

7.4.9 Work with School District No. 44 to upgrade and increase community use at Lynnmour School.

**POLICY**

7.5 Identify resources and encourage collaboration to support local providers of child and family services.

**IMPLEMENTATION**

7.5.1 Direct increased District resources to support Norvan Boys & Girls Club efforts to maintain and enhance service to elementary students in the Inter-River community.

7.5.2 Explore opportunities for collaboration among local childcare providers to enhance local childcare (e.g. access to facilities, information or expertise
associated with Capilano College, Vancouver Coastal Health Authority, North Shore Childcare Resource Program, the Recreation Commission or others).

7.5.3 Continue to support use of a portion of Jaycee House for group day care, preschool and out-of-school care.

7.5.4 Continue to encourage Vancouver Coastal Health Authority, in partnership with others, in maintaining and enhancing infant and toddler services to meet local needs.

7.5.5 Encourage strata councils to support efforts of Norvan Boys & Girls Club and others providing services to local children and youth.

POLICY

7.6 In collaboration with Youth Outreach programs and other partners, provide a continuum of local, age-appropriate programming for a range of children, youth and their families.

IMPLEMENTATION

7.6.1 Direct increased District resources to support Parkgate Community Services Society, Norvan Boys and Girls Club, or other agencies in improving community outreach services for Lynnmour/ Inter-River youth.

7.6.2 Encourage Seymour Community Services Society, Norvan Boys and Girls Club, RecCommission and other service providers to use Capilano College Sportsplex and weight room in programming for local youth, where these venues respond to local youth needs and interests.

7.6.3 Develop, in consultation with other service providers and community representatives, a Lynnmour/ Inter-River Children & Youth Services Strategy, beginning with an assessment of the current delivery of such services.

7.6.4 Develop an implementation plan to realise the Lynnmour/ Inter - River Children & Youth Services Strategy.
POLICY

7.7 Explicitly consider the needs of children, youth and families and people with disabilities in the design of new community facilities, traffic/pedestrian circulation and park facilities.

IMPLEMENTATION

7.7.1 Identify and seek improvements to transit service in Lynnmour/Inter River so that local youth can better access existing youth services and centres in Seymour and Lynn Valley.

7.7.2 With Seymour Community Services Society, the Recreation Commission, Vancouver Coastal Health Authority and other community partners, investigate the feasibility of improving local youth services through a mini-van/shuttle service to Seymour Youth Centre.

POLICY

7.8 Support expansion of existing institutional uses when demand warrants provided this is achieved with minimal disruption to nearby residents and contributes to the community’s development objectives.

IMPLEMENTATION

7.8.1 Work with Capilano College and Fire Training Centre staff to reduce existing neighbourhood impacts before considering further development or expansion of this campus or facility.

7.8.2 Request Capilano College update its Lynnmour Campus Site Master Plan, consider providing on-site student housing and improve other student and community services as necessary.

7.8.3 With the provision of a southern access road or other changes to the road network to reduce College traffic use of Purcell Way, continue to support increased growth and development at Capilano College.
7.8.4 Ensure the treed buffer and natural landscaping at Capilano College is retained to buffer adjacent residential uses from campus activities and to provide an attractive area for local residents to walk through and enjoy.

7.8.5 Request District staff and others to continue working with College staff to explore options and methods to reduce student-parking demand as the campus enrolment increases.

7.8.6 Support the short term development plan for the Fire Training and Maintenance Centre as approved by District Council on July 8th, 2002 and shown on Sketch A attached, and the re-allocation of District lands adjacent to this facility to provide for the long term training needs of Fire and Rescue Services as shown on Sketch B attached.

7.8.7 Encourage Fire and Rescue Services to minimize environmental impacts and consult with local residents and Council advisory groups as and when it needs to further develop its lands in the future.

7.8.8 Encourage Fire and Rescue Services to incorporate the recommendations found in the Kerr Wood Leidal report titled *Lynnmour / Inter-River Local Plan, Flood Protection Assessment – Final*, March 6, 2006 into any future renovations of the Fire Training Centre.

7.8.9 Encourage Fire and Rescue Services to consider local needs and opportunities for community use in any expansion of the Fire Training Centre (meeting rooms, lecture theatre, etc.)
8.0 PARKS AND OPEN SPACES

Lynnmour/Inter-River contains a variety of different types of park and open spaces. These are used and enjoyed by local residents and the many others who come to use the major District and Regional sport and recreation facilities located here. This community serves as the gateway to the Lower Seymour Conservation Reserve (LSCR) and to many of the Alpine Area hiking and biking trails. Larger volumes of recreational and weekend traffic are expected to be attracted to the area. Solutions to this issue are found in the recommendations that the District monitor local parking situations and in support for initiatives in the LSCR Management Plan. Figure 1 below illustrates how the preferred access to the LSCR relates to the Lynnmour/Inter-River area although it is now recognized that negative environmental impacts prevent development of the proposed trail between Bow Court and the Capilano College parking lot. An alternate connection is expected to be developed in conjunction with the south campus access road in the future and the trail network planning has now been extended all the way south to tidewater with the creation of the Seymour River Greenway.

While Inter-River Park will continue to be developed as a District-wide playing field centre, Council recently approved a revised conceptual design plan to guide the completion of this Park’s re-development (see Figure 2). This Park is also in the Lynn Creek floodplain and the provision of some flood protection measures is recommended.

The community is lacking in some basic amenities generally found in neighbourhood parks and, while lands have already been designated to meet these shortcomings, funds to develop these spaces have not yet been made available. This is particularly relevant for the residents on the east side of Lillooet Road and in the Riverside West neighbourhood and the Plan recommends these deficiencies be addressed as a priority.

While access to Lynn Creek on the west is virtually unlimited, access to the Seymour River on the east is reduced to a very few opportunities related to existing street ends because all the land is developed as single-family housing. The Plan also seeks to improve access to the Seymour for rescue and recreation purposes by working co-operatively with the GVRD, Squamish Nation and City of North Vancouver, by selective acquisition of riverfront property and by opening up existing road allowances to the river.

Part of the unique attraction of this area stems from having the North Shore Equestrian Centre located there. The Plan supports retention of the Centre and the continuation of these types of activities.

Several issues and opportunities concerning the trails in the community were identified. The Plan envisions filling in some missing trail linkages to facilitate better circulation within and across the community and to resolve several...
conflicts and concerns between various trail users (dog-walkers, cyclists, equestrians, etc.) by working with those groups to develop trial-user protocols.

The Plan also recognises the need to protect the community’s environmentally sensitive areas, to raise environmental awareness by supporting redesign of Inter-River Park, to retain its forested area and to protect Morton Creek, and by looking for partnership opportunities to provide interpretative nature and heritage signage throughout the area.

The need to strengthen the sense of identity in the community is also recognised in this part of the Plan. The creation of several planting and signage gateways are recommended, one involving the re-instatement of a historic cairn back to its original spot in the community.

Map LI-02 illustrates the Park and Open Space issues and solutions proposed in this section of the plan.

SECTION GOALS

- To improve facilities in existing parks or other locations so as to better meet local residents’ park and recreation needs.

- To improve pathway and circulation routes between existing parks, open spaces, community facilities and services, and between neighbourhoods.

- To continue development of major parks and open spaces for the use and enjoyment of all users, while at the same time looking for opportunities to better serve local park and recreation needs.

- To retain the look and feel of a naturally forested environment within identifiable residential enclaves

- To recognize and protect environmentally sensitive areas such as the floodplains, escarpments and forested areas of our community.

POLICY

8.1 Design and develop existing park spaces to address needs of local residents.
IMPLEMENTATION

8.1.1 Undertake a design exercise with local residents (and particularly those living on the east side of Lillooet Road) to determine appropriate future uses and activities to be located in Lillooet Park. Include any costs in the District Capital Plan as a priority.

8.1.2 As a priority re-examine the needs of youth in determining future activities in existing parks. Specifically consider adding basketball and skateboard improvements at appropriate locations.

8.1.3 Subject to community initiation and neighbourhood consultation, consider feasibility of establishing a community garden site to be developed and operated by a non-profit society at Lillooet Park or other suitable location.

8.1.4 Identify a suitable location and design a tot-lot with provision for children with disabilities in the Riverside West neighbourhood.

POLICY

8.2 Consider the involvement of other groups or organizations in developing opportunities to meet community recreation needs.

IMPLEMENTATION

8.2.1 Explore partnership opportunities with Capilano College or the Lynnmour Jaycee House to develop a community recreation facility on or near either of those properties.

8.2.2 Support any community initiative at Lynnmour School to improve the school playground by considering joint partnership funding with the District and participation of School District No.44.

8.2.3 Encourage the Capilano Landscape and Horticultural Program to become involved in the development and operation of a community garden if local residents initiate such a project.

8.2.4 Identify partnership opportunities with environmental or other groups and sponsors to provide interpretative nature and heritage signage in Inter-River.
POLICY

8.3 Continue development of the public trail and pathway system for the use and enjoyment of all users.

IMPLEMENTATION

8.3.1 In consultation with immediate neighbours and other community representatives consider developing the necessary links to complete the pedestrian pathway system shown on Map LI- 02, including:

- Connection from the GVRD Beach Yard to Capilano College and the Lower Seymour Conservation Reserve (Seymour River Greenway);
- Connection from Mount Seymour Parkway/Seymour Boulevard to the Baden Powell Trail or other local trail; and
- Formalising the pathway in park (PRO) strip along eastside of Lillooet Road, in a safe and environmentally responsible manner.

8.3.2 Investigate routes and formalise trail access to improve connections between Lynn Creek and the Seymour River.

8.3.3 Retain and continue support for the commuter bike route connecting Arborlynn Drive and Capilano College.

8.3.4 Support improvements to the multi-use trail system in order to reduce user conflicts by developing new protocols, signage and other physical improvements.

8.3.5 Continue to support equestrian uses of local parks and encourage the District to work with those users to develop, designate and upgrade appropriate trails to ensure improved safety and signage for all users.

8.3.6 Support District efforts to maintain trails and encourage safe and responsible use through the establishment of a signage program.

8.3.7 Encourage the improvement of the trail on the eastside of the skateboard bowl in Seylynn Park as a means to improve connections to Lynnmour North.

8.3.8 Support in principle the North Vancouver Cemetery Master Plan Option 2-Monashee Drive Alternative Access (see Sketch C), subject to the continued use of the Lillooet Road alignment for pedestrian and cyclist uses if vehicle access to the City and Regional District’s facilities shifts to the Selkirk – Monashee alignment and an alternate route for equestrian users is provided.
8.3.9 Work with Capilano College, the City of North Vancouver and Greater Vancouver Regional District in order to formalise a safe equestrian corridor and other recreational pathways in implementing the City’s Cemetery Master Plan and the Region’s Lower Seymour Conservation Reserve Management Plan.

8.3.10 Improve directional and interpretative signage on the Lynn Creek Sea to Sky trail connections from Lynn Canyon Park south to Harbourview Park.

8.3.11 Provide signage with a distinctive Lynnmour/Inter-River motif and interpretative plaques along local trails.

8.3.12 Improve existing wheelchair accessible trails and provide additional facilities for people with physical challenges.

8.3.13 Ensure the local trail network links to trail systems in adjacent communities.

**POLICY**

8. 4 Continue to support broad community use of the major park, open spaces and special areas within this community.

**IMPLEMENTATION**

8.4.1 Support new open space zoning for the City Cemetery and private land on the west side of Lillooet Road as indicated on LI Map 02.

8.4.2 Retain equestrian uses at their current Lillooet Road location.

8.4.3 Encourage the retention of the dog kennel use on Monashee Drive but support only a limited range of public assembly or institutional uses so that peak period traffic flows are not added to significantly if re-development of the property is pursued in the future.

8.4.4 Support the revised Conceptual Plan for Inter-River Park (as adopted by District Council on July 8th, 2002) included as Figure 2 and the rezoned 0.53 hectares of land previously designated in the Central Inter-River Official Community Plan as RS1, and intended for Fire Training purposes to park zoning as outlined in Figure 3.

8.4.5 Ensure that Morten Creek is adequately protected from any impacts resulting from the addition of another playing field in the northern section of Inter-River Park.
8.4.6 Support the Greater Vancouver Regional District’s Lower Seymour Conservation Reserve Management Plan and ensure that the Lynnmour Inter-River community is represented on the proposed Stewardship Forum or alternative public involvement program.

8.4.7 Establish an inter-jurisdictional planning process between the District, City of North Vancouver, Squamish Nation and GVRD to improve co-ordination and communication in developing each jurisdiction's respective lands for recreational purposes.

8.4.8 In the short term improve public access to Seymour River by providing minor improvements to existing streetends and other District property along this watercourse.

8.4.9 In the longer term, consider expanding these public riverfront spaces through the strategic acquisition of a limited number of adjacent private properties as they become available for sale or by bequest.

**POLICY**

8.5 **Develop landscaped gateways or entry points to help identify the Inter-River community and major residential neighbourhoods.**

**IMPLEMENTATION**

8.5.1 Retain and upgrade or enhance boulevard landscaping on both private and public lands at the corner of Mount Seymour Parkway and Lillooet Road to establish a community gateway.

8.5.2 Develop residential area gateways at Keith Road and Premier, Purcell Way and Lillooet and the north end of the Grantham Bridge and support residents’ initiatives to take-over annual planting and maintenance of these neighbourhood gateways.

8.5.3 With the support of the Community Heritage Commission re-instate the Lillooet Trail cairn marker from Seylynn Park to a “Heritage Corner” in the vicinity of the original location at the corner of Old Lillooet and Keith Roads and install an interpretative sign.

8.5.4 Incorporate public art components into the community gateways projects and include community representatives in the project advisory development/steering group associated with the public art project.

**POLICY**
8. 6 Ensure that dykes, drainage and flood protection measures inside park areas are recognized as part of the flood prevention program.

IMPLEMENTATION

8.6.1 Encourage the Parks Department to incorporate the recommendations in Kerr Wood Leidal’s, *Lynn Creek Management Plan* (December 2004) and the *Lynnmour / Inter-River Local Plan, Flood Protection Assessment – Final, March 6, 2006.* into any future improvements to be made in Inter-River Park.

9.0 HOUSING AND GROWTH MANAGEMENT

Lynnmour/Inter-River is a community comprised of two distinct residential neighbourhoods – Lynnmour North and Riverside West. While both neighbourhoods share a family orientation, some factors that create these distinctions are vehicle access and elementary school catchment areas. Within these larger areas some additional differences can be noted (single family versus multi-family forms of development, topography, etc.) which has created enclaves of similar housing sharing similar circumstances. Overall there are approximately 1,100 households in the planning area.
The latest residential re-developments to occur in this neighbourhood have taken place on Premier Street, where an assisted family housing project and two low-density townhouse projects have been built, and on St. Denis Street where a 6-unit duplex project has been built since the last plan was adopted.

The other recent major developments in this part of the community have been the Holiday Inn project (1999), which replaced the Coach House Inn and the opening of a Real Canadian Superstore (1997) on the Squamish Nation Reserve.

In Lynnmour North most of the single-family housing is older stock in fair to reasonable condition and is located on lots that vary significantly in size and shape. This housing surrounds Lynnmour Elementary School, which has the capacity to accept increased enrolment that would help assure its continued operation. Given the community’s expressed wish to “upgrade but retain its single family appearance” and to retain its school as a centre of community activity, a proposal to allow for duplex, triplex or townhouse built forms based on a sliding scale of density determined by lot size is recommended. This policy should encourage existing owners to add small units to their existing properties, address housing affordability issues, provide amenities such as sidewalks and street lights and allow a wider variety of housing types suitable for families with young children.

In March, 2006, the District of North Vancouver received a report entitled “Lynnmour/Inter-River Local Plan Flood Protection Assessment”, prepared by the engineering consultants, Kerr Wood Leidal. This report pertains to proposed new development in Area 1, LI Map 4 specifically and outlines the potential flood risks from Lynn Creek, and methods of reducing those risks. Key recommendations include:

- It is not necessary to modify the proposed type or density of re-development proposed for this Area due to the identified flood risk; however
- It is necessary, as redevelopment begins, to make provisions so that in the long term the following protective measures are provided:
  - Establishing a Flood Construction Level and lot grading for all lots at the time of redevelopment;
  - Raising the height of St. Denis and Keith Road for dyke purposes;
  - Building a deflection berm at the Fire Training Centre;
  - Creating drainage channels and floodways; and
  - Building a berm at Lynnmour School.

See Sketch D in this Plan to view the proposed construction levels for new development and locations of proposed dyking, berming and other protective measures recommended by these consultants. Also, see the “Lynnmour/Inter-River Area One Design Guidelines for Multiplexes and Townhouses” for further details.
Provisions to obtain these protective measures have been included in the relevant sections of this Plan. The estimated cost to construct these flood protection and drainage works is $1,000,000 (in 2006 dollars). It is expected that the District will pay for the design of the recommended protective measures and will provide for the deflection berm at the Fire Training Centre and the floodway in Inter-River Park while the rest of the recommended measures will be provided over time through the redevelopment of the identified area.

The majority of the existing multi-family units were built in the late ‘70’s and ‘80’s, and are in reasonable to good condition. Widespread re-development of these properties is not generally foreseen within the term of this plan and owners are encouraged to maintain their properties to a high standard. The Plan does allow for some limited re-development of existing properties by amending the Plan Map’s Land Use Designations (see LI Map 3) to permit modest increases in density over what has been developed through the existing zoning. This opportunity would be pursued though individual rezoning applications in the future. The community’s intention in this matter is to ensure that most of the new housing is suitable for families with children, that the form of development does not change drastically and that adequate open space continues to be provided on these sites. The locations, types of housing and densities supported in this Local Plan are anticipated to meet the housing needs of this area for the planning period.

The Riverside West neighbourhood is a relatively isolated enclave comprised of approximately 120 single family and 145 multi-family dwellings. The older single-family houses, particularly those north of the Grantham Bridge where there are some large lots on the riverfront, are being re-built with very expensive homes. In recent years many new single-family houses have also been built on smaller lots south of the bridge. A few larger lots remain in this area, which the majority of local residents do not wish to see developed as a new multi-family development, because the traffic generated would severely impact the quiet nature of this cul-de-sac street. Due to the lot size, low density and site layout of the existing Heritage-in-the-Woods multi-family development, there may be a possibility that additional units could be built on this property in the future.

In the development of this Plan the local residents and staff considered many housing and development issues and opportunities. In recognition that this community lacks certain basic infrastructure, amenities and services needed to support additional development, the Plan proposes to adopt a philosophy that any new development can only be supported if it contributes directly to this community’s overall improvement. The Plan outlines what the community’s
Development Objectives are and recommends a Public Benefits Strategy be developed to ensure that the few remaining development opportunities in Lynnmour/Inter-River contribute to the community’s betterment. The Plan also proposes to apply the District’s Mandatory Public Art policy so that the benefits of public art are focussed on achieving these Community Development Objectives.

In general the Plan supports the retention of several existing land uses in the community. The Plan recommends that a site on Monashee Drive now zoned for mausoleum use be rezoned to permit a limited range of public assembly or institutional uses that do not bring additional traffic into the community during peak traffic periods.

In discussing various housing issues with the community, it was recognised that the area is already well serviced by income assisted family housing which needs to be protected and that, due to its lack of services and congested transportation routes, it was not well-suited for new seniors independent housing. It might, however, be suitable for some sort of seniors institutional care facility and a need was recognised for some additional local serving commercial space. This might be combined with a limited number of small apartment units suitable for student housing at an appropriate location. However, the conversion of individual unit’s living space into additional sleeping rooms in existing developments is not supported in the Plan and changes to the appropriate regulations to prevent this practice are recommended.

Perhaps the biggest growth management issue to face this community will come from the future development by the Squamish Nation of their Seymour Creek (I R # 2) Reserve. Located directly across Mount Seymour Parkway from this community the current scheme will see approximately 430,000 square feet of new retail development that includes several regional serving big box uses and associated commercial spaces. As development of this Reserve is outside the jurisdiction of the District’s ability to control, it is hoped the Squamish Nation will be good neighbours and ensure that any negative impacts from its development on the Lynnmour / Inter-River community are minimised.

The District owns some undeveloped land in this community and the Plan establishes new land use designations to guide their future use and development.

During the course of developing the Plan, there was substantial support for allowing the future sale (or lease) of the eastern site (Area 3, LI Map 4) for a broad range of uses including some small apartments suitable for students over local serving commercial uses, local institutional or industrial uses like film studios, subject to this development also providing a new access road to the south parking lot of Capilano College.
The community had greater concerns and was less supportive of future development of the District land on the westside of Lillooet (Area 4, LI Map 4). This well treed land rises steeply from the Holiday Inn, would require extensive environmental and geo-technical studies and the provision of substantial setbacks from nearby residential housing before a new use could be supported. Suitable uses might include those ancillary to the adjacent hotel use or a small care facility of some type that does not generate substantial traffic. Any new development would also be expected to provide a public viewpoint on part of the site.

With policies to retain or expand existing institutional uses and provisions to allow new industrial, institutional and commercial uses in the future the needs of the community should be accommodated for this planning period.

SECTION GOALS

- To protect and enhance the essentially affordable family orientation of the existing residential neighbourhoods
- To meet residents’ changing housing needs in a limited way
- To direct any new development to designated areas or sites only
- To manage new development to protect it from natural hazards such as flooding and landslides
- To beautify and make local streets safer
- To ensure any new development contributes to the overall improvement of the community

POLICY

9.1 Protect and enhance the character of all residential neighbourhoods while accommodating residents’ changing housing needs.

IMPLEMENTATION

9.1.1 Except under conditions or locations specified in this Plan, no changes in uses, densities or zoning will be supported unless the new built form and type of housing proposed is compatible with the existing community, and a substantial local community benefit can be demonstrated.
9.1.2 Height, bulk and lot coverage characteristics of replacement single family homes must be compatible with the general neighbourhood context.

9.1.3 Maintain the character of the existing neighbourhood when considering subdivision approval of any new residential lots.

9.1.4 Consolidation of lots with road allowances or portions thereof for the purposes of subdivision will not be permitted unless there is a public benefit to be obtained.

9.1.5 Owners of small lots or lots with less than 40 foot frontages are encouraged to follow the “Design Principles for Small Lot Developments” (Appendix B to the Small Lot Infill Report) in re-development of their property. These provide guidance in the massing, height, window locations and facades for new dwellings.

9.1.6 The District, in consultation with seniors groups, developers, and the North Shore Advisory Committee on Disability Issues and other disability groups, will develop and promote use of voluntary Adaptable Building Design and Universal Access Guidelines to enable new construction to more easily meet a broader range of needs of persons with disabilities or by seniors.

9.1.7 Encourage local strata councils and other property owners to continue maintaining their properties to a high standard (e.g. participate in “Communities in Bloom”).

9.1.8 Direct District staff to develop regulations to prevent the conversion of shared living spaces (i.e. living or dining rooms) into additional bedrooms within individual units in existing multi-family developments.

9.1.8 Encourage the Ministry of Transportation, District of North Vancouver, and other owners of undeveloped lands to maintain them to community standards.

9.1.9 Utilize Development Cost Charge funding to design the drainage and flood control measures and to provide the Inter-River Park floodway recommended in the “Lynnmour/Inter-River Local Plan Flood Protection Assessment” report by Kerr Wood Leidal.

9.1.10 Include in future District capital budgeting funding to construct protective flood control measures (berm) for the Fire Training Centre.

9.1.11 Establish a Lynnmour/Inter-River Flood Protection Levy to be funded as a condition of redevelopment of properties in Area 1 in order to provide the other flood mitigation and drainage measures recommended in the “Lynnmour/Inter-River Local Plan Flood Protection Assessment” report by Kerr Wood Leidal.

9.1.12 Retain the development at 1055 Premier for income assisted housing indefinitely.
POLICY

9.2 Encourage new residential development to occur primarily through infill and small-scale redevelopment in identified areas.

IMPLEMENTATION

9.2.1 Designate the single family zoned lots on Premier and Orwell Streets, East Keith Road, Forsman and St. Denis Avenues shown as Area 1 on LI Map 4 as suitable for ground oriented multiple unit built forms having a range of permitted densities such that on single lots of record:

- of less than 5000 square feet single family houses are permitted;
- between 5001 and 7000 square feet duplexes to a maximum density of 0.4 floor space ratio are permitted;
- between 7001 and 8000 square feet duplexes to a maximum density of 0.5 floor space ratio are permitted; and
- greater than 8001 square feet triplexes to a maximum density of 0.5 floor space ratio are permitted, provided that:
  - all multiple unit projects are designed to provide vehicle access for future development on an adjacent single lot;
  - all multiple unit projects consider accessible design principles and provide for improved pedestrian circulation where appropriate;
  - all multiple unit projects comply with the Lynnmour/Inter-River Area One Design Guidelines for Multiplexes and Townhouses;
  - all multiple unit projects meet environmental standards and individual units meet acoustic standards;
  - all multiple unit projects contribute to the achievement of the Community Development Objectives, and.
  - all individual development meets prescribed standards for drainage and flood protection and contributes to the shared flood protection measures as described in the Kerr Wood Leidal study titled Lynnmour/Inter-River Local Plan, Flood Protection Assessment – Final, completed in March 2006.

9.2.2 Designate the single family zoned lots on Premier and Orwell Streets, East Keith Road, Forsman and St. Denis Avenues shown as Area 1 on LI Map 4 as suitable for ground oriented Townhouse development to a maximum density of 0.7 floor
space ratio where lots of record are consolidated to provide development sites greater than 15,000 square feet and provided that:

- The number of units per project does not exceed 24 units per acre;
- all multiple unit projects consider accessible design principles and provide for improved pedestrian circulation where appropriate;
- all multiple unit projects comply with the Lynnmour/ Inter-River Area One Design Guidelines for Multiplexes and Townhouses;
- all multiple unit projects minimize vehicle access points to the site;
- all multiple unit projects meet environmental standards and individual units in the vicinity of Highway #1 meet CMHC acoustic standards;
- all multiple unit projects contribute to the achievement of the Community Development Objectives; and
- all individual development meets prescribed standards for drainage and flood protection and contributes to the shared flood protection measures as described in the Kerr Wood Leidal study titled Lynnmour / Inter-River Local Plan, Flood Protection Assessment – Final, March 6, 2006.

9.2.3 Support in principle a replot of Ministry of Transportation lands to low density multi-family development in this area where an improved pedestrian and vehicle circulation pattern is achieved and the new development is better integrated into the existing community.

9.2.4 Apply Local Plan Development Guidelines as appropriate to ensure all new development achieves the goals and objectives set out in this community plan (see Schedule A, Section 4.3: Local Plan Guidelines)

9.2.5 Amend Development Permit Map 1 as necessary to incorporate new, or amend existing, Development Permit Areas as a result of this Local Plan.

POLICY

9.3 Improve streetscapes and provide safer streets

IMPLEMENTATION

9.3.1 Include in the design and upgrading of collector and arterial streets provision for sidewalks and pedestrian lighting wherever possible.

9.3.2 Encourage provision of a Street Tree Maintenance Program and fund it in the annual Municipal Budget.
9.3.3 Include the provision of street trees where feasible in the future road works in Lynnmour/Inter-River.

9.3.4 Provide curb drops and other facilities to aid circulation of all residents.

POLICY

9.4 Control and manage development of the areas identified on LI Map 4 in the manner set out below.

IMPLEMENTATION

9.4.1 At the initiative of the owners, allow consideration of a limited increase in density in any redevelopment proposals for the Heritage-in-the-Woods and Edgewater Estates housing complexes provided that the new built forms and types of housing proposed are compatible with the community, conforms with the overall density specified in the Plan Map (LI Map 3) and such development contributes to the Community Development Objectives.

9.4.2 Retain the large single-family lots north of the Grantham Bridge.

9.4.3 Designate the large lots in the 600-Block Seymour Boulevard (Area 2, LI Map 4) for single family uses only.

9.4.4 Ensure that all new and infill residential development on the Seymour River and Lynn Creek flood plains meet current regulations pertaining to the District’s Environmental Protection By-law and relevant design or development guidelines, the federal government’s Land Development Guidelines for the Protection of Aquatic Habitat and any requirements as set by the Provincial Government for flood protection and riparian areas.

9.4.5 Retain the District owned lot adjacent to IR No. 2 on Seymour Boulevard as an open space buffer to any uses located on these Squamish Nation lands.

9.4.6 Discourage provision of seniors’ independent housing in the Lynnmour/Inter-River area until such time as there are suitable support services available to sustain that type of housing.
9.4.7 Discourage the provision of any additional assisted family housing in Lynnmour/Inter-River.

9.4.8 Consider development of the District land on the north-east corner of Lillooet Rd and Mount Seymour Parkway (Area 3, LI Map 4) for any of the following uses:

- commercial with or without small residential units above;
- multi-tenant office or industrial flexi-space (where all uses are contained within the building and all industrial processes are compatible with the nearby residential and institutional uses);
- film studio;
- hotel and/or uses customarily ancillary to that use; or
- local serving church or institutional use;

Provided that:

- a new south access road to the playing field, neighbourhood park and College, is provided or other provisions are put in place to improve park access and significantly reduce future use of Purcell Way as the principal access to the College as part of this development,
- site access is taken off Lillooet Road and provides access and parking for the public park (to be developed) and the existing playing field,
- a significant landscaped strip is retained along both Lillooet and Mt. Seymour Parkway,
- residual land north of the new access road is added to the existing neighbourhood park, and
- the development contributes to other Community Development Objectives.

9.4.9 Subject to environmental and geo-technical studies, consider part of the District land south of the intersection of Old Lillooet and Lillooet Roads (Area 4, LI Map 4) for uses ancillary to the adjacent commercial development or for a limited range of institutional uses such as seniors care facility;

Provided that:

- the proposed use is compatible with the existing residential developments;
- the proposed use does not generate significant traffic demand;
- a significant landscape buffer is retained or provided;
- a public open space and viewpoint is provided; and
- the development contributes to other Community Development Objectives.

9.4.10 Rezone the portion of District land on the north side of Old Lillooet Road from I4 (Industrial) to PRO (Park Recreation and Open Space) or the appropriate new park zone.
9.4.11 Support rezoning of 1388 Monashee Drive from the existing Cemetery zoning (CM) to Public Assembly (PA) to permit vehicle parking as an accessory use to Capilano College.

9.4.12 Rezone the small triangular portion of District owned NPL (Natural Park) land immediately south of the new Selkirk Road and west of the existing Capilano College parking lot to PA (Public Assembly) to rationalize the current parking use.

POLICY

9.5 Ensure new development in Lynnmour / Inter- River contributes to the following Community Development Objectives:

- to improve community services or access to those services;
- to retain or enhance the natural environment;
- to improve the public trail and pathway system;
- to improve traffic management and pedestrian safety;
- to improve local park and open spaces;
- to increase or improve public access to the waterfront;
- to reduce impacts of growth or development on the community
- to enhance community identity through the provision of public art and other features or amenities; and
- to improve flood protection in the Lynn Creek flood plain.

IMPLEMENTATION

9.5.1 Develop a detailed Public Benefits Strategy that considers community needs, project costs and funding strategies as a means to achieving the Community Development Objectives.

9.5.2 Consider the extent to which any re-development proposal meets the Community Development Objectives.
9.5.3 Accept community amenity contributions in the amount of up to 2% of the estimated cost of building construction, or the equivalent amount provided in-kind, as part of rezoning applications in order to meet Community Development Objectives. The nature and details of the community amenity projects and their priority will be determined in consultation with local community representatives, other District staff and the developer.

9.5.4 Accept contributions towards the construction of flood protection works, including dyke improvements, berms and floodways, and ensure that new construction is built to flood construction levels, as outlined in Kerr Wood Leidal’s report titled *Lynnmour / Inter-River Local Plan, Flood Protection Assessment – Final*, March 6, 2006.

9.5.4 Allow the Lynnmour/Inter-River community to work with the developer to determine whether contributions from the Developer Public Art Program are made in cash and deposited into a Lynnmour/Inter-River Public Art Fund, are used for a specific community art project, or applied to an art project associated with the proposed new development.

9.5.5 Focus funding received from local redevelopment under the District’s Developer Public Art Program to projects such as the development of Community Gateways, restoration and re-location of the Lilooet Trail historic cairn, and to other projects which enhance or develop a stronger sense of community identity or environmental stewardship as given priority in the Community Development Objectives.

9.5.6 Ensure the Lynnmour/Inter-River community is strongly represented on any management or steering group or committee formed for any project related to the Developer Public Art Contribution.
10.0 ENVIRONMENTAL PROTECTION

Two major watercourses – Lynn Creek, which forms the west boundary of the planning area, and the Seymour River, which forms the east boundary, dominate Lynnmour/Inter-River. These watercourses and their tributaries support both fresh water and salmonid fish species.

Aside from the now-closed landfill site that is developing as active play spaces, the community is generally well treed – even in its developed areas. The District has completed a Landfill Closure Plan and has installed a drainage and leachate collection system to contain run-off. The District also periodically collects and burns off the methane gas produced when the decomposition and settlement of the site permits.

The natural environment is an important reason why many residents live in this community as it provides an attractive backdrop view, treed character, and easy access to nature. The watercourses provide wildlife and recreation corridors that require protection and enhancement where possible. There is also the potential of destruction of both the natural and man-made environments by a variety of natural hazards such as flooding, landslides, and erosion of steep slopes that can be minimized in extent and in impact on development with appropriate human actions.

These concerns are shared generally by all District communities and as such are already managed through the District’s Environmental Protection and Preservation Bylaw. This regulates stream corridors and protective setbacks, the safe use of soils and the placement/removal of contaminated soils, development standards on sloping terrain, and tree retention on slopes and of particular species and sizes. In addition, the District OCP contains designated Development Permit Areas (DPA) for the protection of the natural environment and protection of development from natural hazards. This Plan incorporates several changes to the DP maps to protect sensitive areas from new development and to protect new development from newly identified hazards such as flooding.
In 2002 the District hired consultants to undertake River Management Plans for the two major watercourses in the Plan Area and to develop a gravel removal program for Lynn Creek. This later study identified a potential flood risk to development in the Lynn Creek floodplain. In March 2006, a Flood Hazard Assessment of Lynn Creek was completed by Kerr Wood Leidal Consulting Engineers. These studies identified flood risks from both watercourses and recommended that new development in these areas incorporate or provide various protective measures identified in the studies. These recommendations are reflected in Section 9: Housing and Growth Management, in the Design Guidelines for Area 1 and in the policies set out below.

SECTION GOALS

• to protect and enhance major watercourses as important bio-physical and cultural resources
• to protect, preserve and enhance tributary or minor streams and creeks in the area

• to protect and enhance unique natural and forested areas
• to improve air, land and water quality
• to ensure new development is environmentally sound
• to increase environmental stewardship

POLICY

10.1 Protect and enhance the Seymour River and Lynn Creek.

IMPLEMENTATION

10.1.1 Ensure that any development within the designated Seymour River floodplain and Lynn Creek floodplain areas comply with the current legislation and guidelines for environmental preservation and flood protection.

10.1.2 Support completion and implementation of the Lynn Creek and Seymour River Management Plans as these relate to the Lynnmour/Inter-River Planning Area.
10.1.3 Retain and enhance where possible or practical the natural riverbank vegetation on the Seymour River and enhance the riparian area to improve ecological functions.

10.1.4 Encourage Federal Fisheries, GVRD, Seymour Salmonid Society or others to document the fish bearing capacity of the Seymour River and Lynn Creek and develop a plan to increase their capacities over the next ten years for inclusion into the Seymour River and Lynn Creek Management Plans.

10.1.5 Encourage Park Services and others to enhance the riparian area of Lynn Creek in Inter-River, Lynn Canyon Park, Bridgman/Seylynn and Harbourview Parks by working toward integrated management plans for parks within the planning area.

10.1.6 Support Engineering Services’ Premier Street Landfill Closure Plan and efforts to monitor leachate collection. Support any efforts that prevent leachate overflow discharge into Lynn Creek.

10.1.7 Encourage the completion of Integrated Stormwater Management Plans for the smaller tributary watersheds so as to reduce the effects on Seymour River and Lynn Creek.

POLICY

10.2 Preserve, protect and enhance local streams and creeks.

IMPLEMENTATION

10.2.1 Retain natural streamside or creekside vegetation and enhance the riparian areas. Ensure development complies with the District’s Environmental Bylaw and meets the Riparian Area Regulation requirements.

10.2.2 Document the fish bearing capacity of all streams and creeks and put a plan in place to increase such capacity over the next ten years.

10.2.3 Place identification signs at prominent locations of all streams and creeks providing the stream/creek name and information about its environmental and habitat qualities.

10.2.4 Control access to Morten Creek from nearby playing fields and preserve its water quality.

10.2.5 Identify storm water discharge sources and develop a plan to protect natural waterways from harm caused by the quantity and quality of this discharge.
10.2.6 Protect both water quality and quantity in streams and creeks by utilising innovative engineering and stormwater management designs and by developing plans to maintain regional groundwater tables for all land development projects.

10.2.7 Ensure road and trail development is sensitive to the surrounding natural environment.

10.2.8 Ensure the Parks Department develops a fertilizer and pesticide management plan for Inter-River Park.

POLICY

10.3 Preserve and enhance the natural and vegetative qualities of the community to the greatest extent possible.

IMPLEMENTATION

10.3.1 Work with community representatives and park-user groups to ensure as much of the southern-forested area of Inter-River Park is preserved as is possible.

10.3.2 Work with Fire and Rescue Services to maximize the preservation of the forested area north and east of the Fire Training Centre currently designated for future training needs while ensuring that Fire and Rescue training needs are met.

10.3.3 Follow Ministry of Environment, Lands and Parks standards in replanting trees removed from this forested area.

10.3.4 Investigate with the Community Heritage Commission the possibility of designating at least a portion of this forested area as a preservation area under B.C. Heritage legislation.

10.3.5 Retain extensive landscape setbacks on the District properties in the vicinity of the Lillooet Road and Mt Seymour Parkway, and Lillooet Road and Old Lillooet Road intersections.

10.3.6 Prepare a forest protection and management plan for the urban and native forest of Lynnmour / Inter-River.

10.3.7 Promote proper management and maintenance of native trees through publications and display materials.
10.3.8 Require developers, tree work companies and contractors to conform to required standards for tree protection and preservation.

10.3.9 Ensure effective protection of trees during land development activities.

POLICY

10.4 Preserve and enhance local wildlife species to the greatest extent possible.

IMPLEMENTATION

10.4.1 Retain or develop “old field” habitat to support and enhance local raptor populations and ground nesting species.

10.4.2 Support the Bear Awareness Program, installation of interpretative signage, and protective fencing around identified nesting areas.

10.4.3 Design and improve local trails in such a manner as to encourage the preservation and isolation of concentrated nesting areas.

10.4.4 Encourage Park Rangers and others involved with bylaw enforcement to become knowledgeable about local nesting grounds and encourage stricter enforcement of relevant bylaws in these areas.

POLICY

10.5 Reduce the impacts on the community from the Trans-Canada Highway and from gaseous emissions from the landfill site.

IMPLEMENTATION

10.5.1 Encourage the Ministry of Transportation to increase plant materials in the landscaped areas adjacent to Highway 1.

10.5.2 Ensure the District’s Landfill Closure Plan meets current standards and is regularly monitored.

10.5.3 Ensure overflow from the leachate collection system at Inter-River Park does not flow into Lynn Creek.
10.5.4 Improve air quality at Inter-River Park by reducing or filtering landfill gas emissions.

POLICY

10.6 Consider support for new development only if it is based on principles of environmental sustainability.

IMPLEMENTATION

10.6.1 Require a tree inventory and site plan containing information on tree size and location, location of streams and creeks, and slope information prior to development or redevelopment of land.

10.6.2 Require a wildlife survey and bio-inventory of natural or forested areas being considered for alternative uses.

10.6.3 Examine surface and groundwater flow patterns on steep slopes when considering development applications.

10.6.4 Require adequate tree retention on steep slopes as a condition of development approval.

10.6.5 Require developers and construction workers to implement effective sediment and erosion control techniques for development on steep slopes.

10.6.6 Install oil and grit interceptors at all new and re-developed sites and require maintenance programs be developed for review by District staff.

10.6.7 Encourage the incorporation of on-site infiltration measures such as permeable surfaces and vegetation swales into construction plan to reduce urban run-off.

10.6.8 Install catch basin sediment traps in the vicinity of all new development activities.

10.6.9 Ensure landscaping of development parcels reflects and complements the community’s natural setting.
10.6.10 Encourage the development of Green Buildings which conserve energy, water and other resources and uses recycled and environmentally responsible materials.

**POLICY**

10.7 Promote and support local efforts to increase environmental stewardship.

**IMPLEMENTATION**

10.7.1 Support efforts of North Shore Streamkeepers and other groups to enhance streams and rivers in Lynnmour / Inter-River and continue public education efforts on proper streamside protection and management.

10.7.2 Promote community stewardship through park volunteer projects (garbage pickup, stream cleanup, etc.)

10.7.3 Provide educational materials on proper sediment and erosion control techniques for land development.

10.7.4 Replant damaged or historically lost riparian areas.

10.7.5 Survey streams to ensure adequate gravel for spawning and woody debris for rearing salmonid.

**11.0 PLAN IMPLEMENTATION**
There are a number of specific major steps that need to be taken following the completion of this Local Plan and its incorporation into the District Official Community Plan. These steps are separate from and additional to the many Policy and Implementation Statements needed to realize the benefits of this plan. These are:

1. **Annual Monitoring of Plan** - staff need to establish an on-going liaison with the community and should undertake an annual audit to assess what steps have been taken to implement this Plan and to consider it in the context of the ever changing priorities and needs of the community.

2. **Public Benefits Strategy** - such Community Development Objectives as listed in Part 9 and articulated throughout this Plan shall be the measure against which all new development requiring rezoning is considered. Achieving maximum density provisions shall be based, at least in part, on contributions new development makes to achieving these Community Development Objectives. The Public Benefits Strategy will be developed in consultation with local community representatives and will identify appropriate community improvements needed, the costs associated with these projects and their priority for the community.

3. **Flood Protection Contributions** - Area 1 is within the Lynn Creek Flood Plain and will therefore need to address flood protection and mitigation measures as part of any redevelopment. This will include a cash contribution towards the construction of flood protection works (dyke improvements, berms and floodways) and construction to flood construction levels (FCLs). Cash donations are estimated to be in the order of $14.31 per square metre ($1.33 per square foot) of land area.

4. **Community Involvement and Participation** - special provisions and care needs to be taken to ensure that the views of this community are taken into account in the planning and development of the several major regional recreational, commercial and institutional facilities located in this community.
EXECUTIVE SUMMARY

STUDY PURPOSE

Recent development interest and design work on the Ministry of Transportation and Infrastructure (MOTI)’s nearby Highway 1 Lillooet Interchange Improvement Project has prompted District staff to reconsider the transportation network in the Inter-River neighbourhood. These recent initiatives have provided the District of North Vancouver (District) with an opportunity to develop a plan that provides a network that addresses redundancy, circulation, and permeability for people walking, bicycling, driving, or taking transit in this neighbourhood.

The study provides an overview of the range of options considered and provides recommendations that address the study’s goals.

METHODS

Using feedback obtained from stakeholder groups consulted, District staff developed a range of potential options to serve the collective goals and needs for the area. Each option was evaluated as a segment using a set of refined criteria designed to help achieve the study’s objectives. Options were formulated to improve the network with key study goals in mind, as found in the green box to the right.

RECOMMENDATIONS

New connections identified through the planning process include facilities for people walking, biking and driving and will be local streets that will carry relatively low volumes of vehicular traffic (less than 1,500 vehicles per day).

The following new connections are recommended:

- St. Denis Avenue to Forsman Avenue (south of Lynnmour Elementary School);
- Forsman Avenue to Orwell Street (proximate to the south of Lynnmour Elementary School); and
- St. Denis Avenue to Orwell Street (proximate to the north of Lynnmour Elementary School).

ADDITIONAL RECOMMENDATIONS

- Continue to meet the needs of people who walk and cycle to and through the sub area by enhancing and/or formalizing informal trails throughout the site;

STUDY GOALS

- Provide safe & efficient access to all key destinations within and outside of the neighbourhood;
- Minimize neighbourhood traffic impacts & improve livability;
- Provide secondary access were feasible to provide redundancy, better circulation, better emergency access and ability to disperse vehicle traffic;
- Further develop formal and informal walking and cycling networks;
- Provide improved safety and connectivity of commuter & recreational routes & trail networks;
- Preserve and enhance existing natural areas;
- Provide alternative access to St. Denis Avenue; and
- Provide flexibility with ongoing development and highway interchange design work.
- Enhance the existing pathway from Premier Street to Orwell Street, south of ‘Digger Park’ and dedicate space for a utility corridor;
- Support a Drive-to-Five program to encourage physical activity to and from school; and
- Improve circulation for pick-up and drop-off at Lynnmour Elementary.

**FIGURE I**: Summary map of proposed connections.

**NOTE**: Proposed connections are consolidated for convenience purposes only. Each connection may be implemented individually or collectively. Exact alignment is subject to further study.

**LIMITATIONS OF THE STUDY**

The study recognizes that due to adjacent unknowns, the timing of each individual segment will vary. While some segments may be realized through development, other segments may be completed in conjunction with District initiatives. Although new connections have been identified, further study is required to determine the exact alignment of each connection. Lastly, each segment is contingent upon successful partnerships with the stakeholders in this community.
# Table of Contents

I) Study Purpose ................................................................................................................. 1  
II) Context ............................................................................................................................. 1  
   a. Local Context  
   b. Key Destinations  
   c. Existing Pedestrian, Cycling, Transit & Vehicle Network  
   d. Existing Guiding Policy  
III) Assumptions ................................................................................................................. 5  
IV) Study Goals .................................................................................................................... 6  
V) Recommendations ......................................................................................................... 7  
VI) Limitations ..................................................................................................................... 16  
VII) Conclusion .................................................................................................................... 16  

Appendix A – Planning Process ............................................................................................ 18  
Appendix B – Methodology .................................................................................................. 22  
Appendix C – Meeting Minutes & Attachments ................................................................... 29  
Appendix D – District of North Vancouver E-Docs Reference List ....................................... 39
I.  STUDY PURPOSE

In recent months, the District of North Vancouver (District) has received notice of further development interest in the Inter-River neighbourhood. It is timely to consider opportunities to improve the transportation network in the neighbourhood since options for providing additional connection(s) may become limited as redevelopment proceeds. Occurring simultaneously, recent design work being undertaken by the Ministry of Transportation and Infrastructure (MOTI) on the nearby Highway 1 Lilooet Interchange is expected to have an impact on the existing road network.

II.  CONTEXT

a.  LOCAL CONTEXT

The Inter-River sub-area is defined as being north of Highway 1, east of Lynn Creek, south of Inter-River Park and west of Premier Street, as shown in Figure 1 below. This sub-area has been undergoing redevelopment characterized primarily from low-density single family to newer low density multi-family housing. Ongoing guidance for change in the area has been in accordance with the 2011 Official Community Plan and the 2006 Lynnmour/Inter-River Local Plan.

![Figure 1: Inter-River Sub-area Map](image-url)
b. **KEY DESTINATIONS**

The Inter-River sub-area is within close proximity to a range of destinations and amenities, as shown above in Figure 1. Lynnmour Elementary is at the heart of the sub-area, with the fire training centre and Inter-River Park located just north of the school. The southern portion of the park, known locally as ‘Digger Park’, is characterized by play structures and picnic tables. The northern and western portions of Inter-River Park consist of a series of recreational trails, an off-leash dog park, a bike skills park, and sports fields, which often host sports tournaments. Traffic generated by tournaments in the park are encouraged to enter and leave from the park’s main access on Lillooet Road. People driving to the lower fields can either enter from the park’s main entrance on Lillooet Road or from Premier Street.

One of the key destinations within this sub-area is Lynnmour Elementary School, serving a catchment area of families generally residing between Lynn Creek and Seymour River, as far north as Lynnmour North and as far south as Lynnmour South. It also serves families east of Seymour River toward the Maplewood Conservation Area and south of Mount Seymour Parkway. The school’s primary pick-up and drop-off is located at the end of Forsman Avenue, with people walking, cycling, driving, and taking transit to access the school. Circulation is poor for parents who drive to this primary entrance on Forsman Avenue, with minimal space to turn around at the end of the street for travel back to E Keith Road.

Outside of the sub-area boundaries, residents have access to Real Canadian Superstore, Capilano University and the Lynn Creek Town Centre. Phibbs Exchange, the key transit hub in North Vancouver, is located approximately 1.5 kilometres south, or a 15 minute walk from Lynnmour Elementary School. Residents maintain access to these amenities by either by foot, bicycle, transit or vehicle.

c. **EXISTING PEDESTRIAN, CYCLING, TRANSIT & VEHICULAR NETWORK**

Passage to and through the Inter-River sub-area from the south can be accessed by foot or bicycle using a highway underpass south of East Keith Road and St. Denis Avenue (see Figure 1). People cycling and walking often travel up St. Denis Avenue through the park and further north, or east along East Keith Road to other destinations.

Several informal east-west pathways exist for people walking and cycling from St. Denis Avenue to Premier Street and from Premier Street to internal street networks off of Lillooet Road (see Figure 2 below). Students of Lynnmour Elementary often access ‘Digger Park’ using an informal path behind the school’s gravel field, while all other users access ‘Digger Park’ either from Orwell Street or along the informal powerline trail that runs between St. Denis Avenue and Premier Street. Dog walkers often access the off-leash dog park from St. Denis Avenue or through the park’s internal network.

In 2009, Council endorsed the Spirit Trail Route Planning Report. The Spirit Trail is envisioned as a 35-kilometre long, accessible, lowing trail that will link Horseshoe Bay and Deep Cove. In June of 2016, Council indicated general agreement with a route that would travel north through Seylynn Park and along E Keith Road before moving onto Mount Seymour Parkway, as shown in Figure 2 below.
There are currently two bus stops within walking distance on the eastern side of the site (see Figure 2 above). The stop located on Old Lillooet Road services route 239 to Capilano University, while the stop located on Lillooet Road at Mount Seymour Parkway (west side) services routes 239 and 255 to Park Royal and Dundarave via Capilano University respectively. The stop on the east side of Lillooet Road services the 255 route to Dundarave. Access to the bus stop on Lillooet Road is taken from south of the site along the road to the Highway 1 Westbound off-ramp or through the Holiday Inn parking lot.

The existing street network in the sub-area is comprised of mostly north-south public roads, with the exception of East Keith Road and Old Lillooet Road. This street configuration does not provide any redundancy\(^1\) for vehicles trying to access key destinations and residences on St Denis Avenue, Forsman Avenue, Orwell Street, and Premier Street, providing only one access in and out within the sub-area. Minimal connectivity with the surrounding street network limits access into the sub-area from Old Lillooet Road and the E Keith Road ramp.

c. **EXISTING GUIDING POLICY**

Key goals and recommendations from this study received general direction from Council-approved documents that outline overarching District priorities. The following policies and documents were used to inform the parameters of this study:

---

\(^1\) ‘Redundancy’ – refers to the provision of alternative access in and out of a street (i.e. two ways in and out of a street)
• **Official Community Plan (OCP) (2011)** aims to increase the mode share of walking and cycling by 2020.

• **Zoning Bylaws** provide information on existing and intended land uses for the Inter-River sub-area and District as a whole.

• **Form & Character Development Permit Area (DPA) Guidelines** are contained within Schedule B of the 2011 OCP and address the need for improved pedestrian connectivity through and around developments.

• **Transportation Plan (2012)** outlines the need to manage the existing road network to optimize safety and efficiency, while ensuring the integration of sustainable travel modes into the system.

• **Pedestrian Master Plan (2009)** emphasizes a need to provide a well-connected network of pedestrian facilities to encourage active modes of travel throughout the District.

• **Bicycle Master Plan (2012)** identifies one of its key goals as establishing a bicycle network that strengthens community connections and improves safety. Additional supporting goals and objectives include: promoting cycling as a key part of a sustainable transportation system and making all municipal streets more appealing to cyclists in addition to accommodating pedestrians and vehicles.

• **Road Network Study (2011)** addresses the need to identify opportunities for roadway reconfiguration to accommodate other modes and points to the benefits in circulation when improvements to road networks are effective.
III. ASSUMPTIONS

The following assumptions provide parameters for this study. These assumptions are guided by Council approved documents like the Official Community Plan and Zoning Bylaw, where applicable. Due to adjacent uncertainties with regard to existing land uses and ongoing development, these assumptions allow District staff to plan for network improvements under the following conditions:

- **St. Denis**
  Due to ongoing MOTI work on the Lillooet Highway Interchange, it is assumed that access to St. Denis Avenue would no longer be provided from E. Keith Road, as per preliminary highway improvement designs.

- **Lynnmour Elementary School**
  It is assumed that Lynnmour Elementary School would remain open and on this site.

- **Fire Training Centre**
  It is assumed that access to the fire training centre site would continue to be provided.

- **Park Access**
  It is assumed that primary access to Inter-River Park would continue to be from Lillooet Road.

- **Property Access**
  It is assumed that access to all properties must be maintained.

- **Existing Pedestrian and Cycling Commuter Routes**
  It is assumed that existing commuter and recreational routes that go through and to the Inter-River neighbourhood would be maintained and/or enhanced where appropriate.

- **Additional Connections**
  It is assumed that staff will continue to look for viable proximate connection options as opportunities arise and where such connections provide increased benefit to the community.
IV. STUDY GOALS

The following goals have been developed to guide the study. These goals have been reviewed and refined using feedback and input from internal and external stakeholders:

- Provide safe and efficient access to all key destinations within and outside of the neighbourhood;
- Minimize neighbourhood traffic impacts and improve livability;
- Provide secondary access where feasible to provide the following: redundancy, better circulation, better emergency access and ability to disperse vehicle traffic;
- Further develop formal and informal walking and cycling networks;
- Provide improved safety and connectivity of commuter and recreational routes as well as trail networks;
- Preserve and enhance existing natural areas;
- Provide alternative access to St. Denis Avenue; and
- Provide flexibility with ongoing development and highway interchange design work.
V. RECOMMENDATIONS

The following recommendations were based on discussions with stakeholders and meet the goals of the study.

NOTE: The alignments shown are schematic. Exact alignments for the proposed connections below are subject to additional detailed review. Each option has been evaluated individually due to timing and phasing, but can be implemented in isolation or together.

a. ROAD CONNECTIONS

Connections identified in this section include facilities for people walking, biking and driving. The road connections are classified as a local street and generally carry lower volumes of vehicular traffic. The form of the road connection should be designed to reflect the classification and volume. Conceptual road configurations as shown in Figures 3 and 4 may be considered.

FIGURE 3: Olympic Village, Vancouver

FIGURE 4: Henry Hudson Elementary School, Kitsilano
Connection A: St. Denis Avenue – Forsman Avenue

- **Purpose:** Provides direct access to St. Denis Avenue from E. Keith Road.
- **Benefit**
  - Provides users with options for accessing St. Denis Avenue; and
  - Can occur independently or in conjunction with other proposed segments.
- **Impact**
  - Depending on final alignment, school and assembled properties would need to accommodate the new connection.
- **Timing:** Would coincide with development of residential housing south of the proposed connection and/or renewal of the school.
- **Collaboration:** School District 44, residents and developers.

![FIGURE 5: St. Denis Avenue to Forsman Avenue Segment](image-url)
Connection B: Forsman Avenue – Orwell Street

- **Purpose:** Provides redundancy to the road network, specifically to Forsman Avenue.
- **Benefit:**
  - Provides users with options for accessing the school (and to St. Denis Avenue if connected).
- **Impact:**
  - Requires coordination between the school and DNV to develop the segment.
- **Timing:** Would occur when the school renews.
- **Collaboration:** School District 44 and residents.

**FIGURE 6:** Forsman Avenue to Orwell Street
Connection C: St. Denis Avenue – Orwell Street

- **Purpose:** Provides access and/or redundancy to St. Denis Avenue users and fire training site.
  - **Benefit**
    - Provides users with options for accessing St. Denis Avenue and Orwell Street;
    - In conjunction with the southern connection, enables ease of traffic flow through the site for parents picking up/dropping off their child(ren) at school while minimizing impact on residents along Forsman Avenue;
    - If the fire training site is redeveloped per the land-use zoning designation, this connection may provide a more direct access to the site; and
    - Can occur independently or in conjunction with other proposed segments.
  - **Impact**
    - Would intersect the existing informal pathway that exists between Lynnmour Elementary School and ‘Digger Park’; and
    - Would require DNV to purchase property located at the northern end of Orwell Street or from the school district.
- **Timing:** Would occur when the DNV is able to acquire property.
- **Collaboration:** School District 44, Fire Training Centre site operators and residents.

![FIGURE 7: St. Denis Avenue to Orwell Street](image)
b. **WALKING & BICYCLING CONNECTIONS**

**Connection D: Maintain and Improve Existing Walking and Cycling Connections**

- **Purpose:** To continue to meet the needs of people who walk and cycle to and through the sub-area.
- **Benefit:**
  - Allows users to use existing routes for recreational and commuter purposes; and
  - Encourages continued active travel through the site;
  - Encourages linkages with the proposed Spirit Trail route, which provides an important East-West connection through the District of North Vancouver and other North Shore Municipalities
- **Impact:** Minimal/none.
- **Timing:** As opportunities arise.
- **Collaboration:** Residents.

![Figure 8: Pathway on Cardero Street, West End](image1)

![Figure 9: Pathway on Guildford Street, West End](image2)

![Figure 10: Trails and Pathways](image3)
c. ADDITIONAL RECOMMENDATIONS: OTHER ELEMENTS

Enhanced Pathway & Utility Corridor

- Purpose: To ensure space is available for pathway enhancements and to reserve additional land required for a utility corridor.
- Benefit:
  - Provides an improved walking space for pedestrians and users of ‘Digger Park’;
  - Provides additional space for those who walk, cycle and require mobility aids with minimal competition for space; and
  - Provides the required space for maintaining and storing underground utilities.
- Impact: Minimal/none.
- Timing: Space to be reserved immediately, with enhancement occurring when opportunities arise.
- Collaboration: Residents.

![FIGURE 11: Enhanced Pathway & Utility Corridor](image-url)
Support Drive-to-Five Program

- **Purpose:** This program is aimed at encouraging students to use more active modes of travel to school. Parents are encouraged to drop their children off a five-minute walk away from school, allowing students to get physical exercise and to learn how to become more safe and aware as pedestrians.

- **Benefit:**
  - Encourages parents and students to incorporate limited physical activity to and from school; and
  - Reduces traffic in and around the school drop-off/pick-up zone.

- **Impact:** Minimal/none.

- **Timing:** Would be contingent upon interest of the Parent Advisory Committee (PAC) to work on this issue.

- **Collaboration:** PAC possibly in collaboration with local businesses.

![FIGURE 12: Drive-to-Five Walking Distances](image)
Lynnmour Elementary Internal Circulation

- **Purpose:** Improve circulation of parents dropping off and picking up students during peak times.
- **Benefit:**
  - Improves neighbourhood livability for nearby residents; and
  - Allows for efficient and safe circulation near the school.
- **Impact:** May impact site design for the school’s future development.
- **Timing:** When the school renews.
- **Collaboration:** School District 44, PAC, students, residents.

**FIGURE 13:** Example of Internal Circulation: Highlands Elementary School

**FIGURE 14:** Example of Internal Circulation: Highlands Elementary School
d. ADDITIONAL RECOMMENDATIONS: OUTSIDE STUDY AREA

Formalize Walking and Pedestrian Connections between Lillooet Road and Premier Street

- **Purpose:** Provides formal indication of a trail from Lillooet Road to Premier Street.
- **Benefit**
  - Provides improved access from Premier Street to Lillooet Road for users trying to access the transit stop on Lillooet Road;
  - Provides improved access for students walking to Lynnmour Elementary School from the east; and
  - Formalizes an already existing informal route through a residential complex to serve the greater neighbourhood, as well as the complex's residents, using wayfinding signage.
- **Impact**
  - Some residents may not support users from neighbouring areas using a path through private development.
- **Timing:** As opportunities arise.
- **Collaboration:** School District 44, Edgewater Estate residents and property managers, and Lynnmour West residents and property managers.

Vehicle Connection from Lillooet Road to Premier Street

- **Purpose:** Provides access and redundancy for Premier Street and the neighbourhood.
- **Benefit**
  - Currently, there are two ways into the neighbourhood and one way out. This segment provides improved redundancy and egress from the site.
- **Impact**
  - Would be designed with redevelopment to have a minimal impact to future residents.
  - Further studies need to be completed to determine alignment with grade and development.
- **Timing:** Would occur if and when the existing developments between Lillooet Road and Premier Street redevelop. (possible 10-20 year timeframe)
- **Collaboration:** Edgewater Estate residents and property managers, Lynnmour West Estate residents and property managers, future developers.
V. LIMITATIONS

The study recognizes that due to adjacent unknowns, the timing of each individual segment will vary. While some segments may be recognized through development, others can be completed in conjunction with District initiatives (i.e. property acquisition). Although specific segments have been identified, further study is required to determine the exact alignment of each connection. The proposed connections outlined in this Study are intended solely to show through connections in a general area. Lastly, each segment is contingent upon successful partnerships with stakeholders in this community. Ensuring that local residents and development interests have an opportunity to influence positive changes in this community is a priority.

VI. CONCLUSION

As communities in the District continue to grow and densify, the existing street network needs to advance in order to meet current and future needs for improved access and redundancy. Due to development interest in the Inter-River neighbourhood, the District has identified key opportunities to improve the quality of life of its existing and future residents.

The District recognizes that streets in the Inter-River sub-area should be designed to ensure that they are safe, comfortable, and welcoming for all users, including people walking, cycling, driving or taking transit. New streets that are introduced into the area need to be sensitive to the existing neighbourhood, and should reflect the other local streets. In addition, the new connections need to improve vehicular access through the site as well as increase permeability and access for all users.

In order to reflect the interests of the neighbourhood’s residents, the District further recognizes the need to maintain the neighbourhood character in all improvements to the existing network. This work will be done in consultation with local residents and developers to ensure key stakeholders are involved throughout this process.

The proposed recommendations require further studies to determine the most appropriate and cost effective alignment with the least impact to current residents. The proposed connections identified in this report were developed using stakeholder feedback. Each connection serves the purpose of improving circulation and redundancy in the neighbourhood, while providing required access to St. Denis Avenue.

These proposed connections, whether taken individually or collectively, serve to create a more complete and finer grained network in the neighbourhood. These connections intend to address a range of ongoing transportation related issues and help improve the quality of life of local residents, school-goers, and recreational trail users in the Inter-River sub-area.
Planning Process

As part of the transportation review process, District staff consulted a total of 12 internal and external stakeholders, listed below in Table 1. Stakeholders from group #1 were chosen from internal departments to provide input on ongoing issues in the neighbourhood. Stakeholders from group #2 were chosen to represent the varying interests in the neighbourhood.

**TABLE 1: Stakeholder Consultation Groups**

<table>
<thead>
<tr>
<th>Stakeholder Group #1</th>
<th>Stakeholder Group #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering</td>
<td>Fire</td>
</tr>
<tr>
<td>Environment</td>
<td>Neighbourhood Representatives (2)</td>
</tr>
<tr>
<td>Parks (2)</td>
<td>School District #44</td>
</tr>
<tr>
<td>Planning</td>
<td>Transportation Consultation Committee</td>
</tr>
<tr>
<td>Public Safety</td>
<td>Vancouver Coastal Health</td>
</tr>
</tbody>
</table>

In the first set of meetings, stakeholders were requested to review the goals, assumptions, and criteria used to evaluate the options proposed for the study area. Stakeholders were also asked to collectively identify opportunities and barriers with the existing transportation network. Stakeholder input also played a key role in refining criteria to meet the needs of all representatives and identifying key priorities in the neighbourhood.

District staff reviewed the feedback and input of both stakeholder groups and worked to develop potential transportation options that best met the goals outlined for the study. These options were evaluated to determine the highest-ranking options. The criteria included below were used to evaluate a total of seven options.
<table>
<thead>
<tr>
<th>Category</th>
<th>Criteria Description</th>
<th>Rating</th>
<th>Option 1a</th>
<th>Option 1b</th>
<th>Option 2</th>
<th>Option 3</th>
<th>Option 4a</th>
<th>Option 4b</th>
<th>Option 5</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Safety</td>
<td>• Improves safety for all users walking, cycling and driving.</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Minor or no impact on safety for all users walking, cycling and driving.</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Reduced safety for all users walking, cycling and driving.</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Improves ease of access for emergencies throughout whole site.</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Improves ease of access for emergencies to part of the site.</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Does not improve ease of access for emergencies for most of the site.</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Mobility and Connectivity</td>
<td>• Improves access and circulation of all modes</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Has a minimal impact on access and circulation of all modes.</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Reduces ease of access and circulation of all modes</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Provides improved access for all users to key destinations (e.g. natural areas, school etc).</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Provides improved access for only some users to key destinations (e.g. natural areas, school etc).</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Reduces ease of access for all users to key destinations (e.g. natural areas, school etc)</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Natural Areas</td>
<td>• No impact on parkland/natural areas.</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Minimal impact on parkland/natural areas.</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Negative impact on parkland/natural areas.</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Livability</td>
<td>• Positively enhances neighbourhood livability.</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Has minimal to no impact on neighbourhood liveability.</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Negatively impacts neighbourhood livability.</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
</tbody>
</table>
The second set of stakeholder meetings was used to confirm the revised goals and assumptions. District staff shared draft options and draft recommendations informed by an evaluation of each option. Stakeholders provided feedback on the preferred set of transportation improvements in the neighbourhood. The options that best reflect stakeholder input and analysis completed by staff are summarized in Chapter V: Recommendations. In September, 2016, District staff consulted the Inter-River Community Association with proposed recommendations. The results and minutes of this consultation are provided in Appendix C.

<table>
<thead>
<tr>
<th>Category</th>
<th>Criteria Description</th>
<th>Rating</th>
<th>Option 1a</th>
<th>Option 1b</th>
<th>Option 2</th>
<th>Option 3</th>
<th>Option 4a</th>
<th>Option 4b</th>
<th>Option 5</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs</td>
<td>• The cost of implementation is low.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• The cost of implementation is medium.</td>
<td>★</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• The cost of implementation is high.</td>
<td>★</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private Interests</td>
<td>• Has a positive impact on existing landowners and/or the development potential of land.</td>
<td>★</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Has a neutral impact existing landowners and/or the development potential of land.</td>
<td>★</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Has a negative impact on existing landowners and/or the development potential of land.</td>
<td>★</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Options for Consideration

Using stakeholder feedback as the foundation for further analysis, District staff developed a range of potential options to serve the goals and needs for the area. Each option was evaluated as a segment, with the understanding that combined options would serve to better improve the network as a whole. Staff presented options with two key objectives in mind:

1. Better connect and improve the existing network for current and future transportation needs;
   and
2. Provide required access to St. Denis Avenue.

The range of proposed options considered for further analysis and evaluation are shown below in Figure 15. These options are intended to delineate a general location for a proposed east-west connection. Further details on the exact alignment will need to be discussed with relevant property owners and upon Council’s direction.

Although the options presented in Figure 15 serve the purpose of providing vehicular access, the District supports creating streets that are safe for all users that walk, cycle, use transit, and drive to and through the site. Stakeholder feedback further highlighted the need to maintain and enhance existing formal and informal walking and cycling routes through the site. This study does not aim to detract from the existing walking and cycling network, but rather aims to highlight opportunities that improve the range of options for accessing various destinations in and adjacent to the sub-area.
FIGURE 15: Map of Options Considered

EVALUATION

VEHICLE ACCESS

Stakeholders were asked to consider each option individually to determine which options best served the most needs in the neighbourhood. Although this study assumes Lynnmour Elementary School will remain open on site, the School Facilities Plan highlights the possibility that Lynnmour Elementary School may renew. The District believes access should be maintained, as a decision on its final location, whether on- or off-site, is still undecided.

Using the goals and assumptions as parameters for this study, stakeholders generally agreed with the following:
• Option 1b plays a key role in providing improved circulation and access to the school’s existing entrance, should the school remain in its current location. Combining option 1a is a logical connection through to St. Denis Avenue;
• A combination of options 1a and 1b with 2 will provide a similar connection to 4a and 4b with less impact on the park;
• Option 4b is a favourable option but, option 4a will have an impact on the southern portion of Inter-River Park, otherwise known as ‘Digger Park’;
• Options 3 and 5 have minimal support due to their impact on existing parkland and their minimal impact to overall network improvement; and

The meeting minutes that document the discussion can be found in Appendix C.

District staff used the feedback collected from both sets of stakeholder meetings to refine the options and present the most widely recommended ‘scenarios’. These scenarios are presented in Chapter V: Recommendations.

Scenarios that provided redundancy within the street network and improved circulation were ranked more favourably than those that had fewer overall benefits to the network. Scenarios that had the biggest impact to Inter-River Park and to existing development were not ranked favourably amongst stakeholders.

The highest ranking scenario from this evaluation was Scenario 4, which recommends a combination of options 1a, 1b, 2 and 4b. This scenario was preferred because it provides redundancy for access to St. Denis road while providing improved circulation and additional alternatives into/out the site. Option 2 provides a second option for users into and out of the sub-area by providing access via Premier Street or Orwell Street, and has a lower impact on the park than option 4a. It was however recognized that option 2 would place greater pressure on existing traffic patterns along Premier St. Option 2 was subsequently removed from the final recommendations.

A range of additional transportation needs were highlighted by stakeholders during the consultation process. These needs were not highlighted in any of the presented scenarios, but are addressed below.

**PEDESTRIAN, CYCLING, AND TRANSIT ACCESS**

**Maintain and Enhance Existing Pedestrian and Cycling Commuter and Recreational Networks**

• Stakeholders highlighted the importance of formal and informal pedestrian and cycling trails that travel to and through the site.
• Commuter and recreational trails that run through the site should be maintained to provide opportunities for active travel.

**Improved Connections to Transit**

• Stakeholders identified barriers to accessing the existing transit stops located southeast of the sub-area on Old Lilooet Road and Lilooet Road.
- District staff recommend exploring opportunities to put in more formalized paths that provide improved access to the existing bus stop locations.
- Stakeholders also identified opportunities to improve transit stop infrastructure for all abilities and for all weather conditions.

**SCHOOL CONGESTION**

**Drive to Five Program**
- The intent of Drive-to-Five programs is to provide locations where parents can park approximately a 5 minute walk away from school and encourage their children to engage in active modes to school.
- Stakeholders requested that opportunities for Drive-to-Five locations at existing parking lots in the adjacent area be explored.
- The Holiday Inn parking lot or existing Ministry land were recommended as two potential locations for this use.
- The District recommends that the Lynnmour Elementary PAC work with the local businesses to identify potential locations for short term-parking in support of Drive-to-Five.

**ADDITIONAL CONSIDERATIONS**

**PROPERTY ACQUISITION**
- The District understands that as part of this transportation review, network improvements will likely be timed with redevelopment opportunities. Where redevelopment opportunities do not exist, the District would need to consider acquiring properties to help create a complete network.
## TABLE 3: Evaluation of Options

<table>
<thead>
<tr>
<th>Category</th>
<th>Criteria Description</th>
<th>Rating</th>
<th>Option 1a</th>
<th>Option 1b</th>
<th>Option 2</th>
<th>Option 3</th>
<th>Option 4a</th>
<th>Option 4b</th>
<th>Option 5</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Safety</td>
<td>• Improves safety for all users walking, cycling and driving.</td>
<td>⬤</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• All options being considered will be low-volume, low-speed streets, and will therefore have reasonably safe traveling conditions.</td>
</tr>
<tr>
<td></td>
<td>• Minor or no impact on safety for all users walking, cycling and driving.</td>
<td>⬣</td>
<td>⬤</td>
<td>⬤</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• None of the options ‘reduce’ safety however, Options 3-5 present more opportunity for conflicts between users than Options 1-2.</td>
</tr>
<tr>
<td></td>
<td>• Reduced safety for all users walking, cycling and driving.</td>
<td>⬣</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Improves ease of access for emergencies throughout whole site.</td>
<td>⬤</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Options 1a &amp;1b collectively provide the best access and circulation for emergency vehicles through the site.</td>
</tr>
<tr>
<td></td>
<td>• Improves ease of access for emergencies to part of the site.</td>
<td>⬣</td>
<td>⬤</td>
<td>⬤</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Option 2 as well as 4a &amp; 4b collectively also provide good access and circulation but may not be the most efficient route for emergency access.</td>
</tr>
<tr>
<td></td>
<td>• Does not improve ease of access for emergencies for most of the site.</td>
<td>⬣</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Option 3 and 5 provide access for emergency vehicles but provide the least circulation and efficiency of travel through the site.</td>
</tr>
<tr>
<td>Mobility and Connectivity</td>
<td>• Provides required access to St. Denis</td>
<td>⬤</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Providing access to St. Denis is a required component of this study.</td>
</tr>
<tr>
<td></td>
<td>• Does not provide required access to St. Denis</td>
<td>⬣</td>
<td>⬤</td>
<td>⬤</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• At a minimum, the chosen scenario must include an option that provides this required access.</td>
</tr>
<tr>
<td></td>
<td>• Improves access and circulation of all modes</td>
<td>⬤</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• All options, with the exception of 1b, provide access and connectivity to other streets but do not provide improved circulation.</td>
</tr>
<tr>
<td></td>
<td>• Has a minimal impact on access and circulation of all modes.</td>
<td>⬣</td>
<td>⬤</td>
<td>⬤</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Option 1b improves both access and ease of circulation for all modes as well for parents dropping off/picking up children at school.</td>
</tr>
<tr>
<td></td>
<td>• Reduces ease of access and circulation of all modes</td>
<td>⬣</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural Areas</td>
<td>• Provides improved access for all users to key destinations (e.g. natural areas, school etc).</td>
<td>⬤</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• This criterion is not an effective indicator.</td>
</tr>
<tr>
<td></td>
<td>• Provides improved access for only some users to key destinations (e.g. natural areas, school etc).</td>
<td>⬣</td>
<td>⬤</td>
<td>⬤</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Reduces ease of access for all users to key destinations (e.g. natural areas, school etc).</td>
<td>⬣</td>
<td>⬤</td>
<td>⬤</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• No impact on parkland/natural areas.</td>
<td>⬤</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Option 1a/b and 2 do not impact parkland or natural areas.</td>
</tr>
<tr>
<td></td>
<td>• Minimal impact on parkland/natural areas.</td>
<td>⬣</td>
<td>⬤</td>
<td>⬤</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Option Options 3 and 4a/b would require removal of some park trees.</td>
</tr>
<tr>
<td></td>
<td>• Negative impact on parkland/natural areas.</td>
<td>⬣</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Option 5 would impact the Riverine Forest.</td>
</tr>
<tr>
<td>Category</td>
<td>Criteria Description</td>
<td>Rating</td>
<td>Option 1a</td>
<td>Option 1b</td>
<td>Option 2</td>
<td>Option 3</td>
<td>Option 4a</td>
<td>Option 4b</td>
<td>Option 5</td>
<td>Comments</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>--------</td>
<td>------------</td>
<td>------------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>----------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Livability</td>
<td>• Positively enhances neighbourhood livability.</td>
<td>⬤</td>
<td></td>
<td></td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>• Options 1a and 1b provide improved circulation and flow of traffic for school pick-up/drop-off</td>
</tr>
<tr>
<td></td>
<td>• Has minimal to no impact on neighbourhood livability.</td>
<td></td>
<td>⬤</td>
<td></td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>• Option 2 would divert traffic from any new development onto Premier St and negatively impact residents who take access off of Premier St.</td>
</tr>
<tr>
<td></td>
<td>• Negatively impacts neighbourhood livability.</td>
<td></td>
<td>⬤</td>
<td></td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>• Options 3 and 4b provide no benefit to the community.</td>
</tr>
<tr>
<td></td>
<td>• Options 4a and 5 would have an impact on the park and the quality of the park as a public space.</td>
<td></td>
<td>⬤</td>
<td></td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td></td>
</tr>
<tr>
<td>Costs</td>
<td>• The cost of implementation is low.</td>
<td>⬤</td>
<td></td>
<td></td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>• The cost of implementing options 1-2 are considered low because of the narrow road widths and no impact to utilities.</td>
</tr>
<tr>
<td></td>
<td>• The cost of implementation is medium.</td>
<td></td>
<td>⬤</td>
<td></td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>• Options 3-4 are considered high because of utility costs and the length of the segment.</td>
</tr>
<tr>
<td></td>
<td>• The cost of implementation is high.</td>
<td></td>
<td>⬤</td>
<td></td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>• Option 5 would be costly due to the length of the segment.</td>
</tr>
<tr>
<td>Private Interests</td>
<td>• Has a positive impact on existing landowners and/or the development potential of land.</td>
<td>⬤</td>
<td></td>
<td></td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>• Options 1a &amp; 2 may impact the size of developable land.</td>
</tr>
<tr>
<td></td>
<td>• Has a neutral impact existing landowners and/or the development potential of land.</td>
<td></td>
<td>⬤</td>
<td></td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>• Option 1b may have a minor impact depending on size and location of public meeting place/square.</td>
</tr>
<tr>
<td></td>
<td>• Has a negative impact on existing landowners and/or the development potential of land.</td>
<td></td>
<td>⬤</td>
<td></td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>• Option 4a would have a negative impact on existing landowners.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>⬤</td>
<td></td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
<td>• Option 5 would impact existing landowners and may have an impact if properties were redeveloped.</td>
</tr>
</tbody>
</table>
APPENDIX C: MEETING MINUTES & ATTACHMENTS
NOTE: A total of four meetings were held with internal and external stakeholders. All participants were given the same reference material, consisting of the study area map, study goals, assumptions, and criteria for evaluation. These study components were refined using stakeholder feedback and are presented in this report to provide context for the proposed recommendations.

Inter-River Sub-area Transportation Study

District of North Vancouver

Stakeholder Meeting #1a

Meeting Minutes & Attachments

Held at: Municipal Hall - Meeting Room ‘C’

Date/Time: May 17th at 2:00 pm Adjourned: 3:05 pm

Attended By:
Douglas Rose – Parks
Fiona Dercole – Public Safety
Pouya Behzadi – Engineering
Richard Boase – Environment
Susan Rogers – Parks
Tamsin Guppy – Planning
Ingrid Weisenbach - Transportation
Shazeen Tejani – Transportation

Minutes taken by: Shazeen Tejani

Meeting Agenda Topics:

1) Introductions
2) Review Study Purpose
3) Discussion of Goals, Assumptions, Criteria
4) Existing Conditions & Issues
5) Wrap-Up & Next Steps

❖ REVIEW STUDY PURPOSE

• Weisenbach spoke about the purpose of the transportation study, which included a need to clarify the transportation needs for this area in advance of future development proposals.
• The boundaries of the study area were discussed. Weisenbach went over the study area and the tight timeframe. Group discussed that the boundary may not be an exact line as the study should also consider users that pass through the study area or people within the neighbourhood that need to access key destinations outside the study area.
DISCUSSION OF ASSUMPTIONS, GOALS & CRITERIA

- Assumptions
  - Weisenbach shared the draft assumptions with the group.
  - The group discussed the assumptions and provided additional suggestions that should be considered: a) park access, b) property access and c) commuter routes and active travel networks.

- Goals
  - Weisenbach shared the draft goals and asked for feedback.
  - Group suggested adding in goals that addressed protection of active travel networks and preservation of natural areas and recreational space.

- Criteria
  - Tejani reviewed the draft criteria to be used for options evaluation.
  - Group recommended additional criteria about protection of natural areas, flood protection, connection of trail networks, impact on utilities, and cost of option implementation.

EXISTING CONDITIONS & ISSUES

- Group recorded strengths and weaknesses of the existing transportation network on the study area map.
- Group then summarized issues into key themes. (See Attachment A on page 29)

Wrap Up & Next Steps

- Meeting minutes to be dispersed for confirmation of understanding
- Draft evaluation of options for presentation at next meeting, and layout of May 30th meeting provided.

NEXT MEETING: Monday, May 30th at 10:30 am in Meeting Room ‘C’
Inter-River Sub-area Transportation Study

District of North Vancouver
Stakeholder Meeting #1b
Meeting Minutes

Held at: Municipal Hall - Meeting Room ‘A’
Date/Time: May 17th at 7:00 pm Adjourned: 8:00 pm
Attended By: Antje Wahl – Transportation Consultation Committee
Brenda Barrick – Neighbourhood Representative
Erin Black – Vancouver Coastal Health
Mark Thomson – School District 44
Victor Penman – Fire
Ingrid Weisenbach – Transportation
Shazeen Tejani – Transportation

Regrets: Elise Roberts – Neighbourhood Representative

Minutes taken by: Shazeen Tejani

Meeting Agenda Topics:

1) Introductions
2) Review Study Purpose
3) Discussion of Goals, Assumptions, Criteria
4) Existing Conditions & Issues
5) Wrap-Up & Next Steps

❖ INTRODUCTIONS
• Participants introduced themselves and their roles relevant to this meeting.

❖ REVIEW STUDY PURPOSE
• Weisenbach spoke about the purpose of the transportation study, which included a need to clarify the transportation needs for this area in advance of future development proposals.
• The boundaries of the study area were discussed. Weisenbach went over the study area and the tight timeframe. Group discussed that the boundary may not be an exact line as the study should also consider users that pass through the study area or people within the neighbourhood that need to access key destinations outside the study area.

❖ DISCUSSION OF ASSUMPTIONS, GOALS & CRITERIA
• Assumptions
  ▪ Weisenbach shared the draft assumptions with the group.
The group discussed the assumptions and provided additional suggestions that should be considered: a) park access, b) property access and c) commuter routes and active travel networks.

- **Goals**
  - Weisenbach shared the draft goals and asked for feedback.
  - Group suggested adding in goals that addressed protection of active travel networks and preservation of natural areas and recreational space.

- **Criteria**
  - Tejani reviewed the draft criteria to be used for options evaluation.
  - Group recommended additional criteria about protection of natural areas, livability of the neighbourhood to enhance social cohesion and sense of community, and health indicators.

- **EXISTING CONDITIONS & ISSUES**
  - Group recorded strengths and weaknesses of the existing transportation network on the study area map.
  - Group then summarized issues into key themes. (See Attachment A on page 29)

- **Wrap Up & Next Steps**
  - Meeting minutes to be dispersed for confirmation of understanding
  - Draft evaluation of options for presentation at next meeting, and layout of June 2nd meeting provided.

**NEXT MEETING: Thursday, June 2nd at 7:00 pm in Meeting Room ‘A’**
ATTACHMENT ‘A’: KEY THEMES IDENTIFIED BY TEAM

Summary of Existing Conditions & Opportunities (Both Groups):

- Study area not bound by the sub-area boundaries; issues like bike commuter routes and pedestrian paths outside and through the site seen as being important.
- **Congestion**: Seen as potentially worsening with new development near Lynnmour Elementary school.
- **Transit accessibility**: Seen as being in ‘poor’ condition – walking distances to transit stops seem too far, with no transit connections in the internal network.
- **Cycling Routes**: Seen as being effective near the southern portion of the site, under the highway, but being very poor along Old Lillooet Road and crossing Keith Road. There was also a need for improved connections leading into and out of the sub-area.
- **Pedestrian connections**: Generally, the trail and footpath network through the site was seen as being excellent. There was an expressed need for continued maintenance of these trails and a desire for improved pedestrian connections immediately outside of the sub-area. Pedestrian connections should be emphasized for key destinations throughout the site.
- **Environmental Assets**: Both Inter-River and ‘Digger Park’ play a huge role in establishing a sense of community for residents – an assumption should be that both parks will be protected from disturbance. Lynn Creek is also a recreational and ecologically valued asset. The environmental & ecosystem health of the Riverine Forest should also be maintained.
- **Parking**: Seen primarily as an issue closer to Inter-River Park.
Inter-River Sub-area Transportation Study  
District of North Vancouver  
Stakeholder Meeting #2a  
Final Meeting Minutes

Held at: Municipal Hall - Meeting Room ‘C’

Date/Time: May 30th at 10:30am  
Adjourned: 11:30am

Attended By: Pouya Behzadi – Engineering  
Richard Boase – Environment  
Tamsin Guppy – Planning  
Ingrid Weisenbach - Transportation  
Shazeen Tejani – Transportation

Regrets: Fiona Dercole – Public Safety  
Douglas Rose – Parks

Minutes taken by: Shazeen Tejani

Meeting Agenda Topics:

1) Meeting #1 Recap & Approval of Minutes
2) Review Revised Goals & Assumptions
3) Review Options & Criteria Evaluation
4) Recommendations
5) Wrap-Up & Next Steps

Meeting Recap & Approval of Minutes

- Weisenbach summarized key ideas that arose in the previous May 17th Stakeholder meeting and confirmed feedback received by the group.
- Group added that improved transit facilities and connections to transit were needed.
- Weisenbach addressed the potential for a pedestrian bridge on Crown Street to provide improved connections from Lynn Creek to Park and Tilford Centre.

Discussion of Goals & Assumptions

- Goals
  - Weisenbach shared the revised goals; making note of new additions based on feedback.
- Assumptions
  - Weisenbach shared the revised assumptions with the group.
  - Group recommended a change of wording regarding the Fire Training Site.
- Group also recommended adding the assumption that ‘recreational’ routes would be maintained.

**OPTIONS & CRITERIA EVALUATION**

- **Options**
  - i. Weisenbach shared each of the draft options and rationales with the group.
  - ii. Group discussed the opportunities for utilizing existing parking facilities to accommodate ‘Drive to Five’ locations, with the Holiday Inn Parking Lot, Premier Street, and Ministry Land being potential options.

- **Criteria Evaluation**
  - i. Weisenbach & Tejani shared the draft evaluation of the proposed options, providing rationale for scoring on several criteria.
  - ii. Group recommended:
    1. Adding utility impacts as a separate category; and
    2. Revisiting scoring regarding improved safety for all users for options 1a and 1b; Recognizing that the introduction of cars by way of street, where none travelled before, has implications for the safety of pedestrians and cyclists.

**RECOMMENDATIONS**

- Weisenbach summarized key recommendations produced using the evaluation criteria.
- Group discussed the potential of combining options and the benefits of each.
- Group recommended:
  - i. Placing 4a and 4b at a higher priority than currently ranked;
  - ii. Creating a hybrid option out of 4a and 4b that forms a ‘T’ junction;
  - iii. If selected, implementing 1a and 1b together;
  - iv. Beginning a discussion with the School District about options 1a, 1b and 4b;
  - v. Factoring impacts to utilities at an earlier stage.
  - vi. (By general agreement from all participants) that option 5 not be pursued, since it provided the least benefit and at the highest social and environmental cost;

**WRAP-UP & NEXT STEPS**

- Draft meeting minutes to be dispersed for confirmation of understanding.
- Transportation to present recommendations for Council’s consideration this July*.

*NOTE: Presentation of recommendations to Council was delayed to the fall of 2016. Date of presentation to be decided.
Inter-River Sub-area Transportation Study
District of North Vancouver
Stakeholder Meeting #2b
Meeting Minutes

Held at: Municipal Hall - Meeting Room ‘A’

Date/Time: June 2nd 2016 at 7:00pm          Adjourned: 8:30pm

Attended By: Antje Wahl – Transportation Consultation Committee
Brenda Barrick – Neighbourhood Representative
Elise Roberts – Neighbourhood Representative
Mark Thomson – School District #44
Victor Penman – Fire Department
Ingrid Weisenbach - Transportation
Shazeen Tejani – Transportation

Regrets: Erin Black – Vancouver Coastal Health

Minutes taken by: Shazeen Tejani

Meeting Agenda Topics:

1) Meeting #1 Recap & Approval of Minutes
2) Review Revised Goals & Assumptions
3) Review Options & Criteria Evaluation
4) Recommendations
5) Wrap-Up & Next Steps

❖ MEETING RECAP & APPROVAL OF MINUTES
   • Weisenbach summarized key ideas that arose in the previous May 17th Stakeholder
     meeting and confirmed feedback received from Antje Wahl.

❖ DISCUSSION OF GOALS & ASSUMPTIONS
   • Goals
     ▪ Tejani shared the revised goals; making note of new additions based on
       feedback.
   • Assumptions
     ▪ Tejani shared the revised assumptions with the group.
     ▪ Group recommended a change of wording to include ‘Inter-River’ with regard to
       the bullet on park access. Group further recommended specifying that access to
       the park will be maintained from “Inter-River Road”.
     ▪ Group also recommended revising the word ‘commuter’ to make it more clear
       that these routes are used for people accessing key destinations, not just those
       who commute to work.
Group also required further clarification on assumptions related to park use. Weisenbach informed the group that the District’s Parks Department was currently reviewing any future uses.

School District Facilities Plan indicates redevelopment potential for Lynnmour Elementary. The final location, whether on- or off-site, is still undecided.

**OPTIONS & CRITERIA EVALUATION**

- **Options**
  - Weisenbach shared each of the draft options and rationales with the group.
  - Group expressed concern about the impacts to the park with options 4a & 5, and for new residents that front the park, south of option 4a.
  - Group was also concerned that option 1b would provide direct vehicular access to the school, thereby reducing the likelihood that children will walk or bike to school.
  - Group further expressed concern with Option 1a as potentially increasing access and traffic along St. Denis Ave, a road currently used heavily by pedestrians and cyclists.

- **Criteria Evaluation**
  - Weisenbach shared the draft evaluation of the proposed options.

**RECOMMENDATIONS**

- Weisenbach summarized key recommendations produced using the evaluation criteria.
- Group discussed the potential of combining options and the benefits/impacts of each.
- Group recommendations:
  - 1a + 1b provides circulation for school pick up/drop off and direct access to St. Denis;
  - Doing a combination of options 1a + 1b, 4b, and 2, all as public roads was most preferred;
  - 4a provides improved access if the school were to have primary pick up/drop off on Orwell;
  - 4a would be considered feasible if designed to reduce speeds and road widths;
  - Group agreed option 5 was not reasonable; and
  - Group suggested considering a 6th option that bisects the school site from Forsman through to Option 4b, if the school relocates.
- Group acknowledged that improved connectivity to transit stops and improved transit infrastructure were needed adjacent to the sub-area.

**WRAP-UP & NEXT STEPS**

- Draft meeting minutes to be dispersed for confirmation of understanding.
- Transportation to present recommendations for Council’s consideration this July.

*NOTE: Presentation of recommendations to Council was delayed to the fall of 2016. Date of presentation to be decided.*
APPENDIX D: DISTRICT OF NORTH VANCOUVER

E-DOCS REFERENCE LIST
Lynnmour/Inter-River Local Plan: 836865

Internal Stakeholder Meeting Minutes & Attachments – Meeting 1: 2896702

External Stakeholder Meeting Minutes & Attachments – Meeting 1: 2896686

Internal Stakeholder Meeting Minutes & Attachments – Meeting 2: 2906517

External Stakeholder Meeting Minutes & Attachments – Meeting 2: 2906422
840 St Denis Ave
Construction & Traffic Management Plan
1. PROJECT DETAILS ................................................................. 1
  1.1. INTRODUCTION AND BACKGROUND ................................. 1
  1.2. CONSTRUCTION OVERVIEW ............................................. 1
2. SCHEDULE ........................................................................... 1
  2.1. CONSTRUCTION SCHEDULE ............................................... 1
  2.2. HOURS OF WORK ............................................................ 2
3. MOBILITY IMPACT ............................................................. 2
  3.1. TRUCK ROUTES .............................................................. 2
  3.2. MITIGATION MEASURES .................................................. 3
4. PARKING IMPACT ............................................................... 4
  4.1. EXISTING PARKING ......................................................... 4
  4.2. CONSTRUCTION PARKING ................................................ 4
5. WORK ZONE TRAFFIC CONTROL DEVICES .......................... 4
  5.1. TRAFFIC CONTROL PLANS ............................................... 4
  5.2. MONITORING STRATEGY .................................................. 4
6. COMMUNICATIONS PLAN ..................................................... 5
  6.1. PUBLIC NOTIFICATION ................................................... 5
  6.2. CONTACT INFORMATION ................................................. 6
7. REPORT SUBMISSION .......................................................... 7
APPENDIX A: SCHEDULE A ....................................................... 8
APPENDIX B: TRUCK ROUTE ..................................................... 10
APPENDIX C: CTMP PLAN ......................................................... 12
APPENDIX D: NOTIFICATION PLAN ........................................... 16
1. PROJECT DETAILS

1.1. INTRODUCTION AND BACKGROUND

The owner of 840 St Denis Avenue in the District of North Vancouver is proposing to demolish the existing residential structure and construct two new residential buildings containing three units. The property currently is occupied by one single-family home. The total site area is approximately 844m².

Creus Engineering Ltd. has been retained by the property owner to prepare a construction & traffic management plan that addresses the offsite civil construction and onsite civil construction. The management plan will cover:

- Construction Overview: scope of construction, phasing
- Schedule: start of works and construction schedule
- Mobility Impact: impacts to road users including pedestrians, cyclists, transit and general traffic. Truck volumes and routing.
- Community Impact: impacts to area parking, construction parking.
- Work Zone Traffic Control: specific details of traffic control devices and plans.
- Communication Plan: how information is distributed to the general public, area residents, businesses and neighbors who are directly affected by construction activity.

The Traffic Management Plan covers the complete onsite and offsite civil construction.

1.2. CONSTRUCTION OVERVIEW

Construction activity at the subject property is comprised of multiple different aspects. The scope of work includes onsite construction, servicing installation, and offsite roadworks. For more detail see the Schedule A in Appendix A.

2. SCHEDULE

2.1. CONSTRUCTION SCHEDULE

A preliminary construction schedule is shown in the table below. The project is scheduled to begin March 2020 and be completed by June 2021, taking a total of 12 to 18 months.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demolition</td>
<td>0.5 months</td>
</tr>
<tr>
<td>Excavation/Shoring</td>
<td>0.5 months</td>
</tr>
<tr>
<td>Foundation/Framing</td>
<td>1 months</td>
</tr>
<tr>
<td>Above Ground</td>
<td>4 months</td>
</tr>
<tr>
<td>Finishes</td>
<td>4 months</td>
</tr>
<tr>
<td>Landscaping</td>
<td>0.5 months</td>
</tr>
<tr>
<td>Off-site Civil</td>
<td>0.5 months</td>
</tr>
</tbody>
</table>

Table 1: Construction Timeline
2.2. HOURS OF WORK

The District of North Vancouver Noise Bylaw 7188 prohibits any noise or sound which disturbs or tends to disturb the quiet, peace, rest, enjoyment, comfort, or convenience of the neighborhood or of the persons in the vicinity; or exceeds the Sound Levels prescribed in the bylaw. For construction activity, the maximum Sound Level is 80dB or the maximum Daytime Average Sound Level is 65dB (at the point of reception). Hours of work are:

- Monday to Friday: 07:00 to 20:00
- Saturday: 09:00 to 17:00
- Sunday & Statutory Holidays: No work allowed

Night work is only possible with specific resolution of District of North Vancouver council. If night work is required, a written request to staff is required minimum 1 month in advance of the required night work. No night work is anticipated.

3. MOBILITY IMPACT

This section is intended to describe how the project will impact road users including pedestrians, cyclists, transit service, emergency vehicles, heavy vehicles (trucks) and general road traffic.

The immediate area surrounding the site is residential with an elementary school to the east and the Fire training Center to the north. Access to the site will be from St Denis Avenue. St Denis is used to access the trails along Lynn Creek and Inter River Park. Traffic control persons are to assist pedestrians around the site during any works on DNV property. Trail access adjacent to site on the west side of St Denis Rd may be utilized to assist pedestrians around the site. Traffic to and from the site is intended to have minor effects on existing traffic volumes during construction.

MOTI works pertaining to the widening of Highway 1 and the realignment on E Keith Rd are currently taking place along St Denis Rd and E Keith Rd, and are expected to have minor impacts on traffic accessing St Denis Rd.

3.1. TRUCK ROUTES

All traffic to and from the site will use the following route:

- To get to the site, take Highway 1 Exit 22B, merge onto Fern St, continue straight onto Lillooet Rd, turn left onto Old Lillooet Rd, turn right onto E Keith Rd, continue right onto St Denis Ave, then turn right into site (TCP controlled).
- To leave the site, turn left onto St Denis Ave (TCP controlled), continue left onto E Keith Rd, turn left onto Old Lillooet Rd, turn right onto Lillooet Rd, continue onto Fern St, then turn right onto the Highway 1 on-ramp.

The proposed truck route is shown in Appendix B.

A highway use permit is to be obtained by the contractor and is to be maintained for the duration of the works.
3.2. MITIGATION MEASURES

The proposed works have the potential to impact St Denis Ave including pedestrians, cyclists, transit service, emergency vehicles, heavy vehicles (trucks), and general road traffic. The proposed construction activities have been reviewed against existing road users. In general, the following mitigation measures should be implemented to mitigate the potential impacts:

- The general public is to be protected from construction activities at all times by appropriate fencing, hoarding and communication.
- Existing pedestrian routes (sidewalks, trails) to remain clear and open at all times unless specifically noted in the TMP.
- Bike routes to remain clear and open at all times unless specifically noted in the TMP.
- There are to be no restrictions to emergency vehicles at any time. Emergency vehicles to be given priority access at all times. Emergency services (police, fire, ambulance) to be notified in advance of any construction activities with the potential to cause delays or detours (i.e. road paving).
- Truck marshaling is only available on site. No marshaling on District of North Vancouver roads.
- A copy of the TMP including enter / exit procedures and truck routes is to be sent to the trucking contractor prior to starting construction.
- All heavy vehicle drivers will be given a copy of the site construction traffic procedures and truck routes. The flag person should have additional copies available on the site.
- Heavy vehicles are to be equipped with radios so that trucks can be delayed, diverted or cancelled as required by current site conditions. The general contractor will be responsible for communicating with the heavy vehicles.
- An important part of heavy vehicle management is the mitigation of silt, mud, dust, debris, and litter.
  - All trucks are to be covered while in transit.
  - The trucking contractor will ensure that adjacent streets, truck routes and properties are kept clean and free of dust and debris on a daily basis.
  - The general contractor is also responsible for installing and maintaining a site sediment & erosion control system, including mud and dust control and a wheel wash during trucking. An erosion and sediment control plan will be developed at detailed design phase based on final development proposals.
- Provide enough on-site queue space to hold at least ½ an hour of truck traffic (for both inbound and outbound trucks).
- Construction traffic exiting the site (right turn) is to be operated by certified flag persons from 07:00 to 20:00
4. PARKING IMPACT

This section is intended to describe how construction activities will impact parking and includes existing parking availability, estimated construction parking requirements and estimated construction parking availability.

4.1. EXISTING PARKING

The existing site consists of a detached garage and a long driveway with total of 4 parking spots. Construction will remove the existing onsite parking. St Denis Ave has on-street parking on the east side of the street. Parking on the west side of the street has been removed for MOTI works.

4.2. CONSTRUCTION PARKING

Estimated construction parking requirements have been reviewed by Creus Engineering. 4 onsite parking spots are to be provided. Carpooling is to be encouraged to ensure the onsite parking spots are not exceeded. There is to be no construction parking on DNV streets. See Schedule A for parking supply and demand figures.

5. WORK ZONE TRAFFIC CONTROL DEVICES

This section is intended to describe the specific traffic control devices and plans required and include pavement markings, signage, delineation devices, traffic control persons, building zones, and site access points. All traffic control devices are to be installed and used in accordance with the BC Workers Compensation Board Section 18, the BC MOT Traffic Control Manual for Work on Roadways and the TAC Canadian Manual of Uniform Traffic Control Devices. All construction signage to be in place prior to any closures and removed or covered when lanes are re-opened. Contractor to plan for daily management of all traffic control devices including signs.

5.1. TRAFFIC CONTROL PLANS

Traffic control plans have been prepared. The plans are included in Appendix C. Full-size copies of the plans are available upon request from Creus Engineering.

5.2. MONITORING STRATEGY

Traffic conditions and noise levels will be monitored by the project traffic consultant to confirm satisfactory performance and what modifications may be required. Once the traffic management plans have been implemented, periodic site inspections will be performed to confirm performance. Refer to the CTMP and the District of North Vancouver Noise Regulation Bylaw (No. 7188) for details. If deemed necessary by the District of North Vancouver, PTZ (Pan-Tilt-Zoom) cameras may be required.
The developer will be responsible for monitoring the implemented traffic management plans. All construction related detour and information signs and traffic control devices are to be checked every three days. There shall also be an inspection every time there is a change to the signage and devices posted.

6. COMMUNICATIONS PLAN

A number of residents and through traffic (commuters) have the potential to be impacted by the proposed construction activities. The following Communications Plan has been prepared to provide notifications and updates to all affected parties as well as the general public. It also provides contacts for unforeseen issues, complaints, coordination and emergencies.

6.1. PUBLIC NOTIFICATION

For neighbors with the potential to be directly affected by the proposed construction, written notifications are to be delivered prior to the commencement of general construction and before certain specific works. Included in Appendix D is a map identifying all the neighboring residents and business to be notified of construction activities and a sample notification letter. Copies of all notifications will be cc’d to the District of North Vancouver.
6.2. CONTACT INFORMATION

Project Contacts

Main Contact Number:
  Bobby Purba
  By Design Construction Inc
  (604) 351-8614

Coast Mountain Bus Company:
  Harjit Sidhu-Kambo, Transit Engineering Manager
  (604) 953-3051

District of North Vancouver:
  Kevan Khoshons, Engineering Services
  (604) 990-3650

North Shore Chamber of Commerce
  102 – 124 West 1st St, North Vancouver, BC
  (604) 987-4488

Police (RCMP):
  147 East 14th St, North Vancouver, BC
  (604) 985-1311

District of North Vancouver Fire Services:
  1110 Lynn Valley Rd, North Vancouver, BC
  (604) 980-7575

District Operations Centre:
  1370 Crown St, North Vancouver, BC
  (604) 990-3831

CREUS Engineering:
  Fred Ciambrelli, Senior Project Engineer
  (604) 987-9070

Emergency Contacts

RCMP: 911
Fire Department: 911
BC Ambulance: 911
7. REPORT SUBMISSION

Yours Sincerely,

CREUS Engineering Ltd

Cam Stel, EIT

Reviewed By: Fred Ciambrelli, P.Eng.
APPENDIX A: SCHEDULE A
## Schedule A

### Project Summary Sheet:

<table>
<thead>
<tr>
<th>Building site address</th>
<th>840 St Denis Avenue, North Vancouver BC</th>
</tr>
</thead>
<tbody>
<tr>
<td># of storeys below grade</td>
<td>0</td>
</tr>
<tr>
<td># of storeys above grade</td>
<td>2 Storeys (w/ 4' crawlspace)</td>
</tr>
<tr>
<td>Type of construction (i.e. concrete/woodframe)</td>
<td>Concrete Foundation, Wood Frame</td>
</tr>
<tr>
<td>Total number of months to complete</td>
<td>12 to 18 Months</td>
</tr>
</tbody>
</table>

### Contractor

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bobby Purba</td>
<td><a href="mailto:bobby@bydesignconstruction.ca">bobby@bydesignconstruction.ca</a></td>
<td>604-351-8614</td>
</tr>
</tbody>
</table>

### Project Manager

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bobby Purba</td>
<td><a href="mailto:bobby@bydesignconstruction.ca">bobby@bydesignconstruction.ca</a></td>
<td>604-351-8614</td>
</tr>
</tbody>
</table>

### Site Generated Traffic

<table>
<thead>
<tr>
<th>Phase</th>
<th>Dates/ Duration in months</th>
<th># of Trucks/ day</th>
<th># of Workers</th>
<th># of off-street parking stalls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demolition</td>
<td>Mar 2020 .5 Months</td>
<td>4</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Excavation</td>
<td>Mar 2020 .5 Months</td>
<td>m³ removed: 400</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Foundation/Parkade</td>
<td>Apr 2020 1 Month</td>
<td>m³ concrete: 50</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Above Grade</td>
<td>May 2020 4 Months</td>
<td>m³ concrete: 30</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Finishes</td>
<td>Sept 2020 4 Months</td>
<td>3</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Landscape</td>
<td>.5 Months</td>
<td>2</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Off-site Civil</td>
<td>.5 Months</td>
<td>2</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>
APPENDIX B: TRUCK ROUTE
TRUCK ACCESS ROUTE
APPENDIX C: CTMP PLAN
APPENDIX D: NOTIFICATION PLAN
SAMPLE NOTICE TO RESIDENTS AND BUSINESS OPERATORS

Temporary Street Closure/Building Zone
Location
Time and Dates

Date

Dear Residents and Business Operators:

We are writing to notify you that …

This is necessary to install/repair the <underground utilities, road, sidewalk, landscaping, lighting etc.> adjacent to the <Address>.

The closure will be required during week day business hours from <> to <>.

During construction there will be traffic diversions, parking restrictions and lane closures. The actual work site will be kept as compact and tidy as reasonably possible. The workers will cooperate with the businesses to try and minimize the impact the work will have on day-to-day business operations.

We apologize for any inconvenience the work may cause and thank you for your understanding and cooperation. Please contact the undersigned at <> or by e-mail at <> if you would like to discuss this matter in further detail.

Please also refer to project web site at <> for on-going construction updates.

Yours truly,

<Applicant>

cc: North Shore Chamber of Commerce
    RCMP
    District of North Vancouver Fire Services
    District Operations Centre
    District Hall – Transportation Department
    Coast Mountain Bus Company
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
LYNNMOUR / INTER-RIVER
AREA ONE
DESIGN GUIDELINES FOR MULTIPLEXES AND TOWNHOUSES
ADOPTED NOV. 20/06
INTENT

The Lynnmour / Inter-River Plan broadens the housing choices for the area around Lynnmour Community School enabling the neighbourhood to renew the single family character while providing a greater mix of family oriented housing. These housing choices will include garden suites behind existing homes, building new duplexes and triplexes on single family lots, or combining properties to build townhouses, like those on Premier Street.

The Design Guidelines are intended for use with every redevelopment application in this area, to help ensure good quality design that maintains the charm and liveability of the area. This package also provides some reference material on the engineering services in the area, and the anticipated changes for the neighbourhood.

If you are anticipating redeveloping your lot, please read this document, and review it with your consultants (architects, landscape architects and engineers) to ensure that their work is also in line with the requirements discussed here.
BUILDING IN A FLOOD PLAIN

The neighbourhood surrounding Lynnmour Community School (shown on the attached map) lies within the river valley for Lynn Creek. Historically the creek meandered through this area. In more recent times, modifications to the creek banks including rip rap, and raising the level of the bank, have helped ensure the creek maintains its course. Furthermore, the District of North Vancouver maintains a program of regular gravel removal from the creek bed, which reduces the risk of flooding. None the less, a recent study by Kerr Wood Leidal Engineering Consultants demonstrated that in an extreme rain event (the 200 year storm event) there is the potential for some flooding in this neighbourhood. The Province recommends that renovations or new construction within flood plains be built to flood construction levels so that all living space is above the potential height of any flood waters. In this neighbourhood, this would mean raising the living space approximately 2 feet above the height of the adjacent roadway.

As there is no insurance for damage from flood waters, it is best for all new construction to be designed in a way that reduces the risk of flood damage, even though that risk is very low, and is something that may not happen in our lifetime.

To ensure that homes are not at risk of flood damage the following should be considered:

- All living space must be constructed above the flood construction level assigned to each property.
- Basements will not be permitted (unless tanked).
- Homes should step up from the grade.
- Lots should be regraded so that the finished grade is higher than the street.
- Driveways should not cut into the grade in such a way that flood water would be directed towards living space.
GOOD NEIGHBOUR POLICY

All new projects need to consider their neighbours and design in a manner that fits with the harmony, scale and character of the area. We recommend that designers meet with the neighbours early in the process so that new designs can balance community objectives with neighbours’ concerns about such things as privacy, views and sunlight.

Neighbourly development should:

- Retain trees and mature vegetation where possible, to minimise the impacts of change.
- Maximise the sunlight to both the development’s own outdoor garden areas, and the neighbours’ garden areas.
- Minimise over-viewing, and reduce loss of privacy from side windows, through the use of skylights, translucent glass, and stepping back portions of the building.
- Use landscaping and fences to enhance backyard privacy, and privacy between developments.
- Use wider side yard setbacks next to single family zoned land, particularly if the proposed building height at the side yard exceeds the height of the adjacent single family house.
- Carefully site and enclose garbage and recycling containers to reduce the impact of noise and smell on adjacent properties.
- Design lot grading so that there is no run-off onto the adjacent properties.

This is the garbage area for a triplex on Fromme Road, it is boxed in and screened so as to minimise its impact on both the project and the neighbours.
MAXIMUM UNITS AND BUILDING SIZE

In the Lynnmour / Inter-River Local Plan, the maximum number of units and size of building is established for lot redevelopment as follows:

- With a lot size of less than 5000 square feet single family houses are permitted;
- With a lot size between 5001 and 7000 square feet a single family lot may be in-filled with a second unit or redeveloped as a duplex with a maximum density of 0.4 floor space ratio;
- With a lot size between 7001 and 8000 square feet a single family lot may be in-filled with a second unit or redeveloped as a duplex to a maximum density of 0.5 floor space ratio; and
- With a lot size between 8001 and 12000 square feet single family lot may be in-filled with a second and third unit or redeveloped as a duplex or triplex to a maximum density of 0.5 floor space ratio.

Where property owners choose to redevelop as a group in a consolidated fashion to create a redevelopment parcel of 15,000 square feet or greater, then the potential for townhouses exists with a maximum density of 0.7 floor space ratio and 24 units per acre.

Though the plan establishes maximum building potential, not everyone may wish to build to either the maximum number of units or the maximum size of building. For example, a single family home owner on an 8,500 square foot lot has the potential for a triplex, but may prefer to retain their home and construct a single garden suite in the rear.

BUILDING COVERAGE

To help ensure designs maximise open space on the lot, building coverage for all buildings and structures proposed on the lot is limited to 40%.
What are Floor Space Ratio and Building Coverage?

The tool that is traditionally used to measure building size is floor space (also called floor area). This is the measurement from wall to wall of all above ground floors. The floor space is then compared with the lot size to determine the floor space ratio. Floor space ratios are usually written as decimals eg. 0.5 = 50%.

By comparison building coverage represents the percentage of the lot that is covered in buildings and structures, including the dwelling units, garages, garden sheds and garden structures like gazebos.

This diagram shows a site area (A) or lot size of 100 squares (100%). The lower block (B) or main floor of the diagram covers 40 squares, equal to 40% building coverage. The second floor (C) covers another 10 squares. Combined the main floor (B) and upper floor (C) add up to 50 squares or 50% of the total, or a floor space ratio of 0.5.

In most residential zones, including single family homes and town houses, some parts of the building are excluded from floor space area calculations. Typically, these exclusions include the basement areas, garages, and garden sheds. In this neighbourhood basements are not recommended (because of the flood risk) but exclusions for single car garages with some storage space will be considered. Since new development will not include basement space, some designers may wish to make use of the attics for additional living space. Attic floor space is excluded where the floor- to-ceiling height is less than 7 feet.
LOT CONSOLIDATION

The Lynnmour / Inter River-Plan was written with a flexible density so that properties could develop independently. However, there are some locations within Inter-River where lot consolidation is recommended in order to best address other types of design issues:

Noise Abatement:

One method of reducing the noise that spills into this community from the highway, is to design row housing along Keith Road so that there is a continual wall of residential buildings blocking the noise from spreading into the community. This would be more easily accomplished if properties along Keith Road redeveloped two or more at a time.

Lot Grading, Storm Water and Flood Water:

Every time a lot is redeveloped, there is a requirement that all grading and landscaping is done in a manner that does not cause storm water from the typical rain fall to flow onto adjacent lots. When building in a flood plain, the need to ensure rainwater doesn’t run onto other properties must be carefully balanced against the desire to raise level of the lot so that floodwater is directed away from the buildings. Careful drainage and landscape plans ensure that a proper balance is met. However, in the southeast portion of the Inter-River neighbourhood, along Forsman and between Forsman and Saint Denis, there is a low lying area where it will prove more difficult to meet this balance on individual lots, and therefore lot consolidation is recommended.

Flood Protection Works:

Saint Denis Avenue functions as a dyke, helping protect the neighbourhood against the risk of flooding. The recent study completed by Kerr Wood Leidal Consulting Engineers, recommends modest improvements along Saint Denis that would raise the roadway above its existing elevations. For 820 and 840 Saint Denis Avenue, where the road improvements will be the most dramatic, consolidation is recommended so that together the lots can find the most appropriate means of accessing their site.
SETBACKS AND SITING

When considering where to place a building on a site it is important to consider the potential impacts on neighbours and the street. Setback regulations are aimed at protecting and enhancing the neighbourhood, but all designers should consider the impacts of their designs in terms of privacy, over-viewing, and shading, as well the potential for enhancing the streetscape, and look of the site.

Front Yard Setbacks

To fit into the existing neighbourhood, a minimum front yard setback of 15 feet should be considered, unless an alternative pattern of setbacks already exists, like that found along Premier Street.

Rear Yard Setbacks

A minimum rear yard setback of 20 feet from the rear property line to building face is recommended to ensure that some area be set aside for rear gardens and open space.

Where townhouse sites are proposed a staggered setback combined with a varied design should be considered so that the project does not create a visual wall along the rear property, and so that successive townhouse projects do not create a feeling of a canyon running down the middle of the block.

Side Yard Setbacks

Side yards are used to provide access to the site, landscaping around the site, and provide a buffer to the adjacent properties. A larger building will tend to need a larger setback, especially if it is placed further back on the lot, where the impact of over-shadowing, and over-viewing may need to be reduced. The following table sets out recommendations for side yard setbacks.
Keith Road – Setbacks

Careful design along Keith Road can help reduce the highway noise impacting both the properties along Keith Road and the larger neighbourhood. Row house design with no side yard setback is encouraged to create a residential wall that will block the noise from the highway, and help create more liveable outdoor space in the rear.

Varying Setbacks

The setbacks listed above may be varied if:

- Different setbacks will fit with established pattern of development, like that found along Premier Street with the existing townhouses;
- Tree preservation or other environmentally benefits can clearly be demonstrated with the use of an alternative setback; or
- Noise reduction from the highway can be enhanced.

<table>
<thead>
<tr>
<th>2 or 2 ½ Storey Buildings</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Side yard setback, in the front 50 feet of the lot</td>
<td>Minimum 6 foot side yard</td>
</tr>
<tr>
<td>Side yard setback, after the front 50 feet of the lot</td>
<td>Minimum 10 foot side yard</td>
</tr>
<tr>
<td>Side yard setback for a side yard facing a road</td>
<td>Minimum of 15 foot, as it would function as a second front yard</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1 Storey Building Elements</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Side yard setback</td>
<td>Minimum 4 foot side yard</td>
</tr>
<tr>
<td>Side yard setback, for a side yard facing a street (corner lots)</td>
<td>Minimum of 15 foot side yard, as it would function as a second front yard</td>
</tr>
</tbody>
</table>

This photograph of some row housing in the City of North Vancouver, illustrates how low density homes can be placed side by side, to form a wall of housing.
RELATIONSHIP TO THE STREET

Streets feel safe and look great when buildings and landscaping are designed to relate to the street; allowing a passer-by to wave hello or chat with a neighbour. The following guidelines offer suggestions for ways to ensure new development “faces” the street.

- At least one unit’s front door should be directly oriented towards the street. High visibility of the front doors and paths to the rear units is also recommended.
- Prominent pathways should lead from the sidewalk to the front door of at least one unit to emphasize the building face. (Though pathways are required to each unit, designers must be careful not to clutter the open space with excessive pathways.)
- Buildings constructed on corner lots should “wrap the corner” providing an opportunity for multiplexes to have each unit face the street.
- Design details such as the use of verandas, porches, arbours, and decorative gates, should be considered to ensure each development has a visual connection to the street.
- On wide lots, or those lots that do not have to provide a driveway, designing either a wider front unit, or fitting additional units at the front of the development should be considered in order to maximise the street presence.
- Ensure living space at the front of the building is directed towards the street.
- New developments may choose to copy roof lines, building materials, or other design elements in order to blend with the harmony and scale of the street, however, “cookie cutter” and mirror-image design, is discouraged.

In the front yard landscaping and fences should ensure openness and visibility through to the front of the building.
DRIVEWAYS

In this neighbourhood there are no back lanes, and therefore all parking is accessed from driveways leading off the street. It is beneficial to reduce the numbers of driveways because:

- The sidewalk becomes safer with fewer driveway crossings;
- More emphasis is placed on people and buildings and less on cars and garages, with more room at the front of the lot given to buildings and front gardens, making for a pleasant looking street; and
- There is more room for on street parking.

A lot choosing to redevelop by itself must design the driveway so that it may be shared with the adjacent property. However, no driveway need be shared with more than three units from a neighbouring property, as larger townhouse developments combining two or more lots, may have one driveway for their own development.

PARKING

Two parking spaces per unit is the recommended requirement. Parking spaces must be located off the private driveway, and should be located behind the front unit so they are not as visible from the street.

Though visitors may park on site, there is no formal requirement for additional visitor parking spaces, and most visitors will park on the street as they do now in the single-family areas.

Driveways and Parking Areas

- Driveways and parking areas should be designed in a manner that minimises their impact on the street and the development.
- Paved areas for driveways and parking have a significant impact on storm water run-off and therefore, paving methods that reduce the impact of the hard surface should be considered.
• As many rear units will require pathways along side or through the driveway, pavers may also serve to delineate the pathway system.

• Where developments are sharing a driveway, every effort should be made to match and coordinate with the materials and design of the existing driveway.

In these sketches the parking for the units is located behind the front unit, to reduce its visibility from the street.
REDUCING THE IMPACT OF DEVELOPMENT ON THE ENVIRONMENT

With careful planning, development can occur in a manner that is more environmentally sustainable.

Construction and Design

New development should consider ways of ensuring that is energy efficient. Where appropriate guidelines and ideas outlined in the LEED and REAP and other sustainable building programs should be considered.

Rain Water

In order to develop more sustainably, new projects should consider ways of landscaping and grading so that rain water has a chance to soak into the ground, and is diverted away from the storm sewer system, where it would otherwise add to the erosion of the creeks.

Tree Preservation

Trees provide a number of environmental benefits beyond their aesthetic value including their role in shading homes in the summer, providing habitat for birds, absorbing rain water, absorbing carbon dioxide (a greenhouse gas) and producing oxygen, trapping dust particles and pollutants from the air, and modestly reducing noise. For all these reasons, the preservation of mature trees, and planting of new trees is encouraged in North Vancouver. However, in some cases where flood protection measures require the grade to be changed, it may not always be possible to preserve a mature tree and replacement planting should be considered instead.

It is therefore recommended that new development:

- Retain as many healthy mature trees as possible.
- Plant new trees.
- Add a thicker layer of gardening quality soil, to the ground prior to landscaping, to increase water retention.
- Introduce “rain gardens” where appropriate so that garden areas can help soak up rain water and reduce storm water run-off.
- Consider using permeable paving material for pathways, driveways and parking areas, or grading the area so that the water can run-off into suitable garden areas.
- If water from the driveway and parking areas is not able to percolate through to the ground, include an oil and grit separator, and / or establish a car washing area to reduce the pollutants that are directed into the storm water system.

These multiplexes were built around existing trees.
LANDSCAPING

Each redevelopment proposal is required to provide a landscaping plan that will compliment the building design and harmonize with the local setting. Landscape plans must be prepared by a BC Registered Landscape Architect. Landscape plans are to show how each site will be designed and landscaped once the construction is completed. In preparing landscape plans the following criteria should be considered:

- Use landscaping to soften the impacts of new development and help new development harmonize with the area.
- Ensure that landscape plans are prepared in conjunction with the project team, with input from the arborist, engineer and building designer.
- Ensure that the lot grading is consistent with flood proofing measures.
- Include street trees and boulevard planting on the landscape plan.
- Keep the landscaping and fencing low and open in the front yard to foster a strong relationship to the street.
- Preserve healthy trees where possible, and plant new trees where reasonable.
- Design each unit with private outdoor space that is large enough for barbequing and dining outside (100 square feet or larger).
- Use planting and fences to create a buffer, and maximise privacy between on-site units, and between the subject property and neighbouring sites.
- Use low maintenance “xeriscaping” landscaping practices, with native plant materials suited to the local climate.
- Provide a grading and drainage plan which will assist in the safe on-site management of surface water and rain water (storm water).
- Use porous materials on pathways, patios, and parking spaces to maximise rain-water infiltration.
• Minimise the amount of land used for pathways through careful building and landscape design.
• Consider roof decks or “green roofs” over top of parking structures where privacy will not be adversely impacted.
• Provide details for the method of screening the garbage containers and any other service structures.
• Implementation is to use current BCsla/BCNTA standards for landscaping.
**DEALING WITH NOISE**

Finding methods of blocking the noise from the highway is a key issue for improving the liveability of this neighbourhood.

The impacts of noise may be reduced by:

a) Incorporating noise standards into the design and construction of new development to ensure a quiet interior environment for residents as follows:

   Designs must demonstrate that the noise levels in those portions of the dwelling listed below shall not exceed the noise levels expressed in decibels set opposite such portions of the dwelling units. For the purpose of this section the noise level is the A-weighted 24-hour equivalent (Leq) sound level and will be defined simply as the noise level in decibels:

   1. Portion of Dwelling Unit  | Noise Level (Decibels)  
   2. bedrooms               | 35            
   3. living, dining, recreations rooms | 40            
   4. kitchen, bathrooms, hallways | 45            

b) Using building design to create noise buffers in certain locations; and

c) By encouraging the Provincial Ministry of Transportation to provide noise fencing along Highway #1.

New development should also consider the impacts of their own ventilation and heating systems on neighbouring developments and ensure that design, style, and placement eliminate any additional noise pollution.

**Buildings as Buffers**

Designing row housing along Keith Road could serve as a barrier to noise from the highway.
PRIVACY

It is recommended that all new development consider maximising the privacy between units, and between new and existing developments. To this end the following items should be considered:

- Use building setbacks, landscaping, building design, and window placement to maximise privacy and reduce over-viewing.
- Use translucent frosted or stained glass in side windows, or replace windows with glass block, or skylights where privacy will be impacted.

This elegant fence provides a pleasant privacy screen.

The careful location of windows makes this patio area in the middle of a triplex project feel private.
BUILDING HEIGHT

In order to harmonize with the existing single family and townhouse character of the area, building height should be limited to **two and half storeys**.

Building height is measured from the lesser of natural or finished grade to the peak of the roof. In this area where all new development will be raised up to meet flood construction levels, house heights may be 1-2 feet taller than would normally be anticipated for a two and half storey building, and therefore heights may range from 22 feet for a flat roofed two storey home to 35 feet for a steeply pitched roofed two and half storey home.

**Roof Pitch**

Steeply sloped roofs are recommended but not mandatory. Roof pitches of 8:12 (rise over run) for the main structure of the roof are widely popular in North Vancouver and work well with the wet climate. However, alternative roof pitches are acceptable provided that flatter roofs have a lower height and compliment the architectural style of the building.
ADAPTABLE DESIGN

Many residents of North Vancouver have expressed a desire to stay in their homes regardless of the onset of illness, frailty or disabilities. It is therefore beneficial when designing new homes to ensure that they are built with basic features that allow the units to be adapted to help residents deal with disabilities without expensive retrofitting. To this end, redevelopment must comply with the District of North Vancouver’s Adaptable Design Guidelines.
PUBLIC ART

Since 2003 the District’s Public Art Program has encouraged developers to commission works of public art as part of their development application. The District policy applies to applications that require rezoning, and is for residential building proposals with five or more units.

In Lynnmour/Inter-River, District staff undertook a public art mapping exercise with local residents to identify and prioritize potential sites, and to record themes that the community considers appropriate for future public art. The results can be seen on the following map.

Several clear community priorities emerge. For example, residents have identified the corner of Old Lillooet and East Keith Roads as the key location for a community gateway feature. Other clear priorities include art features integrated with the park and pathways, possibly as an enhancement to the Highway underpass, possibly as interpretive route-markers for the extensive net of park trails. As a whole, the map reveals a number of exciting and innovative projects-in-waiting — a loose “master plan” of possible projects of different type and scope. As applicants come forward with different proposals, they will be encouraged to work through the project options and possible themes endorsed through this community process, and to develop a project-specific public art plan that respects community priorities.
Public Art Map

1 Mt. Seymour Pkwy Intersection
Located on the outskirts of residential Lynnmour/Inter River, this important traffic corridor presents a number of challenges for pedestrians, especially for those crossing to the local supermarket. Public Art could play an interesting role, integrated as an attractive and functional component as part of a traffic safety solution.

2 Mt. Seymour Pkwy & Old Lilloet
An opportunity to site a gateway or garden feature.

3 E. Keith/Old Lilloet Triangle
At this historic intersection of Lillooet and Keith Roads, an interesting opportunity emerges to acknowledge and to interpret the diverse histories that have shaped the North Shore. Today, this site is the “gateway” to a thriving residential community, and local residents have expressed the desire to: “clean up and develop this green space into something we can use and be proud of.”

4 Trans-Canada Bridge Underpass
Much used by local residents, this currently neglected underpass could incorporate public art to create a pleasant “gateway” to the community.

5 Lynnmour School
Residents have suggested creating a “Welcome Carving” in a project that would involve students in expressing ownership & pride in the community.

6 Lynnmour School
Public Art could play an effective role in the re-design of this outdoor refuge/play area for the students.

7 Lillooet Shopping Plaza
A highly visible retail area with potential to create an interesting community space.

8 Shortcut Footpath to Old Lilloet
Community trails and pathways provide many interesting opportunities to integrate interpretive markers.

9 Premier Street
Residents have expressed an interest in seeing traffic calming measures on this busy residential street.

10 Premier Street Pathway
Gateway and path improvement at East and West sides of Premier Street. Creative public art treatments can provide a functional and innovative response to community infrastructure needs.

11 Inter River Park Playground
Playgrounds provide an interesting opportunity to integrate public art in the design of the park space and/or playground amenities.

12 Inter River Park
Residents like the existing simple parkscape, describing it as “a magical area to walk and explore.” Opportunities for public art could be integrated with the trail network and reflect multiple uses.

13 Inter River Park - St Denis Entrance
An important entry or “gateway” to Inter-River Park and to the trail network.

14 Pathway: St Denis to Orwell
Community trails and pathways provide many interesting opportunities to integrate interpretive markers.

15 River Pathway
River path improvements and amenities: public art with picnic tables, benches, BBQ areas.
ENGINEERING SERVICES

Throughout the District of North Vancouver, as properties redevelop, they are required to upgrade the services in front of their property to modern standards. This work normally includes:

- Upgrading to the centre of the road all aspects of the roadway including pavement, curb and gutter;
- Constructing sidewalks;
- Planting street trees;
- Installing street lights; and
- Extending services to the subject site; including water, and sanitary & storm lines.

Water and Sanitary Sewer

In anticipation of redevelopment in this neighbourhood, staff undertook an analysis of the water supply and sanitary sewer capacity, which showed that there is sufficient supply and capacity to meet the demands of the school, existing development and all potential redevelopment that could be considered in this area under the Lynnmour / Inter-River Community Plan.

Storm Sewer

Storm sewers do not exist on all streets in the study area. For anyone considering redeveloping the storm line may need extending to your property. If you are interested in redeveloping, please discuss the need for storm sewer upgrades with the District’s engineering staff.
Saint Denis Avenue Design Standards

Saint Denis Avenue functions as a dyke providing flood protection to the adjacent neighbourhood. In the March 2006, Kerr Wood Leidal report on flood protection, the engineering consultants recommended further improvements to Saint Denis, including a slight change in grade, and the construction of a floodway. These improvements may cause some of the design work originally anticipated and described below to be undertaken a little differently.

Road Width
8 metres / 26 feet
Two travel lanes and one parking lane

Sidewalk Width and Location
Boulevard sidewalk, 1.5 – 2.0 metres wide on east side.
Gravel path at curb, on west side, next to the top of the riverbank.

Hydro and Tel
Underground

Additional Features
Provides connection under the bridge and to the park.

ROADWAY IMPROVEMENTS

Each development will be responsible for upgrading the road, sidewalk, curb and gutter, and planting in the boulevard in front of their own site. Over time, this has the potential to add sidewalks, and street trees throughout the neighbourhood.

This section details the road standards currently anticipated for each road.
<table>
<thead>
<tr>
<th>Forsman Avenue</th>
<th>Design Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road Width</td>
<td>8 metres / 26 feet two travel lanes and one parking lane</td>
</tr>
<tr>
<td>Sidewalk width and</td>
<td>Boulevard sidewalks, 1.5 – 2.0 metres wide on both sides.</td>
</tr>
<tr>
<td>location</td>
<td>Hydro and Tel</td>
</tr>
<tr>
<td>Additional Features</td>
<td>To enhance pedestrian safety, the street will narrow at the entrance, and the sidewalk will bulge out on either side.</td>
</tr>
<tr>
<td>Orwell Street</td>
<td>Design Standards</td>
</tr>
<tr>
<td>---------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Road Width</td>
<td>8 metres / 26 feet. Two travel lanes and a parking lane</td>
</tr>
<tr>
<td>Sidewalk width and location</td>
<td>Boulevard sidewalks, 1.5 – 2.0 metres wide on both sides.</td>
</tr>
<tr>
<td>Hydro and Tel</td>
<td>Underground to each unit, but poles will remain as the upper tier of wires carries service beyond the neighbourhood.</td>
</tr>
<tr>
<td>Additional Features</td>
<td>To enhance pedestrian safety, the street will narrow at the entrance, and the sidewalk will bulge out on either side. The potential for an improved school drop off area exists, and could be considered should Lynnmour Community School be further renovated.</td>
</tr>
<tr>
<td><strong>Premier Street</strong></td>
<td><strong>Design Standards</strong></td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td><strong>Road Width</strong></td>
<td>10 metres / 33 feet</td>
</tr>
<tr>
<td></td>
<td>Two travel lanes and two parking lanes</td>
</tr>
<tr>
<td><strong>Sidewalk width and location</strong></td>
<td>Boulevard sidewalks, 1.5 – 2.0 metres wide on both sides.</td>
</tr>
<tr>
<td><strong>Hydro and Tel</strong></td>
<td>Underground to each unit, and eventually poles will be shifted to the east side, if not removed completely.</td>
</tr>
<tr>
<td><strong>Additional Features</strong></td>
<td>To enhance pedestrian safety, the street will narrow at the entrance and the alignment be shifted so that traffic must slow down when turning into the street. Possible improvements to the pedestrian crossing at mid block are also under consideration.</td>
</tr>
<tr>
<td><strong>Keith Road</strong></td>
<td><strong>Design Standards</strong></td>
</tr>
<tr>
<td>----------------</td>
<td>---------------------</td>
</tr>
</tbody>
</table>
| **Road Width** | 8 metres / 26 feet  
Two travel lanes, one parking lane on the north side. |
| **Sidewalk width and location** | Boulevard sidewalk, 1.5 – 2.0 metres wide on north side |
| **Hydro and Tel** | Underground to each unit, and eventually poles will be shifted removed. |
| **Additional Features** | Potential road realignment at intersection with Old Lillooet Road |
In order to ensure that these guidelines are feasible, staff worked closely with Mr. R. A. Spencer, a local designer who provided the following sketches to show how development on different size lots could be achieved. The following sketches do not show the details and ornamentation that is necessary, but do show the potential massing, layout and parking for different redevelopment options including rear yard infill, duplex and triplex development.

**Examples of an Existing Single Family Home**

**Infilling the Backyard**

*This drawing shows how some homes could accommodate an additional building in the rear yard.*
Duplexes

For smaller lots between 5,000 and 8,000 square feet in size, this illustration shows a potential duplex design.
Layouts for Triplexes on 8,500 square foot lots

For lots between 8,000 and 12,000 square feet triplexes are permitted at a density of 0.5 floor space ratio. The first illustration shows the potential for a smaller triplex on a 8,500 square foot lot.
Layouts for Triplexes on 10,000 square foot Lots

Here are four alternative designs for triplexes on 10,000 square foot lots. Each one is shown in the bird's eye view, and the site plan.
FRONT (WEST PERSPECTIVE AT DRIVEWAY)

FRONT (WEST PERSPECTIVE AT NORTH CORNER)

NORTHWEST VIEW OF NORTH ELEVATION

MATERIALS AND COLOURS

UNIT 1 & 2

- Black (703.10)
- Baby Seal (Black) (236.50)
- Snowfall White (248.70)
- K2 Stone - Thinstone (Pacific Ashlar Veneer)
- K2 Stone - Cambridge (Cambridge Grey)
- substrates: HARDIE PANEL CLADDING - FIRST FLOOR

UNIT 3

- Black (200.10)
- Grand Clay (200.40)
- Smoke Gray (200.40)
- Sun Grant Yellow (200.40)
- Work's Peak Gray (200.40)
- K2 Stone - Thinstone (Pacific Ashlar Veneer)
- substrates: HARDIE PANEL CLADDING - SECOND FLOOR

UNIT 3

- Black (200.10)
- Grand Clay (200.40)
- Smoke Gray (200.40)
- Sun Grant Yellow (200.40)
- Work's Peak Gray (200.40)
- K2 Stone - Thinstone (Pacific Ashlar Veneer)
- substrates: HARDIE PANEL CLADDING - SECOND FLOOR

- Black (200.10)
- Grand Clay (200.40)
- Smoke Gray (200.40)
- Sun Grant Yellow (200.40)
- Work's Peak Gray (200.40)
- K2 Stone - Thinstone (Pacific Ashlar Veneer)
- substrates: HARDIE PANEL CLADDING - FIRST FLOOR

- Black (200.10)
- Grand Clay (200.40)
- Smoke Gray (200.40)
- Sun Grant Yellow (200.40)
- Work's Peak Gray (200.40)
- K2 Stone - Thinstone (Pacific Ashlar Veneer)
- substrates: HARDIE PANEL CLADDING - SECOND FLOOR

IKO ROOFING CAMBRIDGE

- CHARCOAL GREY

- DUAL GREY

MATERIALS

- UNIT 1 & 2
  - IKO ROOFING CAMBRIDGE
  - CHARCOAL GREY

- UNIT 3
  - IKO ROOFING CAMBRIDGE
  - DUAL GREY

- CULTURED LIMESTONE / VENEER / CANADIAN STONE / CANYON STONE - MORNING MIST
  - VENEER / CANYON STONE - CANADA

- BENJAMIN MOORE
  - ENTRY DOORS
  - OVERHEAD DOORS
  - WINDOWS, SECONDARY EXTERIOR DOORS & FASCIA

- K2 STONE - THINSTONE
  - PACIFIC ASHLAR VENEER

- K2 STONE - CULTURED STONE VENEER
  - 840 842 848

- ALUMINUM CHANNEL
- SIGNAGE ON STANDOFFS FOR ADDRESSING

- BIKE LOCKER
  - DERO MODEL #301

- TEMPERED GLAZED GUARD PANELS W/ POWERCOATED ALUMINUM STANCHIONS
  - COLOUR: BRUSHED NICKEL

- EXTERIOR CLADDING - NON COMBUSTIBLE HARDIE PANEL

- CONSTRUCTION / MATERIAL
  - LOT 4 OF 5, BLOCK A, DISTRICT LOT 613, GROUP 1, NWD PLAN 2459

- LOT 4 OF 5, BLOCK A, DISTRICT LOT 613, GROUP 1, NWD PLAN 2459

- 840 842 848

- 2020 SEPT 25

- WWW.ARCHITECTURALCOLLECTIVE.COM
- 224-2323 QUEBEC STREET VANCOUVER, BC V5T 4S7 PH: 604.266.4679 E: INFO@ARCHITECTURALCOLLECTIVE.COM

- PERSPECTIVES, COLOURS & MATERIALS

- ARCHITECTURAL COLLECTIVE INC.
- COPYRIGHT RESERVED. THIS PLAN AND DESIGN ARE, AND AT ALL TIMES REMAIN, THE EXCLUSIVE PROPERTY OF ARCHITECTURAL COLLECTIVE INC. AND MAY NOT BE USED OR REPRODUCED WITHOUT WRITTEN CONSENT.
It is the General Contractor's responsibility to lay out and carry out the work as detailed in the contract documents. It is therefore necessary for the General Contractor to pay very close attention to actual site dimensions, geometries and conditions which may vary from those assumed on the drawings. Any discrepancies which the General Contractor discovers within the contract documents themselves or between the contract documents and site conditions, are to be discussed with the Architect immediately before proceeding with any work. Written dimensions and larger scale details shall have precedence over scaled dimensions.

Copyright reserved. This plan and design are, and at all times remain, the exclusive property of Architectural Collective Inc. and may not be used or reproduced without written consent.

Revisions:
- Project:
- Drawing Title
- Website: www.architecturalcollective.com
- Phone: 604.266.4679
- Email: info@architecturalcollective.com
- As indicated 2020-09-25 12:08:50 PM
LEVEL 1
54’ - 10”

LEVEL 2
64’ - 10”

U/S CLG
73’ - 4”

T/O ROOF - A
79’ - 3 1/2”

CRAWL SPACE
49’ - 11”

1.0
1.1
2.0
4.0
4.1
5.0

5' - 11 1/2” 8’ - 6” 10’ - 0” 4’ - 11”

29’ - 4 1/2”

3070

GUARD HT
3’ - 0”

2050

1
12
8
14
2
16
10
4
9
14
2
12
1
13
3070

2
13
3050 3050 3050

4760 3050 3050 3050

3050 3050 3050

2040

2050 2050 2040

14
16
8
12
1
17
3
10
8
10
10
14
2
8
2
12
1
13

2020 FEB 07
3 ISSUED FOR REZONING/DP RESUBMISSION
2020 APR 15

4 ISSUED FOR INFO ONLY 2020 APR 15 5 ISSUED FOR REZONING RESUBMISSION 2020 SEPT 21

1/4” = 1'-0"

1-4 BLDG 1 - EAST ELEVATION (UNIT 1 & 2)

1-4 BLDG 1 - WEST ELEVATION (UNIT 1 & 2)

MATERIAL LEGEND

1 LAMINATED ROOFING SHINGLES
2 COMPOSITE (NON-COMBUSTIBLE) PANEL C/W 1” REVEAL HARDIE EASY TRIM TRANSITIONS PTD TO MATCH PANEL COLOUR
3 STONE VENEER CLADDING
4 SOLID WOOD
5 PANEL CLADDING FASCIA
8 VINYL DOUBLE GLAZED WINDOWS
9 PTD WOOD STAIRS
10 CONCRETE FOUNDATION
12 PREFINISHED ALUMINUM GUTTER
13 PTD SOLID WOOD DOOR C/W TEMPERED GLAZED LITES
14 METAL CAP FLASHING OVER 2X12 WOOD TRIM
16 TEMPERED GLAZED GUARDS FASTENED TO BOTTOM ALUM RAIL C/W POWDERCOATED ALUM STANCHIONS 4’ O/C & TOP RAIL
17 PTD SOLID WOOD DBL GLAZED EXTERIOR DOOR
19 ALUM EXTERIOR CHANNEL SIGNAGE FOR ADDRESSING ON STANDOFFS

1/4” = 1'-0”
1. Listing Distance = 10'-6"
2. Total Wall Area = 13300SF
3. Allowable Openings = 20.85%
4. Proposed Unprotected Openings = 277SF
5. Proposed Unprotected Openings = 23SF
6. (BCBC 2018 Table 9.10.15.5) = 60 Min. FRR.

UNPROTECTED OPENING CALCULATION

1. Listing Distance = 10'-6"
2. Total Wall Area = 13300SF
3. Allowable Openings = 20.85%
4. Proposed Unprotected Openings = 277SF
5. Proposed Unprotected Openings = 23SF
6. (BCBC 2018 Table 9.10.15.5) = 60 Min. FRR.

HEIGHT CALCULATIONS (NORTH & SOUTH ELEVATIONS)
Figure 1: Elevation Diagram 3-16 BLDG 1 - UPO EAST ELEVATION

Figure 2: Elevation Diagram 3-16 BLDG 1 - HT CALC WEST ELEVATION

Figure 3: Elevation Diagram 3-16 BLDG 2 - UPO WEST ELEVATION

Figure 4: Elevation Diagram 3-16 BLDG 2 - HT CALC EAST ELEVATION

UNPROTECTED OPENING CALCULATION

1. LIMITING DISTANCE = 5.17FT (1.58M)
2. TOTAL WALL AREA = 950.73SF
3. ALLOWABLE OPENINGS TO WALL AREA = TABLE 9.15.4
4. UNPROTECTED OPENINGS TO WALL AREA = TABLE 9.15.4
5. CONSTRUCTION REQUIRED = 60 MIN. FRR

COMBUSTIBLE OR NON-COMBUSTIBLE CONSTRUCTION & NON-COMBUSTIBLE CLADDING REQUIRED
**PLANTING NOTE**

Plants are selected in alignment with the House’s guidelines on low maintenance species including:
- Hardy, drought-resistant, low-maintenance options
- Local native species
- Tolerate soil and climate conditions
- Suitable for the site's light and soil conditions
- Low water requirements
- Moderate water requirements
- High water requirements

**LANDSCAPE NOTES**

1. All landscape construction is to meet the current elevation of the Canadian Landscape Standards for Landscapes.
2. All proposed plantings to be reconsidered for tolerance of site conditions.
3. Based on the planting plan, shall be considered an estimate.

**PLANT DATABASE**

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Common Name</th>
<th>Height</th>
<th>Spread</th>
<th>Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Honey Locust</td>
<td>Gleditsia triacanthos</td>
<td>8-12m</td>
<td>8-12m</td>
<td>4-8</td>
</tr>
<tr>
<td>Japanese Maple</td>
<td>Acer palmatum</td>
<td>5-8m</td>
<td>5-8m</td>
<td>4-8</td>
</tr>
<tr>
<td>Smoke Tree</td>
<td>Fraxinus pennsylvanica</td>
<td>12-15m</td>
<td>12-15m</td>
<td>4-8</td>
</tr>
<tr>
<td>Weeping Beech</td>
<td>Fagus sylvatica pendula</td>
<td>10-12m</td>
<td>10-12m</td>
<td>4-8</td>
</tr>
<tr>
<td>Weeping Willow</td>
<td>Salix babylonica pendula</td>
<td>6-8m</td>
<td>6-8m</td>
<td>4-8</td>
</tr>
</tbody>
</table>

**Hand-digging Note**

Hand dig when planting is near protection zone.
Limit 6" and build-up over roots.
See detail at 2.0.
840 St Denis Wildfire Hazard Assessment and Arborist Report
PID 013-739-808

Submitted By:
Judith Cowan, RPF, ISA Cert Arb
Alex DeRoehn, BUF &
Bruce Blackwell, MSc, RPF, RPBio
B.A. Blackwell & Associates Ltd.
270 – 18 Gostick Place
North Vancouver, BC V7M 3G3
Ph: 604-986-8346
Email: j_cowan@bablackwell.com

Submitted To:
Bobby Purba
By Design Construction
8033 17th Ave
Burnaby, BC V3N 1M5
Ph: 604 – 351 - 8614
Email: bobby@bydesignconstruction.ca

October 16th, 2018 – Updated April 14th, 2020
TABLE OF CONTENTS

Commonly Used Acronyms ........................................................................................................ v

1.0 Introduction .......................................................................................................................... 1
  1.1 Qualifications ...................................................................................................................... 1
  1.2 Fire Hazard Report Sign Off ............................................................................................ 2
  1.3 Documents Reviewed ....................................................................................................... 2

2.0 Property Description ........................................................................................................... 2

3.0 Methodology ........................................................................................................................ 3

4.0 Assessments ........................................................................................................................ 3

5.0 Fire Hazard Assessment ..................................................................................................... 4
  5.1 Site Description ................................................................................................................ 4
  5.2 FireSmart Structure and Hazard Assessment ................................................................. 9
    5.2.1 FireSmart Zones ....................................................................................................... 10

6.0 Vegetation Inventory and Proposed Mitigative Works ....................................................... 14

7.0 Tree Inventory and Recommendations ............................................................................. 15
  7.1 Protected Trees ................................................................................................................. 18
  7.2 Removals .......................................................................................................................... 18
    7.2.1 Removal Guidelines ............................................................................................... 20
    7.2.2 Pruning ..................................................................................................................... 20

8.0 Building Construction ........................................................................................................ 21
  8.1 Design Recommendations and Preliminary Design ....................................................... 22

9.0 Environmental Considerations ........................................................................................... 25
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1</td>
<td>Slope Hazard</td>
<td>25</td>
</tr>
<tr>
<td>9.2</td>
<td>Canopy Cover</td>
<td>25</td>
</tr>
<tr>
<td>9.3</td>
<td>Invasive Plants</td>
<td>25</td>
</tr>
<tr>
<td>10.0</td>
<td>Arboriculture Assessment</td>
<td>27</td>
</tr>
<tr>
<td>11.0</td>
<td>Landscaping/Replanting</td>
<td>31</td>
</tr>
<tr>
<td>11.1</td>
<td>FireSmart Landscaping</td>
<td>32</td>
</tr>
<tr>
<td>11.2</td>
<td>Landscaping Alternatives</td>
<td>32</td>
</tr>
<tr>
<td>11.3</td>
<td>Retention</td>
<td>34</td>
</tr>
<tr>
<td>11.4</td>
<td>Tree Protection Zones/ Construction Exclusion Zones</td>
<td>34</td>
</tr>
<tr>
<td>11.4.1</td>
<td>Tree Protection Zone Guidelines</td>
<td>35</td>
</tr>
<tr>
<td>11.4.2</td>
<td>Tree Protection Barriers</td>
<td>36</td>
</tr>
<tr>
<td>11.4.3</td>
<td>Monitoring Tree Health</td>
<td>36</td>
</tr>
<tr>
<td>12.0</td>
<td>Replacement Trees</td>
<td>36</td>
</tr>
<tr>
<td>12.1.1</td>
<td>Tree replanting guidelines</td>
<td>38</td>
</tr>
<tr>
<td>13.0</td>
<td>Maintenance of Property in Low Fire Hazard State</td>
<td>39</td>
</tr>
<tr>
<td>14.0</td>
<td>Limitations</td>
<td>40</td>
</tr>
<tr>
<td>15.0</td>
<td>References</td>
<td>40</td>
</tr>
<tr>
<td>16.0</td>
<td>Appendix A: Suitable Deciduous Hedge Alternatives</td>
<td>42</td>
</tr>
<tr>
<td>17.0</td>
<td>Appendix B: List of Replacement Trees (Native Species)</td>
<td>48</td>
</tr>
<tr>
<td>18.0</td>
<td>Appendix C: Replanting Criteria</td>
<td>49</td>
</tr>
<tr>
<td>19.0</td>
<td>Consent for the removal of Tree #7</td>
<td>51</td>
</tr>
<tr>
<td>20.0</td>
<td>Signatures</td>
<td>52</td>
</tr>
</tbody>
</table>
List of Maps

Map 1. Fire Priority Zones 1, 2 and 3 for 840 St Denis Ave. DNV ................................................................. 9

Map 2. FireSmart Priority Zones 1 and 2 and the proposed building footprint for 840 St Denis Ave. in the District of North Vancouver. .................................................................................................................. 13

Map 3. Assessment of coniferous trees, shrubs and hedges within the parcel boundary of 840 St Denis Ave, and coniferous vegetation on the adjacent parcels of 860 St Denis Ave and 820 St Denis Ave. ...... 19

Map 4. Recommended replacement tree locations for 840 St Denis Ave.......................................................... 37

List of Figures

Figure 1. Surrounding area north (L) and south (R) from 840 St Denis Ave ......................................................... 5

Figure 2. Stand of Black cottonwoods on the east edge of the lot........................................................................... 6

Figure 3. Invasive ivy growing in the back portion of the lot................................................................................ 7

Figure 4. 840 St Denis Ave. highlighted in red. Figure from DNV Geoweb. .............................................................. 8

Figure 5. FireSmart Priority Zones. .................................................................................................................... 11

Figure 6. Proposed Site plan for 840 St Denis...................................................................................................... 22

Figure 7. Standard exterior vent model covered with 3mm wire mesh (1/8" hardware cloth).............................. 24

Figure 8. Example of exterior vents with inner flap over pipe (Shown open)........................................................ 24

Figure 9. L-R: Tree #’s 1, 2, 3 to be removed for development. ....................................................................... 27

Figure 10. Tree #4 to be removed for development ............................................................................................. 28

Figure 11. Tree #5 to be removed for development. Note chlorotic leaves, likely a result of drought stress. ................................................................................................................................. 29

Figure 12: Tree #7 on the lot of 820 St Denis Ave may require pruning of lower branches to raise the crown base to 3m if removal does not occur. ........................................................................ 30

Figure 13. Black cottonwoods on the back-property line of 840 St Denis Ave................................................... 31

Figure 14. Common coniferous plants used in urban landscaping L-R (Clockwise) Cedar foliage, Arborvitae/cedar hedging, juniper shrub, yew shrub..................................................................................... 32
List of Tables

Table 1. FireSmart Structure and Hazard Assessment form for the planned development of 840 St Denis Ave. .......................................................................................................................................................................................................................... 9

Table 2. Full vegetation inventory, recommendations, and tree protection distances of those trees assessed on or adjacent to 840 St. Denis Ave, District of North Vancouver. .......................................................... 15

Table 3. Tree Protection Zone Distances for 840 St Denis.................................................................................................................................................................................................................................................. 35

Table 4. Trees and hedges recommended for replanting.............................................................................................................................................................................................................................................. 39
## COMMONLY USED ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEC</td>
<td>Biogeoclimatic Ecosystem Classification</td>
</tr>
<tr>
<td>DBH</td>
<td>Diameter at Breast Height</td>
</tr>
<tr>
<td>DP</td>
<td>Development Permit</td>
</tr>
<tr>
<td>FPZ</td>
<td>Fire Priority Zone</td>
</tr>
<tr>
<td>FSCCRP</td>
<td>FireSmart Canada Community Recognition Program</td>
</tr>
<tr>
<td>HIZ</td>
<td>Home Ignition Zone</td>
</tr>
<tr>
<td>NFPA</td>
<td>National Fire Protection Agency</td>
</tr>
<tr>
<td>TPZ</td>
<td>Tree Protection Zone</td>
</tr>
<tr>
<td>WUI</td>
<td>Wildland Urban Interface</td>
</tr>
</tbody>
</table>
1.0 INTRODUCTION

Update April 2020: This report has been updated to reflect changes to the site since the preliminary assessment (October 16th 2018). Maps and tables have been updated accordingly. Updates to this report are highlighted in red and can be found in Sections 1.3, 4.0, 7.2, 8.0, 10.0, 11.4 and 19.0.

B.A. Blackwell and Associates Ltd. (Consultant) were retained by Bobby Purba (Client) to provide wildfire hazard and arboriculture assessments and associated reporting for the property at 840 St Denis Ave in the District of North Vancouver (DNV). The purposes of the report are twofold:

• to **determine wildfire risk** associated with the proposed subdivision application and to ensure compliance with the DNV’s Wildfire Hazard Development Permit Area (Wildfire Hazard DPA). The goal of this assessment is to ensure the proposed development falls within an acceptable range of risk from wildfire for the intended use as a residential property. This considers both a house fire spreading from the property to nearby forested District lands and a wildfire spreading from a forested area into the developed portion of this neighbourhood.

• to **inventory and assess** the condition of all trees on the property, including trees shared with neighboring properties, as well as for adjacent trees that might be influenced by the proposed construction. Further objectives are to provide tree protection zones, specify best management practices for retaining trees during development, and to outline replanting obligations when protected trees are removed.

The legal description and PID number are:

<table>
<thead>
<tr>
<th>840 St Denis Ave.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lot 4 of Lot 5 Block A District Lot 613 Plan 2459</td>
</tr>
<tr>
<td>PID: 013-739-808</td>
</tr>
</tbody>
</table>

1.1 Qualifications

Bruce Blackwell, MSc, RPF (#2073) has over 30 years’ experience in fire and forest ecology, and fire and fuels management. Judith Cowan, RPF (#4998) is an International Society of Arboriculture (ISA) Certified Arborist (PN-7413A) and has six years’ experience in arboriculture in the lower mainland as well as three years’ experience conducting wildfire hazard and FireSmart assessments in the lower mainland of BC. She also holds the status as a Local FireSmart Representative with Partners in Protection – FireSmart Canada. Alex DeRoehn is a qualified Tree Risk Assessor and holds a Bachelors in Urban Forestry. Bruce Blackwell, RPF meets the requirements of a ‘Qualified Professional’ (Section 1.2 below).
1.2 Fire Hazard Report Sign Off

At the completion of the development and before first occupancy, the DNV requires that a ‘Qualified Professional’ inspects and signs off that all prescribed mitigation measures have been satisfactorily undertaken pursuant to this Report, pertaining specifically to the wildfire hazard on the property. A qualified professional must be “a Registered Professional Forester in good standing and qualified by training or with a minimum of two years’ experience in fuel management prescription development and mitigation of wildfire hazards in British Columbia.”

This Report should be shared with contractors, developers and landscapers, as relevant, to ensure that requirements are noted and recommendations are followed as part of compliance with the Wildfire Hazard DPA.

1.3 Documents Reviewed

The following documents were reviewed for the purpose of this assessment:

1. Site plan, drawn by Dan Sidhu of Green Clover Home Designs, and last updated August 9th, 2018

2. Topographic survey, completed by Ken K. Wong and Associates, completed November 20th, 2017, received August 14th, 2018


5. Consent letter for Tree #7, received April 1st, 2020.

6. Email for tree #6 and 8 indicating retention from owner, received April 1st, 2020.

2.0 PROPERTY DESCRIPTION

The property under review is currently occupied by a one storey residential building with detached garage in the back of the lot, which will be demolished to make for new residential construction. The lot at 840 St Denis Ave, is located in the Lynnmour North neighbourhood and is approximately 843 m$^2$ in size. New construction plans call for a two storey residential triplex. New buildings will be approximately 111-140 sq metres (1,200-1,500 sq ft) per unit. Each unit includes garage parking as well as driveway parking throughout the site. Unit three (the eastern most unit) will have a raised patio behind it. This raised patio will surfaced with concrete.

---

3.0 METHODOLOGY

All coniferous trees, shrubs and hedges influencing the fire hazard of the Property, as well as all trees that were greater than 10 cm dbh, were assessed.

The vegetative portion of the fire hazard assessment included collection of the following data:

- diameter at breast height (dbh) measured to nearest 0.5 cm (trees only),
- form (hedge, shrub, tree, multi-stem tree),
- location (approximate location for shrubs/hedges not on the survey),
- crown radius,
- crown base height,
- tree height measured to the nearest meter, and
- tree health, condition or defect.

Tree height was measured using a clinometer and digitally measured horizontal distance. For those trees where it was not possible to see tree base and top, ocular estimates were based on nearby trees that were able to be accurately measured. Diameter at breast height was measured according to the District of North Vancouver’s tree measurement guidelines. Crown radii are ocular estimates to the nearest half meter using the most far-reaching branch tip as the basis for measurement. Tree health, condition or defect was assessed visually. No coring, drilling, or climbing was executed.

Shrub and hedge assessment included the collection of species, height, spread and condition data only. All measurements (height and spread) for shrubs and hedges were ocular estimates.

All vegetation assessed was assigned a unique number, used consistently throughout the report in maps, text, and tables. All trees with a DBH above 20cm were tagged with round plastic tags nailed to the stem at 1.4 – 1.6 m height. Trees off property (DNV and on adjacent private property) were not tagged in the field.

Photographs of the site and specimens were taken for documentation.

4.0 ASSESSMENTS

The fire hazard and arboriculture assessments included one site visit:

- Field assessment and vegetation inventory was completed on September 7th, 2018, by Judith Cowan, RPF, ISA Certified Arborist and Alex DeRoehn, BUF.

2 District of North Vancouver Environment Department, Tree Permit Information: How to measure a stem diameter.
An additional site visit was conducted on April 6th, 2020, by Alex DeRoehn, ISA Certified Arborist.

5.0 FIRE HAZARD ASSESSMENT

5.1 Site Description

840 St Denis is a residential parcel within the District of North Vancouver. This property is within the Province’s dry maritime Coastal Western Hemlock (CWHdm) Biogeoclimatic (BEC) Zone. This region is defined by wet winters, mild summers, and forests dominated by western hemlock (Tsuga heterophylla), Douglas fir (Pseudotsuga menziesii), and western redcedar (Thuja plicata) in the overstory.

The parcel is located east of Lynn Creek, just north of Highway 1. 840 St Denis Ave is a dead-end road fed from E. Keith road. The site is relatively flat and does not have a prominent aspect. To the east is Lynnmour Elementary School, which backs directly to 840 St Denis Ave. Much of the vegetation on the school grounds is deciduous. Inter River Park exists north of 840 St Denis and has high vegetation cover.

The parcel is not heavily vegetated but contains 4 prominent trees in the front (west) of the current structure. Surrounding lots have similar vegetation and are similar in size. There is a neighboring strata property to the north which is representative of the post development conditions that could be expected with 840 St Denis Ave. Few standalone shrubs or hedges exist on the reviewed property as it is mostly covered with lawn. The back portion of the lot is currently disturbed with exposed soil and devoid of shrubs or hedges. The area immediately east of the rear yard is densely covered with English ivy (Hedera helix) and is growing around the existing garage (See Figure 3). Mature conifers similar to tree #7 exist in surrounding sites. These trees are similarly around 20m in height and have an estimated DBH around 50cm. However, ocular estimates from the site suggest that tree #4 is one of the largest in the immediate area. These include Douglas fir (Pseudotsuga menziesii), western redcedar (Thuja plicata) and western hemlock (Tsuga heterophylla) The east edge of the property is framed by a strip of black cottonwood (Populus balsamifera trichocarpa) on the grounds of Lynnmour (Shown in Figure 2).
840 St Denis has limited access due to its location. St Denis Ave is a dead-end road with one access point to E Keith Road. The parcel has fire hydrant access 40m to the south on St Denis and is nearest to the DNV’s Fire Training centre (100m to the north on St Denis Ave.). Fire hall #2 is within close proximity (1.7 km) to the South, but due to road layout, has access barriers to the site. Access exists by way of Old Lillooet road from E Keith Road/ Lillooet road.
Figure 2. Stand of Black cottonwoods on the east edge of the lot.
Recreational trails on the west bank of Lynn Creek and north with Inter River Park could increase the possibility of human caused ignitions. However, Lynn Creek represents a suitable fire break due to its size, lack of coniferous vegetation, and water content.
A house fire originating from 840 St Denis Ave. has potential to spread to the forested areas of Lynn Creek and Inter River Park by means of radiant or convective heat transfer or through spotting. Spotting is the process by which embers are carried aloft by thermal air currents from a fire front which then ignite flammable material beyond the advancing fire. These areas are forested though mostly deciduous, significantly reducing fire hazard. Surrounding lots have coniferous vegetation, however any contiguous forest areas within 100m of 840 St Denis, are primarily deciduous. Deciduous vegetation, because of a generally higher water content, tends to have a lower flammability than its coniferous counterpart.

To lower the risk level and to help protect buildings in this neighbourhood, landscaping, building design and construction materials must be DPA compliant to reduce fire hazards to an acceptable level.
5.2 **FireSmart Structure and Hazard Assessment**

To evaluate fire hazards, the **FireSmart** approach which employs the *FireSmart Structure and Hazard Assessment Form* and the concept of *FireSmart Priority Zones* was used. These can be found on the FireSmart Canada website at [https://www.firesmartcanada.ca/resources-library/protecting-your-community-from-wildfire](https://www.firesmartcanada.ca/resources-library/protecting-your-community-from-wildfire) (Partners in Protection 2003) and are helpful tools for assisting in assessing risk and recommending mitigation options.

The *FireSmart Structure and Hazard Assessment Form* considers both building construction and vegetation related hazards. This form evaluates the proposed building and future vegetation conditions of the subject property. The overall rating for 840 St Denis is **40**, which falls into the range of the Extreme (>35) category (Table 1). The Low/Moderate/High/Extreme rating is attributable to the parcel’s adjacency to forested land, as well as the existence of coniferous vegetation within close proximity to the home.

**Table 1. FireSmart Structure and Hazard Assessment form for the planned development of 840 St Denis Ave.**
5.2.1 **FireSmart Zones**

FireSmart uses the concept of priority zones (PZ), or FireSmart zones, to determine where and how hazard assessment should be conducted and to determine appropriate mitigation measures. Priority Zones are defined by FireSmart as follows:
**Priority Zone 1 (PZ 1)** is a 10m fuel free zone around structures (See Map 1 and Figure 5) which ensures that direct flame contact with the building cannot occur and reduces the potential for radiative heat to ignite the building. Combustible materials such as firewood should not be stored in this zone. While creating this zone is not always possible, landscaping choices (including tree retention and replacement) should reflect the use of less flammable vegetation such as deciduous trees and shrubs, herbs and other species with low flammability. Coniferous vegetation, such as juniper or cedar hedges, is restricted in this 10m zone, as these are highly flammable.

**Priority Zone 2 (PZ 2)** extends from 10m to 30m from the structure. In this zone, trees should be widely spaced (5 to 10m apart), depending on size and species (See Figure 5 ). Tree crowns should not touch or overlap. Deciduous trees have much lower volatility than coniferous trees, so where possible deciduous trees should be preferred for retention or planting. Trees in this area should be pruned as highly as possible (without compromising tree health), especially where long limbs extend toward buildings. This helps to prevent a fire on the ground from moving up into the crown of the tree or spreading to a structure. Any downed wood or other flammable material should also be cleaned up in this zone to reduce fire moving along the ground.

It is recognized that in urban and wildland urban interface settings, such as in the DNV, homeowners have little or no influence or control over fuels and/or landscaping beyond their property boundaries (in PZ 2), but which may influence the fire hazard of their property.

![Figure 5. FireSmart Priority Zones.](image)

Recommendations in this report are limited to actions that can be implemented on the subject parcel and within PZ 1. Within PZ 1, the recommendations are to reduce the potential fire hazard by removing
flammable shrubs, hedges and trees in close proximity to the planned development (Figure 5). The execution of these recommendations will reduce the likelihood of fire spread.

With FireSmart building materials, FireSmart landscaping, and executing the recommendations in this report, the risk to the home from spotting and/or an ember shower should be sufficiently mitigated.
Map 2. FireSmart Priority Zones 1 and 2 and the proposed building footprint for 840 St Denis Ave. in the District of North Vancouver.
6.0 VEGETATION INVENTORY AND PROPOSED MITIGATIVE WORKS

There was a total of 6 trees, and 2 hedges assessed including a brief ocular assessment of a stand of cottonwood behind the 840 St Denis Ave, on the property of Lynnmour Elementary. Only coniferous vegetation was assessed for wildfire hazard. A complete inventory of all assessed trees can be found in Section 7.0. Of the 6 trees assessed, 5 are on the property of 840 St Denis Ave, 1 is on the property of 820 St Denis Ave. Both hedges assessed are on the property of 860 St Denis Ave.

In order to acceptably mitigate the fire hazard for 840 St Denis Ave, management of existing vegetation (through removal and pruning) on the property is recommended (see Section 7.2). Undertaking these proposed mitigative works entails consultation and written approval by the DNV and property owners of 860 St Denis Ave and 820 St Denis Ave for the vegetation located on their respective lots. Recommendations considered wildfire hazard, design plans and adjacency to flammable vegetation beyond the property boundaries.
### 7.0 TREE INVENTORY AND RECOMMENDATIONS

Table 2. Full vegetation inventory, recommendations, and tree protection distances of those trees assessed on or adjacent to 840 St. Denis Ave, District of North Vancouver.

<table>
<thead>
<tr>
<th>Tree #</th>
<th>Species (common name)</th>
<th>Tree Tag</th>
<th>DBH (cm)</th>
<th>Location</th>
<th>Ht (m)</th>
<th>Crown Base Height (m)</th>
<th>Crown Radius (m)</th>
<th>Form</th>
<th>Health</th>
<th>Protected Tree?</th>
<th>Treatment</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cherry</td>
<td>193</td>
<td>30</td>
<td>On property</td>
<td>6</td>
<td>1.5</td>
<td>3</td>
<td>Tree</td>
<td>Poor</td>
<td>N</td>
<td>Remove – for development</td>
<td>Foliar disease fire blight</td>
</tr>
<tr>
<td>2</td>
<td>Cherry</td>
<td>242</td>
<td>50</td>
<td>On property</td>
<td>5</td>
<td>1.5</td>
<td>2</td>
<td>MultiStem</td>
<td>Poor</td>
<td>N</td>
<td>Remove – for development</td>
<td>Topped – Fire blight. Major crown dieback on stems up to 6cm.</td>
</tr>
<tr>
<td>3</td>
<td>Prunus</td>
<td>217</td>
<td>72.5</td>
<td>On property</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>Multistem</td>
<td>Poor</td>
<td>N</td>
<td>Remove – for development</td>
<td>Topped – fire blight. Major crown dieback on stems up to 6cm.</td>
</tr>
<tr>
<td>4</td>
<td>Douglas fir</td>
<td>311</td>
<td>110</td>
<td>On property</td>
<td>34</td>
<td>6</td>
<td>5</td>
<td>Tree</td>
<td>Good</td>
<td>Y</td>
<td>Remove - for development</td>
<td>Branches hanging to current home. Dead branch exists on East side.</td>
</tr>
<tr>
<td>5</td>
<td>Rhododendron</td>
<td>207</td>
<td>36</td>
<td>On property</td>
<td>3</td>
<td>0.5</td>
<td>2</td>
<td>Multistem</td>
<td>Normal</td>
<td>N</td>
<td>Remove – for development</td>
<td>Stand alone shrub, experiencing drought stress.</td>
</tr>
<tr>
<td>6</td>
<td>Arborvitae</td>
<td>N/A</td>
<td>N/A</td>
<td>Adjacent</td>
<td>4</td>
<td>0</td>
<td>0.5</td>
<td>Hedge</td>
<td>Normal</td>
<td>N</td>
<td>No Treatment – consent not provided</td>
<td>Adjacent hedge planted along property line. 6 m in length. Planted behind existing fence.</td>
</tr>
<tr>
<td>7</td>
<td>Western hemlock</td>
<td>N/A</td>
<td>72</td>
<td>Adjacent</td>
<td>25</td>
<td>4</td>
<td>4</td>
<td>Tree</td>
<td>Normal</td>
<td>N</td>
<td>Remove – consent provided</td>
<td>Neighbouring specimen. Branches extending into subject lot, with some overhang onto roof. Codominant stem at 2m with included bark.</td>
</tr>
<tr>
<td>Tree</td>
<td>Species (common name)</td>
<td>Tree Tag</td>
<td>DBH (cm)</td>
<td>Location</td>
<td>HT (m)</td>
<td>Crown Base Height (m)</td>
<td>Crown Radius (m)</td>
<td>Form</td>
<td>Health</td>
<td>Protected Tree?</td>
<td>Treatment</td>
<td>Comment</td>
</tr>
<tr>
<td>------</td>
<td>-------------------------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>--------</td>
<td>-----------------------</td>
<td>------------------</td>
<td>------</td>
<td>--------</td>
<td>-----------------</td>
<td>-----------</td>
<td>---------</td>
</tr>
<tr>
<td>8</td>
<td>Arborvitae</td>
<td>N/A</td>
<td>N/A</td>
<td>Adjacent</td>
<td>4</td>
<td>0</td>
<td>0.5</td>
<td>Shrub</td>
<td>Normal</td>
<td>N</td>
<td>No treatment – consent not provided</td>
<td>Stand alone cedar shrub. Likely separated from the existing arborvitae hedge line.</td>
</tr>
<tr>
<td>9</td>
<td>Black cottonwood</td>
<td>N/A</td>
<td>50</td>
<td>Adjacent</td>
<td>15</td>
<td>1.7</td>
<td>3</td>
<td>Multistem</td>
<td>Normal</td>
<td>Y</td>
<td>No Treatment – Retain and Protect</td>
<td>Ivy growth along stem.</td>
</tr>
<tr>
<td>10</td>
<td>Black cottonwood</td>
<td>N/A</td>
<td>111</td>
<td>Adjacent</td>
<td>26</td>
<td>12</td>
<td>4</td>
<td>Tree</td>
<td>Normal</td>
<td>Y</td>
<td>No Treatment – Retain and Protect</td>
<td>Large specimen with ivy growth along stem. Pruning wounds in canopy.</td>
</tr>
<tr>
<td>11</td>
<td>Black cottonwood</td>
<td>N/A</td>
<td>18</td>
<td>Adjacent</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>Tree</td>
<td>Normal</td>
<td>Y</td>
<td>No Treatment – Retain and Protect</td>
<td>Holly growth along stem. Growing in clump of 4, likely attached below ground.</td>
</tr>
<tr>
<td>12</td>
<td>Black cottonwood</td>
<td>N/A</td>
<td>15</td>
<td>Adjacent</td>
<td>8</td>
<td>3</td>
<td>1</td>
<td>Tree</td>
<td>Normal</td>
<td>Y</td>
<td>No Treatment – Retain and Protect</td>
<td>Holly growth along stem. Growing in clump of 4, likely attached below ground.</td>
</tr>
<tr>
<td>13</td>
<td>Black cottonwood</td>
<td>N/A</td>
<td>45</td>
<td>Adjacent</td>
<td>16</td>
<td>5</td>
<td>2</td>
<td>Tree</td>
<td>Normal</td>
<td>Y</td>
<td>No Treatment – Retain and Protect</td>
<td>Holly growth along stem. Growing in clump of 4, likely attached below ground.</td>
</tr>
<tr>
<td>14</td>
<td>Black cottonwood</td>
<td>N/A</td>
<td>45</td>
<td>Adjacent</td>
<td>18</td>
<td>5</td>
<td>2</td>
<td>Tree</td>
<td>Normal</td>
<td>Y</td>
<td>No Treatment – Retain and Protect</td>
<td>Holly growth along stem. Growing in clump of 4, likely attached below ground.</td>
</tr>
<tr>
<td>Tree</td>
<td>Species (common name)</td>
<td>Tree Tag</td>
<td>DBH (cm)</td>
<td>Location</td>
<td>Ht (m)</td>
<td>Crown Base Ht (m)</td>
<td>Crown Radius (m)</td>
<td>Form</td>
<td>Health</td>
<td>Protected Tree?</td>
<td>Treatment</td>
<td>Comment</td>
</tr>
<tr>
<td>------</td>
<td>-----------------------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>--------</td>
<td>------------------</td>
<td>------------------</td>
<td>------</td>
<td>--------</td>
<td>----------------</td>
<td>-----------</td>
<td>---------</td>
</tr>
<tr>
<td>15</td>
<td>Black cottonwood</td>
<td>N/A</td>
<td>2 stems</td>
<td>Adjacent</td>
<td>20</td>
<td>2</td>
<td>3</td>
<td>Multistem</td>
<td>Normal</td>
<td>Y</td>
<td>No Treatment – Retain and Protect</td>
<td>Ivy growth along stem.</td>
</tr>
<tr>
<td>16</td>
<td>Black cottonwood</td>
<td>N/A</td>
<td>49</td>
<td>Adjacent</td>
<td>20</td>
<td>12</td>
<td>3</td>
<td>Tree</td>
<td>Normal</td>
<td>Y</td>
<td>No Treatment – Retain and Protect</td>
<td>Ivy growth along stem.</td>
</tr>
<tr>
<td>17</td>
<td>Black cottonwood</td>
<td>N/A</td>
<td>29</td>
<td>Adjacent</td>
<td>12</td>
<td>8</td>
<td>3</td>
<td>Tree</td>
<td>Normal</td>
<td>Y</td>
<td>No Treatment – Retain and Protect</td>
<td>Ivy growth along stem.</td>
</tr>
<tr>
<td>18</td>
<td>Black cottonwood</td>
<td>N/A</td>
<td>28</td>
<td>Adjacent</td>
<td>12</td>
<td>0</td>
<td>2</td>
<td>Tree</td>
<td>Poor</td>
<td>Y</td>
<td>No Treatment – Retain and Protect</td>
<td>Ivy growth along stem.</td>
</tr>
<tr>
<td>19</td>
<td>Black cottonwood</td>
<td>N/A</td>
<td>20</td>
<td>Adjacent</td>
<td>8</td>
<td>3</td>
<td>2</td>
<td>Tree</td>
<td>Poor</td>
<td>Y</td>
<td>No Treatment – Retain and Protect</td>
<td>Ivy growth along stem.</td>
</tr>
</tbody>
</table>
7.1 Protected Trees

Tree #4 is protected under Tree Protection Bylaw 7671 due to its large size. It is within the 10m FPZ 1 and is within the proposed building envelope. No other trees identified on site meet the DNV’s criteria of a protected tree as per Bylaw 7671.

7.2 Removals

**Update April 2020: Consent has been given from the tree owner for removal of tree #7. The consent letter is attached in Section 19.0. Consent has not been given for the removal of hedge #s 6 and 8 and as such, they must be retained per Section 11.4.**

Recommended removals include all flammable coniferous vegetation within Priority Zone 1 (10m) of the planned home footprint (#’s 4, 6, 7, 8). Additional tree removals for development include, #’s 1, 2, 3, & 5. Written consent must be given by the property owner of 860 St Denis Ave for the removal of hedge #’s 6 and 8 as well as consent from the owners of 820 St Denis Ave for the removal of tree #7. If written consent is not given, then protection must be maintained during all construction activities to limit the damage to these specimens. All damage to these retained trees is at fault of the owner of 840 St Denis Ave.
Map 3. Assessment of coniferous trees, shrubs and hedges within the parcel boundary of 840 St Denis Ave, and coniferous vegetation on the adjacent parcels of 860 St Denis Ave and 820 St Denis Ave.
7.2.1 Removal Guidelines

All pruning and removal work should be avoided during the breeding bird season. Breeding bird season is generally between March 1st and September 15th on the south coast of BC, but if there is bird activity detected in the tree, a biologist should be consulted prior to removal. All work activities must comply with the federal Migratory Birds Convention Act (1994) and the Migratory Birds Regulation (1994) that protects migratory birds, their eggs and nests.

7.2.2 Pruning

Periodic pruning may be required for coniferous vegetation extending into the lot at 840 St Denis, and more specifically, pruning by limbing branches and raising the crown base to a height of 3m (or 5 m above the roof line where the crown overlaps the roof) to minimize the formation of ladder fuels.

Proper arboriculture practices must be employed and follow ANSI A300 standards (American National Standards for Pruning) to ensure damage to trees is limited, and all tree climbing must be spurless. Pruning must be executed or supervised by an ISA Certified Arborist.

- All pruned limbs, woody pieces and foliage must be removed from the site and disposed of at an approved green waste recycling facility.
- No dumping of yard waste may occur.

Pruning should remove no more of a tree’s live crown than what is necessary for specified objectives. Species, tree size, age, location, health, and project goals must be considered when deciding how much to prune will occur. Live crown percentage refers to the amount of live crown that must be retained on the tree. Assessment of this is calculated by taking the length of the live crown (measured from the top down to where pruning has removed all branches) divided by the height of the tree.

---

8.0 BUILDING CONSTRUCTION

Update April 2020: Building materials were confirmed via email by Architect Carman Kwan on April 14th 2020. Changes have been applied below.

The building materials assessed were provided via email from Carman Kwan of Architectural Collective on April 14th, 2020. It is recognized that the construction materials assessed are considered preliminary design choices. B.A. Blackwell is to offer input in the final exterior materials and design choices to ensure that the home and property are compliant and will result in a residence that is within an acceptable range of fire risk for its intended use.

The District of North Vancouver’s Official Community Plan states that development within the Wildfire Hazard DPA should utilize fire resistive materials for exterior walls, decks, porches and balconies.

Class A fire resistance is defined by the following:

- The test must be extended for a 30-minute duration
- Exhibits a flame spread index (FSI) of not more than 25
- Shows no evidence of significant progressive combustion
- Flame front does not progress more than 10.5 ft (3.2 m) beyond the centerline of the burn at any time during the test

It is at the risk of the Client to change the design or materials without input from Blackwell or another QP; post-development sign-off is required to complete the DP process.
8.1 Design Recommendations and Preliminary Design

Cladding

Untreated flammable materials, such as wood, may not make up more than 20% surface area per exterior elevation. Up to 30% flammable materials per elevation may be used if sealed with Class A Fire Resistive sealant such as Flame Stop II or approved alternative. The fire resistive sealant product must be approved by BA Blackwell prior to application. If fire resistive sealant will be used, proof of purchase (a copy of the invoice) and photos of application are required to ensure compliance and to receive sign-off. Retardant requires re-application every 4-5 years.

Window and door trim, eaves, fascia, soffits, the underside of decks, and siding are included in the determination of 20% flammable surface area per elevation, while roofing is excluded. It is the responsibility of the house designer to conduct surface area calculations to ensure that the amount of flammable siding is below the 20% threshold.

- Preliminary designs show exterior cladding comprised of Hardie panel, and cultured stone veneer. All of the elevations depicted on the preliminary drawing plans submitted for this report indicate that wood surfacing will be below the 20% threshold.
Roofing

Roofing must be tested and rated Class A in accordance with American Society for Testing and Materials standards for fire tests of roof coverings (ASTM E 108)\(^4\), or equivalent. The ASTM E 108 rating standard is used to determine the relative combustibility of roof coverings. Non-combustible materials, such as asphalt shingles, torch on membrane, and metal are acceptable.

Torch-on application should be avoided during the fire season if at all possible as the flames from torches have ignited nearby flammable material and been the source of house fires in the Lower Mainland in recent years. Construction fire watch will be used to reduce the risk from incidental ignitions associated with Torch-on or other hotworks construction if applied during the fire season.

- Roofing will be made of asphalt shingles.

Soffits, Trim, and Windows

Soffits must be made of an ignition-resistant material. Eaves may not be open. Soffits must be closed or have ventilation strips with openings less than 3mm in diameter.

Windows should be tempered or double-glazed glass to reduce heat and protect against wind and debris capable of breaking windows and allowing fire to enter the building.

- Soffits will be Hardie panel.

Decking

Balconies, decks and porches must be sheathed in (no exposed joists) and made of an ignition-resistant\(^5\) material (non-combustible or receiving a Class A fire rating). Acceptable materials include stone, tile, rated composites, and concrete.

- Decking will be non-combustible, but materials must be confirmed with BA Blackwell prior to application. Exposed joists will be covered by non-combustible Hardie panel.

Exterior Wall Vents

Vents must be accessible and screened with a metal 3mm wire cloth or mesh to avoid the entry of sparks and burning embers, which have the potential under extreme heat to ignite combustible materials within the wall assembly and spread to up and through the building. Standard exterior vent models typically have openings greater than 3mm and must therefore have screening attached post installation as illustrated in Figure 7. Alternatively, vents with mobile flaps over the pipe outlet are also effective at eliminating the entry of sparks and embers into the building interior. Seen in Figure 8.

\(^4\) ASTM International [https://www.astm.org/Standards/E108.htm](https://www.astm.org/Standards/E108.htm)

Vents (Except those attached to dryers, and fireplaces with closed vent systems), must be fitted with 3mm or smaller wire mesh to the exterior of the vent, or installed with interior plastic or metal flaps to prevent the entrance of embers.

![Figure 7. Standard exterior vent model covered with 3mm wire mesh (1/8” hardware cloth).](image1)

![Figure 8. Example of exterior vents with inner flap over pipe (Shown open)](image2)

**Outdoor Burning Devices**

Outdoor burning devices should be limited to those fueled by propane, natural gas, or briquettes (DNV Fire Bylaw 7481). Chimneys require spark arrestors.

**Building design and construction should 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.**
9.0 ENVIRONMENTAL CONSIDERATIONS

9.1 Slope Hazard

840 St Denis does not rest on a slope and is a flat site. It is in close proximity to Lynn Creek to the West, which has a relatively steep slope over 30%. This is separated by St Denis Ave and does not present a slope hazard.

9.2 Canopy Cover

The reduction in canopy cover\(^6\) on the property will be high as a result of fire hazard mitigation recommendations in this report. Current canopy cover on the property is approximately 20% based on ocular estimates of aerial photography. Tree #4, a large Douglas fir, makes up the majority of the canopy cover for this lot. Recommended removals to meet fire hazard mitigation objectives and to allow for development of the property will decrease the canopy cover to less than 5%. Replacement trees will slowly contribute to increased canopy cover over time, though winter season canopy cover will only negligibly increase due to replacements recommended (deciduous trees do not have foliage during winter months).

Removals will lead to the loss of the ecosystem services associated with those trees removed. Ecosystem services include: storm water management, biomass services, air pollution abatement, microclimate moderation, noise reduction, slope stability, rainwater retention, and wildlife habitat (Carreiro et al, 2008). Retention and protection of those conifers furthest from the home footprint will allow the stand, as a whole, to continue to provide many of these valuable ecosystem services, while reducing the flammable foliage, and thus the wildfire hazard, nearest to the home.

9.3 Invasive Plants

The back of the lot had high concentrations of English ivy (*Hedera helix*), while patches of morning glory (*Calystegia sepium*) was found throughout the site and growing around tree #7. Himalayan blackberry (*Rubus armeniacus*) was found starting to grow into the back of the lot.

It is recommended that these invasive plants be cut and the roots dug out during excavation/development activities. Remove all vegetation parts off site; dumping onto adjacent land is not acceptable.

In the landscaped portion of the parcel, plant selections should be made carefully, incorporating non-invasive plants only.

---

\(^6\) Canopy cover is the area in canopy within a subject property boundary, when viewed from above in plan view, is covered by canopy. In this case, it is estimated in m\(^2\) from DNV GEOweb aerial photos, with changes estimated due to current state of treed vegetation. [http://www.geoweb.dnv.org/](http://www.geoweb.dnv.org/). Canopy is defined by the DNV Tree Protection Bylaw 7671 as ‘the extent of the outer layers of leaves of needles of an individual or group of trees.'
Rapidly spreading, invasive plants should be avoided in all locations on the property\(^7\). Invasive plants for sale in nurseries should be avoided and include, but are not limited to:

- English ivy (*Hedera helix*),
- English laurel (*Prunus laureocerasus*),
- Yellow archangel (*Lamium galeobdolon*),
- Holly (*Ilex aquifolium*),
- Butterfly bush (*Buddleia davidii*), and
- Periwinkle (*Vinca minor*).

Invasive plants as identified by the Invasive Plant Council of BC which aggressively colonize natural areas include:

- Japanese knotweed (*Polygonatum cuspidatum*),
- Himalayan blackberry (*Rubus discolor*),
- Scotch broom (*Cytisus scoparius*),
- Yellow flag iris (*Iris pseudoacorus*), and
- Giant hogweed (*Heracleum mantegazzianum*)\(^8\).

It is recommended that any invasive plants existing on the property be removed and disposed offsite at approved green-waste or incineration facilities to ensure that cuttings do not contribute to vegetative reproduction.

New landscaping must not contain species from the above lists. Native plant species are recommended instead as they are appropriate for the naturalized and forested character of the site. They should establish quickly as they do not have to compete with exotic ornamentals or invasive species for resources.

Review of landscaping plans or species lists by Blackwell prior to installation is recommended to ensure the design is appropriate for the site and that landscaping choices are DPA compliant.

---


\(^8\) Giant Hogweed is a public health concern due to phytotoxic sap which can lead to extreme skin dermatitis (welts, rashes, blistering). Removal of Giant hogweed should only be conducted by trained personnel. Contact the District of North Vancouver Environment Department at 604.990.3800 to report an occurrence and schedule removal: [https://www.dnv.org/programs-and-services/managing-invasive-plants-your-property](https://www.dnv.org/programs-and-services/managing-invasive-plants-your-property).
10.0 ARBORICULTURE ASSESSMENT

Update April 2020: The owner of tree #7 has provided consent for its removal. Consent for this tree removal can be found in Section 19.0. Consent has not been provided for the removal of hedges/shrubs # 6 and 8. Protection will be required for these hedges and shrubs.

The stand of cottonwoods behind the property line have been given unique identifying numbers for the assessment and new protection distances have been added to reflect the District’s preference for a larger tree protection zone. These trees were in poor to normal health and were overgrown with English ivy. The largest of these trees, #10, will require the largest tree protection zone, extending 5.74 m into the property.

This section includes assessments and recommendations completed for all trees on the property as well as those potentially impacted by proposed development.

The trees on-site have varying degrees of health and structure. Tree #’s 1, 2 and 3, are in very poor health, experiencing symptoms of fire blight (Erwinia amylovora). They have been topped, and as a result, are experiencing decay at pruning wounds. They also include total stem die back of stems up to 10cm in diameter. All three trees have evidence of decay. Tree #1 is compromised structurally due to a deep cavity (10cm deep) cavity at the base. If retained, they would not likely survive proposed construction works.

Figure 9. L-R: Tree #’s 1, 2, 3 to be removed for development.
Tree #4 is a very healthy large Douglas fir and is one of the dominant individuals within the immediate area. It is healthy and has no visible signs of damage to the crown, trunk or roots, despite being in close proximity to pavement. Tree #4 has a solid root flare that is defining of Douglas-fir, and appears to be very structurally sound. This tree is one the largest in the area with a DBH of 110 cm and an estimated height of 34m.

Figure 10. Tree #4 to be removed for development

Tree #5 is a rhododendron, multi stem tree and is more shrub like in appearance, though it meets the DNV’s criteria of a “tree” (dbh >20cm). It is experiencing drought stress with chlorotic leaves, it is otherwise in normal health.
Figure 11. Tree #5 to be removed for development. Note chlorotic leaves, likely a result of drought stress.

Tree #7 is an adjacent western hemlock on the property of 820 St Denis Ave. It has two structural roots extending towards the driveway and includes a codominant stem at 2m with included bark with a length of 0.5m. Due to its adjacency to the proposed driveway, a redesign may be required if the owner of 820 St Denis does not permit its removal for fire hazard mitigation. Because of the shallow rooting nature of western hemlock, tree #7 is particularly vulnerable to adjacent excavation and driveway construction. While it appears windfirm and structurally stable, adjacent construction activities and excavation could destabilize it. Should retention occur, an ISA certified arborist must be onsite during construction activities. The client has indicated their desire to remove tree #'s 1, 2, 3, 4 for the purposes of development.
Figure 12: Tree #7 on the lot of 820 St Denis Ave may require pruning of lower branches to raise the crown base to 3m if removal does not occur.

Tree #7, as the only significant tree to be retained and not conflicting with development, has a few treatment options:

1. **Option to remove**
   As this tree exists within FPZ 1 (10m) removal for fire hazard mitigation is recommended with the written consent from the property owners of 820 St Denis Ave.

2. **Retain**
   Because the tree does not exist on the subject property, removal can only occur after written consent has been given by the tree owner. If tree owner indicates their desire to retain this tree, a tree protection barrier must be installed before construction. This should also include a hydro vac to explore the root system and accurately find the structural roots that could be impacted from development.
   a. TPZ – extend to 3m into the proposed driveway. This option requires a redesign of the planned driveway. Alternatively, a raised driveway could be built to protect tree roots, limit excavation, and prevent compaction.
b. Restrict TPZ to 2m: An arborist must be onsite during construction to assure that damage to Tree #7 is restricted and that a proper TPZ is constructed and maintained

3. Retain and Prune

If the tree is retained, it is recommended that it be pruned so that it maintains a crown base height of at least 3m off the ground or 5m above any existing structure. This is to prevent the spread of fire into the tree crown.

A stand of black cottonwood (*Populus balsamifera trichocarpa*) exists adjacent to the eastern back portion of the lot at 840 St Denis Ave. This stand is on Lynnmour Elementary School land and spans much of the length of the property line for 840 St Denis Ave. Construction activities including machinery, and excavation could impact these roots if excavation goes up to the east property line. These trees will require tree protection barriers to at least the property line. Proposed tree protection for this stand is based on the largest observed tree in the stand – estimated at 50cm.

![Figure 13. Black cottonwoods on the back-property line of 840 St Denis Ave.](image)

The topographic survey dated November 20th, 2017 indicates 2 coniferous trees on the east side of lot 860 St Denis. During the time of Blackwell’s site visit, these trees were cut and removed.

**11.0 LANDSCAPING/REPLANTING**
11.1 FireSmart Landscaping

Future landscaping choices must be limited to plant species with low flammability within 10m of the building (the entire Property). Coniferous vegetation such as juniper, cypress, yew or cedar hedging or shrubs must not be planted within this 10m zone, as these species are considered highly flammable under extreme fire hazard conditions. We are unable to sign off on the recommendations in our report where these circumstances occur.

Figure 14. Common coniferous plants used in urban landscaping L-R (Clockwise) Cedar foliage, Arborvitae/cedar hedging, juniper shrub, yew shrub.

11.2 Landscaping Alternatives

The landscaping challenges faced by many homeowners pertain to limited space, privacy and the desire to create visually explicit edge treatments to demarcate property ownership from adjacent lots with evergreen vegetation screens. Ornamental plant characteristics fulfilling these criteria have an upright branching habit, compact form, dense foliage, as well as a moderate growth rate. Dwarf and ornamental conifers such as weeping blue Atlas cedar (Cedrus atlantica ‘Glauca pendula’), Alberta spruce (Picea glauca ‘Conica’), yew (Taxus baccata), and arborvitae...
hedging (Thuja occidentalis) are popular choices. Yet conifers such as these which have needle or scale-like foliage are highly flammable and not compliant with FireSmart principles and must be omitted from the 10m Fire Priority Zone of the planned home footprint. **A list of suitable broadleaf evergreen species capable of replacing hedging conifers is provided at the end of this document.**

There are a number of broadleaved deciduous and evergreen plants with low flammability which can be used for landscaping within FireSmart PZ 1 (within 10m of structures). Landscaping should be selected for the appropriate Canadian Hardiness Zone (Zone 8b). Hedge and shrub examples which thrive in Zone 8b and are low flammability include, but are not limited to, Cotoneaster, mock orange (Philadelphus sp.), oceanspray (Holodiscus discolor), red flowering currant (Ribes sanguineum), Saskatoon berry (Amelanchier alnifolia), snowberry (Symphoricarpos albus), salal (Gaultheria shalon), California lilac (Ceanothus thyrsiflorus), glossy abelia (Abelia x grandiflora) and boxwood (Buxus sp.). Tree examples include maples (Acer sp.), magnolias (Magnolia sp.), honey locusts (Gleditsia triacanthos), acacias (Acacia sp.), dogwoods (Cornus sp.) and lindens (Tilia sp.). It is best to discuss options with a professional landscaper, looking together for plants that not only suit the aesthetics of the landscape design, but are suitable for the climate and site, as well as have low flammability.

Plants that are fire resistant/have low flammability generally have the following characteristics:

- Foliage with high moisture content (moist and supple),
- Little dead wood and do not tend to accumulate dry and dead foliage or woody materials, and
- Sap that is water-like and without a strong odour.

For further assistance in creating a FireSmart landscape and to obtain a list of fire resistant plants, refer to the FireSmart Guide to Landscaping at [https://www.firesmartcanada.ca/resources-library/firesmart-guide-to-landscaping](https://www.firesmartcanada.ca/resources-library/firesmart-guide-to-landscaping).

Other helpful links for finding fire resistant landscaping options can be found at:

- [http://www.wacdpmc.org/images/Fire-Resistant-Plants.pdf](http://www.wacdpmc.org/images/Fire-Resistant-Plants.pdf)

---

9 Government of Alberta “FireSmart Guide to Landscaping”

10 Washington Association of Conservation Districts (WACD) Plant Material Center


12 Cooperative eXtension “Selecting Firewise Plants”
Grass, shrubs, and herbs must be maintained in a state that reduces fire hazard by maintaining foliar moisture content. This can be accomplished by:

- Choosing plant species that are well-adapted to the site (microclimate and soil conditions of the parcel),
- incorporating a landscape design where shrubs, herbs, and grasses are planted in discrete units manageable by hand watering; and/or,
- installing irrigation.

It should be recognized that relying on irrigation to maintain landscaping in a healthy state is limiting and may actually increase the fire hazard on the parcel, particularly in times of drought and watering restrictions, similar to the experience of summer 2015 and 2017. Lack of irrigation in times of watering restrictions may create a landscape which is unhealthy, unsightly, as well as dead, dry, and highly flammable.

Any dead material must be removed annually and must not be allowed to build-up on site.

Placement of combustible materials such as firewood or wooden structures (sheds, storage or other outbuildings) must be a minimum of 5m from the primary building (including neighbouring houses). This will limit the potential for these materials to be ignited and spread fire to an adjacent building.

As per DNV Fire Bylaw 7481, no open-air fires are permitted. Construction of fire pits or other outdoor burning devices fueled by materials other than propane, natural gas, or briquettes are not permitted.

### 11.3 Retention

All assessed trees to be retained will require protection in order to avoid construction damage.

Some trees (trees #6, 8), if retained, may require design amendments in order to protect the long-term health and stability of the tree (i.e. proposed footprint and design does not allow for tree protection zone). The removal and/or protection of these all adjacent trees should be discussed with the tree owner. Consent from the neighbour is required for removal of any tree on the neighbour’s parcel, including shared trees. Open communication with neighbours regarding tree protection, construction, etc. is recommended throughout the development process as part of DNV’s Good Neighbour Program.¹³

### 11.4 Tree Protection Zones/ Construction Exclusion Zones

Update April 2020: The District of North Vancouver has requested that protection zones for the stand of black cottonwoods be 10 x the stem diameter. The 10 x Stem diameter tree protection distance is based on DNV standards. The largest tree in the identified stand had a DBH of 111 cm and by extension, a total tree protection

¹³ DNV’s Good Neighbour Program guide is available for download: [https://www.dnv.org/sites/default/files/edocs/good-neighbour-program.pdf](https://www.dnv.org/sites/default/files/edocs/good-neighbour-program.pdf)
distance of 11.1 m. Tree protection should be 5.74 m from the property line in the north east corner of the lot before tapering to 1 m from the property line where tree 19 is located, continuing south along the property line and terminating where the final driveway will be located.

This tree protection zone may partially conflict with the existing secondary structure built onsite. Given the large protection zone provided for this stand of trees, it is not expected that these trees will be impacted from the removal of the secondary structure. However, should this structure be removed, or excavation works occur within the identified tree protection zone, an ISA Certified Arborist must be on site to supervise the works.

Table 3. Tree Protection Zone Distances for 840 St Denis.

<table>
<thead>
<tr>
<th>Tree #</th>
<th>Distance from stem (metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>5.0</td>
</tr>
<tr>
<td>10</td>
<td>11.1</td>
</tr>
<tr>
<td>11</td>
<td>1.8</td>
</tr>
<tr>
<td>12</td>
<td>1.5</td>
</tr>
<tr>
<td>13</td>
<td>4.5</td>
</tr>
<tr>
<td>14</td>
<td>4.5</td>
</tr>
<tr>
<td>15</td>
<td>5.3</td>
</tr>
<tr>
<td>16</td>
<td>4.9</td>
</tr>
<tr>
<td>17</td>
<td>2.9</td>
</tr>
<tr>
<td>18</td>
<td>2.8</td>
</tr>
<tr>
<td>19</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Impacts from construction can be mitigated by installing tree protection barriers (fences) around retained trees. It is recommended that an ISA Certified Arborist be contracted to provide regular on-site consultations during construction to ensure that tree protection barriers are in-place, construction exclusion zones are respected, and construction damages are mitigated. This includes ensuring that the tree protection guidelines as outlined in Section 11.4.1 are followed.

In cases where any activity is required in areas within the TPZ, as defined by Tree Protection Bylaw 7671 and above, it should be done under the direct supervision of an ISA Certified Arborist to ensure that it does not compromise the critical root zone, or damage the tree, to an extent where the long-term health and the stability of the tree is compromised.

Due to the proposed development and adjacent neighbour owned vegetation, an ISA certified arborist must be onsite during excavation activities. Trees that will specifically need site supervision include Tree #’s 6,7,8 and the stand of trees on the east side of the lot.

**11.4.1 Tree Protection Zone Guidelines**

The following rules apply to the TPZ:
• No work or activity of any kind is permitted inside the barriers.
• The construction of retaining walls must not change the grade or soil volume.
• No dumping of any materials, including fill soil.
• No parking, storage of equipment, or construction materials.
• No underground utilities.
• No alteration of surface drainage, such that it impacts the natural flow of water into and out of the TPZ.
• No excavation.
• Monitor soil moisture. When conditions seem dry, supply irrigation. Do not allow water to pool around the stem for prolonged periods.

11.4.2 Tree Protection Barriers

Tree protection barriers should be installed prior to demolition of the existing structure and remain in place throughout construction. Tree protection barriers should only be removed once construction is complete, or under the direct supervision/instruction of an ISA Certified Arborist.

The barriers must be sturdy temporary or permanent barriers at least 1.2m in height, with wood-framed top and side rails or equivalent (Bylaw #7671). The barriers must remain in place for the duration of construction. Orange snow fences and 2 x 4s are recommended for their high visibility, height, and durability, though other fencing material that meets the requirements of the bylaw is acceptable.

11.4.3 Monitoring Tree Health

It is important to regularly monitor retained trees during the construction process. Tree protection barriers, general tree health and condition, soil moisture and drainage, and general work activities around retained trees should be monitored. If concerns regarding tree health or stability arise, an ISA certified arborist should be consulted. In times of hot weather or extended dry periods, irrigation may be required.

Specific attention should be given to those trees with a reduced protection zone, or TPZs requiring removal to accommodate excavation activities and special care provided during regrading and landscaping operations upon completion of building construction.

12.0 REPLACEMENT TREES

Due to the reduction in canopy cover from the proposed removal of tree #4 and the size of the property ( > 420 sq. metres), 3 replacement trees are required as per DNV Bylaw #7671.
Map 4. Recommended replacement tree locations for 840 St Denis Ave
Replanting for removals large trees (>75cm DBH) is required. There is sufficient room for smaller deciduous species in the open area north of Unit 3 or in the northwest corner of the lot should tree #1 be removed (See Map 4) The following replacements are recommended:

- Replanting with deciduous trees as the entirety of the property is within FPZ 1, where no conifers are permitted.

- Replacements should be chosen from the following species options or the included DNV suggested replanting list (Section 17.0), preselected for their suitability for the site, growth rate, mature size (height and spread), form (upright), likelihood/ vulnerability to pests and disease (low), ability to achieve year round screening, ability to establish on site previously occupied by spruce, and aesthetics.

  - *Fagus sylvatica* ‘dawyck’ purple (nice colour, narrow growth habit, retains some winter foliage for screening)

  - *Acer palmatum* (small tree, select varieties can add colour to a site)

  - *Rhamnus purshiana* (Small to medium tree, can grow in a hedge or multi stem tree form)

Planting should be completed by a landscaper or arborist experienced with trees and may be required to be chosen off a DNV- approved contractor list. Trees should be planted in the fall, after the first major rains, to give them the best chance to become established. Trees should be planted to the proper depth, with the base of the root flare at the soil surface. Routine watering will likely be required for the first few years on site; this should be done as long, deep soaks, rather than short duration watering which does not infiltrate the soil deeply.

**12.1.1 Tree replanting guidelines**

Replacement trees shall be deciduous to reduce the fire hazard of the parcel and must be selected from the DNV Re-Planting Criteria (Section 18.0: Appendix C). Order plants by their Latin name to avoid confusion as the same plant may have multiple common names. Plants must be sourced from a reputable nursery in conformance with the Canadian Standards for Nursery Grown Stock (8th edition 2006). Select only specimens with intact root balls, stem and crowns free from disease and mechanical injury. For small trees, planting specimens 3 or more metres apart can ensure they grow full canopies in maturity.

Site preparation, installation and maintenance works shall use the 2012 edition of the BC Landscape Standards for reference14 (BC Landscape & Nursery Association, 2012). Prepare a suitable sized pit to accommodate root ball height and width. Planting depth is at the point where the trunk flare meets the root ball and may or may not be similar to the depth at the nursery. The best time to plant trees is in the autumn when precipitation will keep the

---

14 BCSLA & BCLNA “British Columbia Landscape Standard”
http://www.bcsla.org/sites/default/files/PREVIEW%20Pages%20from%20Landscape_Standard_2012_Updated%20October%2015%2C%202013.pdf
root ball moist and is conducive to an early spring flush of growth. Do not plant during times of drought, extreme heat or other unfavourable conditions. Backfill with on-site native soils or suitable topsoil stockpiled during construction, or if unavailable, imported topsoil free from weeds, invasive plant seeds and parts and other deleterious materials. Mulch with 3.5cm (1.5”) clear crush aggregate or landscaping stone and avoid contact with the trunk. Form a 1.0m saucer around each tree to avoid runoff during watering activities. Water immediately following planting and remove any damaged branches resulting from installation using horticultural pruning practices. Avoid the use of planting stakes except in circumstances of regular and consistent local wind forces.

It is recommended that the 3 replacement trees are selected from the list of native species in Table 4, and which would likely do well on the site. The DNV’s replanting list offers additional acceptable choices (Section 17.0: Appendix B).

**Table 4. Trees and hedges recommended for replanting.**

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Latin Name</th>
<th>Size (height)</th>
</tr>
</thead>
<tbody>
<tr>
<td>European beech</td>
<td><em>Fagus sylvatica</em></td>
<td>1.2m</td>
</tr>
<tr>
<td>Japanese maple</td>
<td><em>Acer palmatum</em></td>
<td>1.2m</td>
</tr>
<tr>
<td>Cascara</td>
<td><em>Rhamnus purshiana</em></td>
<td>1.2m</td>
</tr>
</tbody>
</table>

A recommended watering regime for the first two growing seasons is:
- Once / 2 weeks during April, May and June.
- Once / week during July, Aug and Sept

Hand watering with a spring-loaded nozzle is necessary during the times of DNV watering restrictions.

**13.0 MAINTENANCE OF PROPERTY IN LOW FIRE HAZARD STATE**

To ensure that a low fire hazard rating is maintained on 840 St Denis Ave, all landscaping must be properly maintained in low hazard conditions as described in Section 11.1 - FireSmart Landscaping. This may require periodic maintenance including future limbing. Pruning of straddling coniferous tree branches, should occur periodically, as needed, to maintain defensible space surrounding the home and to eliminate contact between it and the crown of tree #7 which is on a neighbouring property. Communication between property owners is essential in maintaining a low fire hazard state.

The roof and gutters should be kept clean of debris from conifers to reduce the potential for spotting to ignite these materials during a wildfire event. Conifer foliage should not be allowed to accumulate in gutters.

Meeting the recommendations in this report and maintaining the property in the described manner will reduce the overall fire hazard risk for 840 St Denis Ave. The implementation of these measures does not guarantee that the property or structures are safe from wildfire, only that the risk level of the property is within acceptable standards, and that fire hazards have been identified and appropriate mitigation measures outlined.
14.0 LIMITATIONS

This Fire Hazard Assessment is based on site observations noted on the dates specified only. The arborist and project forester have endeavored to use their skill, education and knowledge to provide accurate representation. Every effort has been made to ensure that the opinions expressed are an accurate assessment of the condition of the construction and landscaping information provided by the client. It is the owner’s responsibility to maintain the home and the trees in a reasonable standard and to carry out the mitigation measures stated in this report.

Tree assessments represent the condition of the tree and site at the time of inspection. Tree inspections are limited to visual examination only without employing methods of coring, climbing or excavating. The inherent characteristics of trees are that they are unpredictable and can fail due to environmental or internal problems. It is not possible for the Consultant to detect every condition or defect that could result in failure of a tree, shrub or part thereof. Trees, as living organisms, are prone to attack by insects, disease, and other abiotic factors such as wind, snow, and frost. Given these factors, the consultant cannot guarantee that the tree will be safe and healthy under all situations or for a given amount of time. Any prescribed mitigation measures for tree health or safety cannot be assured.

Adjustments, assumptions, and the conclusions drawn in this report are based on the professional experience of Judith Cowan, RPF, ISA Certified Arborist and Bruce Blackwell, MSc, RPF of B.A. Blackwell and Associates Ltd. (the ‘Consultant’). The opinions expressed below are also based on written and verbal information supplied in part by other parties.

Tree treatments such as pruning, topping, protection or removal could potentially involve issues beyond the breadth of the Consultant’s services including: improperly marked private land boundaries, ownership, neighbourly disputes and other considerations.

The Consultant cannot accept responsibility for any issues or events that have arisen since the date of the inspection and the date the report was written. The Consultant accepts that the report represents professional judgment and that the Consultant’s responsibilities are limited to the content of this report.

15.0 REFERENCES


16.0 APPENDIX A: SUITABLE DECIDUOUS HEDGE ALTERNATIVES

Wildfire DPA Compliant Hedge Alternatives

Flammable vegetation is often routinely planted in residential home landscapes. When a property falls within a municipalities’ Wildfire Hazard Development Permit Area (DPA) plant species with coniferous foliage including Cedar, Yew, Douglas fir, Spruce, Arborvitae hedging, and many ornamental and dwarf conifers cannot be planted in Fire Priority Zone 1 (within 10 of the planned home footprint.). The following list provides the homeowner with a range of acceptable broadleaf evergreen plant choices that are suitable for hedges and screening which represent a portion of the wide variety of species and cultivars provided by the nursery industry available to the homeowner.

NON-COMPLIANT LANDSCAPING EXAMPLES (CONIFEROUS FOLIAGE)

Western redcedar (Thuja plicata), and Arborvitae (Thuja occidentalis)

English yew (Taxus baccata)
INVASIVE SPECIES (not recommended)

English laurel (*Prunus laurifolia*)

INSTEAD CHOOSE:

For tall hedges

Portugese laurel (*Prunus lusitanica*) for tall hedges or,

for short hedges

Cherry laurel (*Prunus laurifolia ‘Otto Luyken’*)
COMPLIANT LANDSCAPING EXAMPLES (BROADLEAF EVERGREEN FOLIAGE)

California lilac
(*Ceanothus impressus* ‘Victoria’)

Strawberry tree
(*Arbutus unedo*)
Glossy abelia  
(*Abelia x. grandiflora*)

Fraser photinia (*Photinia fraserii*)
Privet (*Ligustrum ovfolium*) and (*Ligustrum vulgare*)

Boxwood (*Buxus sempervirens*) and (*Buxus microphylla*)
Firethorn (*Pyracentha angustifolia* ‘Orange Glow’)

Japanese pieris (*Pieris japonica*)
17.0 APPENDIX B: LIST OF REPLACEMENT TREES (NATIVE SPECIES)

The following list is adapted from DNV’s Re-Planting Criteria\(^\text{15}\).

### Deciduous Trees

<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Common Name</th>
<th>Mature Height (m)</th>
<th>Best Growth Conditions $^1$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acer circinatum</td>
<td>vine maple</td>
<td>to 7</td>
<td>m-w</td>
</tr>
<tr>
<td>Acer glabrum var. douglasii</td>
<td>douglas maple</td>
<td>to 10</td>
<td>d-m</td>
</tr>
<tr>
<td>Acer macrophyllum</td>
<td>broadleaf maple</td>
<td>to 35</td>
<td>d-m</td>
</tr>
<tr>
<td>Alnus rubra</td>
<td>red alder</td>
<td>to 25</td>
<td>m</td>
</tr>
<tr>
<td>Betula papyrifera var. commutata</td>
<td>western white birch</td>
<td>to 30</td>
<td>m-w</td>
</tr>
<tr>
<td>Crataegus douglasii</td>
<td>black hawthorn</td>
<td>to 10</td>
<td>m</td>
</tr>
<tr>
<td>Malus fusca</td>
<td>pacific crabapple</td>
<td>2-12</td>
<td>m-w</td>
</tr>
<tr>
<td>Populus balsamifera or P. trichocarpa</td>
<td>black cottonwood</td>
<td>to 50</td>
<td>m-w</td>
</tr>
<tr>
<td>Prunus emarginata</td>
<td>bitter cherry</td>
<td>2-15</td>
<td>m</td>
</tr>
<tr>
<td>Rhamnus purshiana</td>
<td>cascara</td>
<td>to 10</td>
<td>d-w</td>
</tr>
<tr>
<td>Salix lucida ssp. lasiandra</td>
<td>Pacific willow</td>
<td>to 12</td>
<td>w</td>
</tr>
<tr>
<td>Sorbus aucuparia$^2$</td>
<td>European mountain ash</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Shrubs

<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Common Name</th>
<th>Mature Height (m)</th>
<th>Best Growth Conditions $^1$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alnus crispa ssp. Sinuata</td>
<td>silka alder</td>
<td>1-5</td>
<td>m</td>
</tr>
<tr>
<td>Amelanchier alnifolia</td>
<td>Saskatoon</td>
<td>1-5</td>
<td>d-m</td>
</tr>
<tr>
<td>Cornus sericea or C. stolonifera</td>
<td>Red-osier dogwood</td>
<td>1-6</td>
<td>m</td>
</tr>
<tr>
<td>Corylus cornuta var. california</td>
<td>Beaked hazelnut</td>
<td>1-4</td>
<td>m</td>
</tr>
<tr>
<td>Holodiscus discolor</td>
<td>Oceanspray</td>
<td>to 4</td>
<td>d-m</td>
</tr>
<tr>
<td>Physocarpus capitatus</td>
<td>Pacific ninebark</td>
<td>to 4</td>
<td>w</td>
</tr>
<tr>
<td>Prunus virginiana</td>
<td>Choke cherry</td>
<td>1-4</td>
<td>d</td>
</tr>
<tr>
<td>Rosa nutkana</td>
<td>Nootka rose</td>
<td>to 3</td>
<td>d-m</td>
</tr>
<tr>
<td>Rosa gymnocarpa</td>
<td>Baldhip or dwarf rose</td>
<td>to 1.5</td>
<td>d-m</td>
</tr>
<tr>
<td>Rubus parviflorus</td>
<td>Thimbleberry</td>
<td>0.5-3</td>
<td>m</td>
</tr>
<tr>
<td>Rubus spectabilis</td>
<td>Salmonberry</td>
<td>to 4</td>
<td>m-w</td>
</tr>
<tr>
<td>Salix hookeriana</td>
<td>Hooker’s willow</td>
<td>to 6</td>
<td>w</td>
</tr>
<tr>
<td>Salix lucida ssp. Lasianra</td>
<td>Pacific willow</td>
<td>to 12</td>
<td>w</td>
</tr>
<tr>
<td>Salix scouleriana</td>
<td>Scouler’s willow</td>
<td>2-12</td>
<td>m</td>
</tr>
<tr>
<td>Salix sitchens</td>
<td>Silka willow</td>
<td>1-8</td>
<td>m-w</td>
</tr>
<tr>
<td>Sambucus caerulea or S. glauca</td>
<td>Blue elderberry</td>
<td>-</td>
<td>d-m</td>
</tr>
<tr>
<td>Sambucus racemosa var. Arborescens</td>
<td>Red elderberry</td>
<td>to 6</td>
<td>m</td>
</tr>
</tbody>
</table>

$^1$ d = dry, m = moist, w = wet
$^2$ denotes fruit-bearing species

### 18.0 APPENDIX C: REPLANTING CRITERIA

**RE-PLANTING CRITERIA**  
District of North Vancouver  
Environment Department – 355 W Queens Rd, North Vancouver, BC V7N 4N5  
Questions about this form phone: 604-990-2480 or email: building@dnv.org

---

**Planting Criteria and Recommended Native Tree and Shrub Species for Restoration and Enhancement of Fish and Wildlife Habitat**

#### Deciduous Trees

<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Common Name</th>
<th>Mature Height (m)</th>
<th>Best Growth Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acer circinatum</td>
<td>vine maple</td>
<td>to 7</td>
<td>m-w</td>
</tr>
<tr>
<td>Acer glabrum var. douglasii</td>
<td>douglas maple</td>
<td>to 10</td>
<td>d-m</td>
</tr>
<tr>
<td>Acer macrophyllum</td>
<td>broadleaf maple</td>
<td>to 35</td>
<td>d-m</td>
</tr>
<tr>
<td>Alnus rubra</td>
<td>red alder</td>
<td>to 25</td>
<td>m</td>
</tr>
<tr>
<td>Betula papyrifera var. commutata</td>
<td>western white birch</td>
<td>to 30</td>
<td>m-w</td>
</tr>
<tr>
<td>♦ Crataegus douglasii</td>
<td>black hawthorn</td>
<td>to 10</td>
<td>m</td>
</tr>
<tr>
<td>♦ Malus fusca</td>
<td>pacific crabapple</td>
<td>to 12</td>
<td>m-w</td>
</tr>
<tr>
<td>♦ Populus balsamifera or P. trichocarpa</td>
<td>black cottonwood</td>
<td>to 50</td>
<td>m-w</td>
</tr>
<tr>
<td>♦ Prunus emarginata</td>
<td>bitter cherry</td>
<td>2-15</td>
<td>m</td>
</tr>
<tr>
<td>Rhamnus purshiana</td>
<td>cascara</td>
<td>to 10</td>
<td>d-w</td>
</tr>
<tr>
<td>Salix lucida ssp. lasiandra</td>
<td>pacific willow</td>
<td>to 12</td>
<td>w</td>
</tr>
<tr>
<td>♦ Sorbus aucuparia*</td>
<td>european mountain ash</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Coniferous Trees

<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Common Name</th>
<th>Mature Height (m)</th>
<th>Best Growth Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Picea sitchensis</td>
<td>sitka spruce</td>
<td>up to 70</td>
<td>m</td>
</tr>
<tr>
<td>Pinus monticola</td>
<td>western white pine</td>
<td>to 40</td>
<td>m-d</td>
</tr>
<tr>
<td>Pseudotsuga menziesii</td>
<td>douglas fir</td>
<td>to 70</td>
<td>d</td>
</tr>
<tr>
<td>Thuja plicata</td>
<td>western red cedar</td>
<td>to 60</td>
<td>m-w</td>
</tr>
<tr>
<td>Tsuga heterophylla</td>
<td>western hemlock</td>
<td>to 80</td>
<td>d-w</td>
</tr>
</tbody>
</table>

1. d = dry; m = moist; w = wet  
2. European mountain ash is not native but is naturalized  
♦ Denotes fruit-bearing species
## Shrubs

<table>
<thead>
<tr>
<th>Botanical Name</th>
<th>Common Name</th>
<th>Mature Height (m)</th>
<th>Best Growth Conditions¹</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Ailus crispa ssp. Sinuata</em></td>
<td>sitka alder</td>
<td>1-5</td>
<td>m</td>
</tr>
<tr>
<td><em>Amelanchier alnifolia</em></td>
<td>saskatoon</td>
<td>1-5</td>
<td>d-m</td>
</tr>
<tr>
<td><em>Cornus sericea or C. stolonifera</em></td>
<td>red-osier dogwood</td>
<td>1-6</td>
<td>m</td>
</tr>
<tr>
<td><em>Corylus cornuta var. california</em></td>
<td>beaked hazelnut</td>
<td>1-4</td>
<td>m</td>
</tr>
<tr>
<td><em>Holodiscus discolor</em></td>
<td>oceanspray</td>
<td>to 4</td>
<td>d-m</td>
</tr>
<tr>
<td><em>Physocarpus capitatus</em></td>
<td>pacific ninebark</td>
<td>to 4</td>
<td>w</td>
</tr>
<tr>
<td><em>Prunus virginiana</em></td>
<td>choke cherry</td>
<td>1-4</td>
<td>d</td>
</tr>
<tr>
<td><em>Rosa nutkana</em></td>
<td>nootka rose</td>
<td>to 3</td>
<td>d-m</td>
</tr>
<tr>
<td><em>Rosa gymnocarpa</em></td>
<td>bakhup or dwarf rose</td>
<td>1.5</td>
<td>d-m</td>
</tr>
<tr>
<td><em>Rubus parviflorus</em></td>
<td>thimbleberry</td>
<td>0.5-3</td>
<td>m</td>
</tr>
<tr>
<td><em>Rubus spectabilis</em></td>
<td>salmonberry</td>
<td>to 4</td>
<td>m-w</td>
</tr>
<tr>
<td><em>Salix hookeriana</em></td>
<td>hocker’s willow</td>
<td>to 6</td>
<td>w</td>
</tr>
<tr>
<td><em>Salix lucida spp. Lasiandra</em></td>
<td>pacific willow</td>
<td>to 12</td>
<td>w</td>
</tr>
<tr>
<td><em>Salix scouleri</em></td>
<td>scouler’s willow</td>
<td>2-12</td>
<td>m</td>
</tr>
<tr>
<td><em>Salix sitchensis</em></td>
<td>sitchens willow</td>
<td>1-8</td>
<td>m-w</td>
</tr>
<tr>
<td><em>Sambucus caerulea or S. glauca</em></td>
<td>blue elderberry</td>
<td>-</td>
<td>d-m</td>
</tr>
<tr>
<td><em>Sambucus racemosa var. Arborescens</em></td>
<td>red elderberry</td>
<td>to 6</td>
<td>m</td>
</tr>
</tbody>
</table>

### Planting Criteria

- All riparian plantings should be based on 1 tree or shrub per 1 square metre density.
- Coniferous trees should comprise not less than 10% nor more than 25% of the tree stock planted.
- All tree/shrub species should be of guaranteed nursery stock.
- The botanical name should be used when ordering stock to ensure that the desired native species is being purchased. Each specimen should be tagged with the botanical name and the tag should be left attached after planting.
- Tree stock should be a minimum of 1.2 metres (4 feet) in height when purchased and planted 1.5 to 2 metres apart.
- Stock planted during the fall (Sept – Oct) and spring (Mar – Apr) has the greatest likelihood of surviving. Regular watering may be required until the plants are established. Additional advice on proper planting procedures should be obtained from the nursery supplying the stock.
- Planting on a given area being enhanced must be successful to an 80% take. If more than 20% die over one year, replanting is necessary.
- A minimum of 50% of trees and shrubs planted should be fruit-bearing species.

¹: d = dry, m = moist, w = wet

*denotes fruit-bearing species.
19.0 CONSENT FOR THE REMOVAL OF TREE #7

Attn: Ashley Bellwood, Planning Assistant

To: District of North Vancouver
Planning and Development Services
355 West Queens Road
North Vancouver, BC
V7N 4N5

Date: March 30, 2020
Building Address: 820 St Denis Street
From: Miao Yang

Rent: Own

Re: 840 St. Denis Street Rezoning Development proposal & tree removal consent

To: City Planning Staff

I am a resident and neighbour of the property 840 St. Denis Street.

Please consider this letter as a consent for the proposed tree removal of tree number 7 as indicated on the site plan DP100 as recommended in the Arborist report for fire safety with the development project proposed.

Thank you for your attention to this letter of consent for the tree removal for this project’s Rezoning and Development permit application.

Signature
20.0 SIGNATURES

Project Arborist

Judith Cowan PN-7314 A
B.A. Blackwell & Associates Ltd
April 14th, 2020

Reviewing Professional

Bruce Blackwell, MSc, RPF, RPBio
B.A. Blackwell & Associates Ltd
April 14th, 2020
October 26, 2020

Attn: Ashley Bellwood  
Planning Assistant  
District of North Vancouver  
355 West Queens Road  
North Vancouver  
V7N 4N5  
Email: bellwooda@dnv.org

Re: 840 St. Denis Avenue, North Vancouver  
*PART 6 – Energy and Water conservation and Greenhouse Gas Emissions Reduction Development Permit Area*

This letter is a summary of the design strategies for the proposed development of 840 St. Denis Avenue that address the objectives for the Energy and Water Conservation and Greenhouse Gas Emission Reduction DPA guidelines.

**For Energy Conservation the following items will be provided:**

1) In home energy display unit will be installed in a visible location in a common room such as the dining/kitchen area for residents to see the real time energy usage.
2) All windows to be vinyl frame and thermally broken.
3) Roof overhangs have been provided throughout and in particular over west and south facing elevations with substantial overhangs over decks and porches to address heat gain and thermal comfort in living areas.
4) Roof laminated shingle colours can be reconsidered for a lighter colour to address heat island effect.
5) Solar panels will be provided for the domestic hot water system for on-site renewable energy.
6) Natural daylighting has been integrated into the design and all rooms have been considered and include natural daylighting. All windows will be clear glazed.
7) Landscape pavers specified are light grey in colour and will help to reduce urban heat island effect.
For Water Conservation the following items will be provided:

1) All plumbing fixtures will meet the building code requirements for reduced water consumption.
2) A Stormwater management covenant is being provided and civil design has included storm water retention on site. A sediment pond and mechanical treatment system will be located on site. The stormwater detention tank will be located below the main driveway along the south property line.
3) Permeable pavers have been specified for the driving surface of southerly driveway and parking stalls.
4) Planting specified are drought tolerant and native species.
5) An existing ditch along the west of the property adjacent to the city boulevard will receive the cleaned water discharge from the site.

For Greenhouse Gas Emission Reductions the following items will be provided:

1) Building materials selected are durable and include cultured stone veneer and Hardie composite panel. The materials are likely to last the life of the building.
2) Cultured stone and wood will be locally supplied from British Columbia.
3) Building materials upon demolition of the existing will be recycled as per requirements set by Metro Vancouver. Gypsum wallboard, wood waste, concrete, rebar and cardboard will be diverted from the landfill.
4) Low VOC materials will be selected as much as possible.

If you require any further clarifications, please contact me at your convenience.

Sincerely,

[Signature]

Carman Kwan Architect AIBC, LEED® AP
Principal Architect
1060725 B.C. Ltd.
c/o By Design Construction Inc.
6678 Fulton Avenue
Burnaby BC
V5E 3H1
BY EMAIL: bobby@bydesignconstruction.ca

Attention: Mr. Bobby Purba

Re: Geotechnical Report for Proposed Townhome Development
840 St Denis Avenue, North Vancouver BC
LOT 4 OF LOT 5, BLOCK A, DISTRICT LOT 613, GROUP 1, NEW WESTMINSTER DISTRICT, PLAN 2459

1.0 INTRODUCTION

As requested, we have completed a geotechnical assessment of the above property, as it relates to a proposed townhome development. Accordingly, we attended the subject property on September 6, 2018 to complete our geotechnical site assessment and ground investigation. This geotechnical report summarizes the results of our ground investigation, as well as our assessment and recommendations for design and construction. Our services and this report have been provided in accordance with, and are subject to, the attached Terms of Engagement.

Our work has also included a review of aerial imagery, surficial geology mapping, seismic hazard mapping, a Topographic Survey Plan of the property prepared by ‘Ken K. Wong and Associates Land Surveying’ and dated November 20, 2017 (attached), as well as the ‘District of North Vancouver Official Community Plan Bylaw 7900, 2011’ (the OCP).

2.0 SITE DESCRIPTION & PROPOSED DEVELOPMENT

The subject property is rectangular with approximate dimensions of 42 m east west, and 20 m north south, and is bounded by St. Denis Avenue (and underlying dyke structure) to the west, similar residential properties to the north and south, and Lynnmour Elementary School to the east. The lot is more or less flat with a very gentle slope down from the north to the south, as well as down from the east to the west. There is less than 1.5 m of elevation difference across the four corners of the lot. An existing 2 storey home structure with a basement is situated in the middle of the lot, with a detached garage near the eastern property line. A shallow (0.3 to 0.5 m deep) grassed drainage ditch is present between the western property line and sidewalk; this ditch continues along the St Denis Avenue frontage of neighboring properties to the north and south of the subject property. Neighboring properties have similar topographical and lot coverage characteristics.
From the Topographic Survey Plan, the adjacent road crest elevation on St. Denis Avenue is 15.46 m while the average existing site elevations within the proposed townhome locations is around 15.2 m to 15.7 m (elevations are based on geodetic datum).

We understand the proposed development will include three 2-storey townhome units, possibly including crawlspaces, with a single shared driveway coming off St Denis Avenue, patio spaces, and onsite stormwater disposal. Based on the proposed site plan, we understand that the three townhome units will be approximately located within the middle 3/4 of the lot, with the unit closest to St. Denis Avenue being setback approximately 5 to 6 m from the western property line.

3.0 GROUND CONDITIONS

The subject property is situated upon the Lynn Creek alluvial fan, which is a historic river flood zone and sand and gravel sediment deposit region. The Lynn Creek fan has a history of large river flood events as well as large debris flows. A ‘Creek Hazard Assessment Report’ has been completed for the property and proposed development and should be read in conjunction with this geotechnical report.

Our geotechnical assessment has included the review of surficial geology mapping for the area, which indicates that sediments below the subject property are comprised of alluvial fan deposits of sand, gravel, cobbles and boulders, as well as layers of diamicton (mix of clay, silt, sand, gravel, cobbles, boulders).

On September 6, 2018, we excavated two test pits to a depth of 2.6 and 2.8 m below existing site grade in the locations shown on the attached Test Pit Plan. Prior to test pitting, a subsurface utility locate scan was completed on the property by Geoscan Subsurface Surveys Inc. A soil percolation test was also completed at the base of the easternmost test pit. In general, the following subsurface stratigraphy was encountered:

1 to 1.2 m of FILL, silty sand with organic soil and gravel, dry, brown
0.8 to 1.5 m of COBBLES, some gravel, rounded, dry
0.3 to 0.6 m of COARSE SAND, some gravel, moist

*No groundwater seepage was observed in the test pits.
**Test pits dug with a mini excavator supplied by King Kubota Services Ltd.

It should be noted that these test pit results only represent specific locations on the property, and that subsurface conditions may vary in other portions of the property.

4.0 GEOTECHNICAL RECOMMENDATIONS FOR SITE DEVELOPMENT

Based on the results of our geotechnical assessment and investigation, we consider the proposed townhome development to be geotechnically feasible given consideration and adherence to the following comments and recommendations. Excavations are anticipated to be minimal in depth, likely 1 to 1.5 m deep in order to remove the existing fill material from building footprints. Subject to the recommendations and requirements detailed in the ‘Creek Hazard Assessment Report’ for the proposed development, non-habitable space in the form of crawlspaces are feasible below the Flood Construction Level (16.4 m geodetic). Up to 2 m of engineered fill may be required within building footprints depending
on whether crawlspace are included in the townhomes. Onsite stormwater disposal is considered to be geotechnically feasible.

4.1 SEISMIC

Our assessment included a review of the 'Risk Map Atlas: Maps from the Earthquake Risk Study for the District of North Vancouver' (2015) prepared by the Geological Survey of Canada. The seismic hazard mapping in the noted report indicates that some of the soils below the subject property will potentially undergo some degree of liquefaction and lateral spread during ground motions caused by a design earthquake.

Based on the results of our geotechnical assessment and investigation, it is our professional opinion that a sufficient thickness of non-liquefiable soils will be present below spread foundations in order to prevent punching failure during a design earthquake event.

The seismic Site Classification according to the 2012 BC Building Code is ‘Site Class E’.

4.2 EXCAVATIONS

Excavations to remove the existing fill materials within building footprints are expected to be 1 to 1.5 m deep, with deeper excavations anticipated for service trenches. We expect excavation cut slopes sloped to 1 Horizontal to 1 Vertical (1H: 1V) will remain stable for the duration of foundation construction provided they are scaled to remove larger cobbles and boulders. Poly sheeting or tarps may be required.

Unless approved by a professional engineer, excavations deeper than 1.2 m must comply with WorkSafe BC regulations.

4.3 ENGINEERED FILL

Depending on whether crawlspace are included in the townhomes, up to 2 m of engineered fill may be required below foundations. Engineered fill should be comprised of well graded granular material, such as sand and gravel or crushed rock/shotrock, be free draining (less than 5% by mass passing the 0.075 mm screen size), and have no particles greater than 0.3 m in size. Engineered fill should be placed in maximum 0.3 m thick lifts and compacted to at least 98% Modified Proctor Maximum Dry Density (MPMDD). Engineered fill material gradations must be approved by the geotechnical engineer prior to placement. Compaction specifications specific to material gradations can be provided as required.

4.4 FOUNDATIONS

We expect spread footings will be suitable for support of the structure. Due to the above discussed ground liquefaction hazard at the property, we recommend the foundation system not include any isolated pad footings. This can be achieved by not including any pad footings in the foundation system or structurally connecting pad footings to adjacent concrete strip footings. Strip and pad footings should have a minimum width of 400 mm and 500 mm respectively. To protect from frost, the underside of foundations must be placed at a minimum depth of 450 mm below finished grade. We expect native undisturbed cobbles, sand and gravel, or approved engineered fill placed upon such, will provide adequate long-term support to foundations.
Foundations can be designed considering the following design subgrade bearing capacities:

<table>
<thead>
<tr>
<th>Foundation Subgrade</th>
<th>Serviceability Limit States (SLS)</th>
<th>Ultimate Limit States (ULS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undisturbed Cobbles, Sand and Gravel or Engineered Fill</td>
<td>100 kPa</td>
<td>150 kPa</td>
</tr>
</tbody>
</table>

The design subgrade bearing capacities provided above must be confirmed by the geotechnical engineer on site prior to placement of fill, formwork or foundations.

4.5 PERIMETER DRAINAGE

We recommend that typical perimeter drainage comprising of perforated, rigid PVC pipe, drain rock/clear crushed rock and filter fabric geotextile, be installed around the perimeter of the structures. The drain invert must be at least 200 mm below the surface of the slab on grade or crawlspace floor.

4.6 SLABS ON GRADE

A minimum of 150 mm thick layer of well compacted 19 mm clear crushed rock product should be placed below any slabs and upon a subgrade surface approved by the geotechnical engineer. We also recommend the inclusion of a poly vapor barrier below the slab.

4.7 BACKFILL

Foundation walls should be backfilled with free draining granular material. Backfill materials should have a fines content (material passing the 0.075 mm screen) of less than 5% by mass. Subject to review by the geotechnical engineer at time of excavation, it may be possible to reuse clean sand, gravel and cobbles excavated from the building site as backfill in some locations. Backfill should be placed in suitably thin lifts with each lift being well compacted. If hard surfacing will be installed above backfill zones, backfill should be compacted in lifts to at least 95% Modified Proctor Maximum Dry Density (MPMDD).

4.8 SOIL PERCOLATION RATE

A soil percolation test was completed at the base of Test Pit 2, the easternmost test pit, at a depth of 2.8 m below existing ground surface. The soils consisted of moist coarse sand with some rounded gravel.

A roughly 0.3 x 0.3 m sized hole was hand excavated 0.3 m into the soil and filled with water. The water level was refilled three times after partially draining from the hole, allowing the receiving soil to 'pre-soak' and reach a steady state of saturation. Once the pre-soak phase was completed, we measured the time it took for the water level to drop from 150 mm to 125 mm (25 mm) above the bottom of the hole. The first two recorded times for the 25 mm drop in water level were both 2 minutes, these represent a steady state of percolation and equate to an unfactored percolation rate of 750 mm/hour.

The above percolation rates are provided as raw unfactored test data, and it is up to the system designer to select appropriate factors to apply to the given percolation rate. While we strive to be accurate with the soil observations and measurements provided above, such represent one point on the property, and ground conditions and percolation rates can vary from one location to another within the same property.
5.0 ASSESSMENT OF EXISTING ROAD STRUCTURE

Our work has also included a visual assessment of the existing road structure of St Denis Avenue in front of the subject property. The road structure is comprised of an approximately 8 m wide asphalt road surface, with raised concrete curbs on both sides. The road surface and curbs are in very good condition and show no signs of wear or deterioration; which is to be expected as we understand this segment of St Denis Avenue was completely rebuilt sometime in the last decade as part of the St Denis Avenue dyke improvements.

6.0 CLOSURE

Ground Up Geotechnical Ltd. must be notified in order to carry out field reviews of the items discussed above prior to placement of any fill material or concrete within foundation areas.

This report has been prepared exclusively for our client(s) and their design team, yet remains the property of Ground Up Geotechnical Ltd. The District of North Vancouver as well as the BC Ministry of Transportation & Infrastructure are also considered authorized users of this report.

We trust that this report provides you with the information you require at this time, please do not hesitate to contact us if you have any questions or require anything further.

Sincerely,
Ground Up Geotechnical Ltd.

Patrick Sails, P.Eng.,
Geotechnical Engineer

Attachments – Terms of Engagement
Topographic Survey Plan
Test Pit Plan
GENERAL

Ground Up Geotechnical Ltd. (the Consultant) shall render the Services, as specified in the agreed Scope of Services, to the Client for this Project in accordance with the following terms of engagement. The Services, and any associated documents, records or data, shall be carried out and/or prepared in accordance with generally accepted engineering practices in the location where the Services were performed. No other warranty, expressed or implied is made. The Consultant may, at its discretion and at any stage, engage sub-consultants to perform all or any part of the Services.

COMPENSATION

Charges for the Services rendered by the Consultant will be made in accordance with the Consultants Fee Estimate and/or Schedule of Fees if such was provided. All charges will be payable in Canadian Dollars. Invoices will be due and payable by the Client within 30 days of receipt of the invoice without hold back. Interest on overdue accounts is 24% per annum.

REPRESENTATIVES

Each party shall designate a representative who is authorized to act on behalf of that party and receive notices under this Agreement.

TERMINATION

Either party may terminate this engagement without cause upon thirty (30) days’ notice in writing. On termination by either party under this paragraph, the Client shall forthwith pay to the Consultant its Charges for the Services performed, including all expenses and other charges incurred by the Consultant for this Project.

If either party breaches this engagement, the non-defaulting party may terminate this engagement after giving seven (7) days’ notice to remedy the breach. On termination by the Consultant under this paragraph, the Client shall forthwith pay to the Consultant its Charges for the Services performed to the date of termination, including all fees and charges for this Project.

ENVIRONMENTAL

The Consultant’s field investigation, laboratory testing and engineering recommendations will not address or evaluate pollution of soil or pollution of groundwater. The Consultant will cooperate with the Client’s environmental consultant during the field work phase of the investigation.

PROFESSIONAL RESPONSIBILITY

In performing the Services, the Consultant will provide and exercise the standard of care, skill and diligence required by customarily accepted professional practices and procedures normally provided in the performance of the Services contemplated in this engagement at the time when and the location in which the Services were performed.

LIMITATION OF LIABILITY

The Consultant shall not be responsible for:
1. the failure of a contractor, retained by the Client, to perform the work required for the Project in accordance with the applicable contract documents;
2. the design of or defects in equipment supplied or provided by the Client for incorporation into the Project;
3. any cross-contamination resulting from subsurface investigations;
4. any Project decisions made by the Client if the decisions were made without the advice of the Consultant or contrary to or inconsistent with the Consultant’s advice;
5. any consequential loss, injury or damages suffered by the Client, including but not limited to loss of use, earnings and business interruption;
6. the unauthorized distribution of any confidential document or report prepared by or on behalf of the Consultant for the exclusive use of the Client;
7. Any damage to subsurface structures and utilities;

The Consultant will make all reasonable efforts prior to and during subsurface site investigations to minimize the risk of damaging any subsurface utilities/mains. If, in the unlikely event that damage is incurred where utilities were unmarked and/or undetected, the
Consultant will not be held responsible for damages to the site or surrounding areas, utilities/mains or drilling equipment or the cost of any repairs.

The total amount of all claims the Client may have against the Consultant or any present or former partner, executive officer, director, stockholder or employee thereof under this engagement, including but not limited to claims for negligence, negligent misrepresentation and breach of contract, shall be strictly limited to the amount of any professional liability insurance the Consultant may have available for such claims.

No claim may be brought against the Consultant in contract or tort more than two (2) years after the date of discovery of such defect.

DOCUMENTS AND REPORTING

All of the documents prepared by the Consultant or on behalf of the Consultant in connection with the Project are instruments of service for the execution of the Project. The Consultant retains the property and copyright in these documents, whether the Project is executed or not. These documents may not be used on any other project without the prior written agreement of the Consultant.

The documents have been prepared specifically for the Project, and are applicable only in the case where there has been no physical alteration to, or deviation from any of the information provided to the Consultant by the Client or agents of the Client. The Client may, in light of such alterations or deviations, request that the Consultant review and revise these documents.

The identification and classification as to the extent, properties or type of soils or other materials at the Project site has been based upon investigation and interpretation consistent with the accepted standard of care in the engineering consulting practice in the location where the Services were performed. Due to the nature of geotechnical engineering, there is an inherent risk that some conditions will not be detected at the Project site, and that actual subsurface conditions may vary considerably from investigation points. The Client must be aware of, and accept this risk, as must any other party making use of any documents prepared by the Consultant regarding the Project.

Any conclusions and recommendations provided within any document prepared by the Consultant for the Client has been based on the investigative information undertaken by the Consultant, and any additional information provided to the Consultant by the Client or agents of the Client. The Consultant accepts no responsibility for any associated deficiency or inaccuracy as the result of a mis-statement or receipt of fraudulent information.

JOBSITE SAFETY AND CONTROL

The Client acknowledges that control of the jobsite lies solely with the Client, his agents or contractors. The presence of the Consultant’s personnel on the site does not relieve the Client, his agents or contractors from their responsibilities for site safety. Accordingly, the Client must endeavor to inform the Consultant of all hazardous or otherwise dangerous conditions at the Project site of which the Client is aware.

The client must acknowledge that during the course of a geotechnical investigation, it is possible that a previously unknown hazard may be discovered. In this event, the Client recognizes that such a hazard may result in the necessity to undertake procedures which ensure the safety and protection of personnel and/or the environment. The Client shall be responsible for payment of any additional expenses incurred as a result of such discoveries, and recognizes that under certain circumstances, discovery of hazardous conditions or elements requires that regulatory agencies must be informed. The Client shall not bring about any action or dispute against the Consultant as a result of such notification.

FIELD SERVICES

Where applicable, field services recommended for the Project are the minimum necessary, in the sole discretion of the Consultant, to observe whether the work of the Client, or a contractor retained by the Client, is being carried out in general conformity with the intent of the Services. Any reduction from the level of services recommended will result in the Consultant providing qualified certifications for the work.

DISPUTE RESOLUTION

If requested in writing by either the Client or the Consultant, the Client and the Consultant shall attempt to resolve any dispute between them arising out of or in connection with this Agreement by entering into structured non-binding negotiations with the assistance of a mediator on a without prejudice basis. The mediator shall be appointed by agreement of the parties. If a dispute cannot be settled within a period of thirty (30) calendar days with the mediator, the dispute shall be referred to and finally resolved by arbitration under the rules of the arbitrator appointed by agreement of the parties or by reference to a judge of the British Columbia Court.