AGENDA INFORMATION	
☑ Regular Meeting	Date: June 9, 2014
☐ Workshop (open to public)	Date:

Dept. Manager	GM/ Director	CAO

The District of North Vancouver
REPORT TO COUNCIL

May 29, 2014
File: 08.3060.20/011.14

AUTHOR: Kathleen Larsen, Community Planner

SUBJECT: **BYLAWS 8071 AND 8070: OCP AMENDMENT AND REZONING FOR A SEVEN LOT SINGLE-FAMILY DEVELOPMENT: 3600 MAHON AVENUE (BRAEMAR ELEMENTARY SCHOOL)**

RECOMMENDATIONS: It is recommended that:

1. Bylaw 8071, amending the OCP for a portion of the subject site from Institutional to Residential Level 2: Detached Residential (RES2) to allow for a seven lot single-family development be given First Reading; and

2. Bylaw 8070, which rezones a portion of the subject site from Public Assembly (PA) to Comprehensive Development Zone 82 (CD 82) to allow for 7 single-family lots and homes be given first reading; and

3. Bylaws 8071 and 8070 be referred to a Public Hearing; and

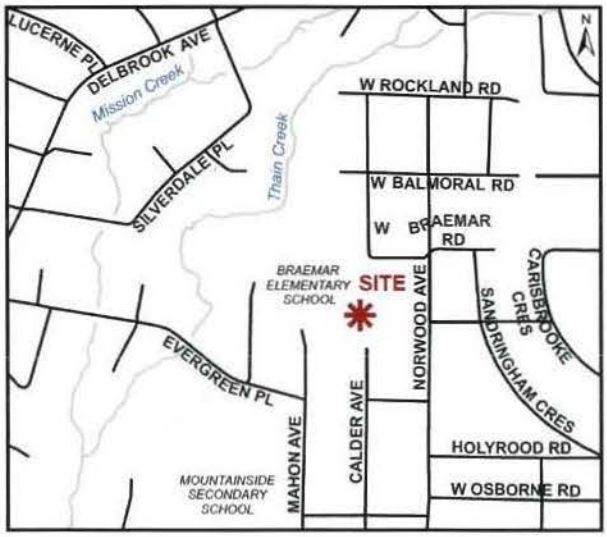
4. Pursuant to Section 879 of the Local Government Act, additional consultation is not required beyond that already undertaken with respect to Bylaw 8071; and

5. In accordance with Section 882 of the Local Government Act, Council has considered Bylaw 8071 in conjunction with its Financial Plan and applicable Waste Management Plans.

REASON FOR REPORT:

The proposed project requires Council's consideration of:

- Bylaw 8071 to amend the Official Community Plan; and
- Bylaw 8070 to rezone a portion of the subject property.



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SUMMARY:

The applicant proposes to subdivide an undeveloped portion of land on the east side of the existing Braemar school site to create seven single-family bare-land strata lots. The proposed homes range from 214m^2 (2300 sq ft) to 265m^2 (2850 sq ft), have been designed to work with the sloping topography of the site and will not include basement suites. The proposal requires an amendment to the Official Community Plan and rezoning of the property. The Bylaws are recommended for Introduction and for referral to a Public Hearing.

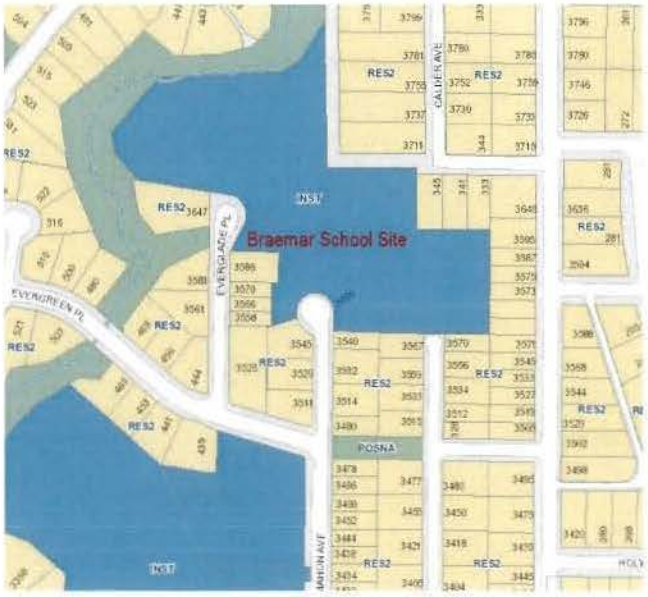
BACKGROUND:

Following a decision in 2003 to sell the subject portion of the Braemar school site, School District 44 hosted a series of public open houses. In 2007 the School District entered into a conditional sales agreement with the applicant. Two preliminary applications were completed, one in 2007 and a second in 2011, and the project has since been revised in response to public comment and consultation meetings.

Following the latest 2011 preliminary application, the District approved a Public Assembly Land Strategy Policy to help guide decisions around land-use change proposals for public assembly lands. The proposed OCP amendment and rezoning application was submitted in March 2014 and responds to the guiding principles of the Strategy as well as public input.

Official Community Plan:

The subject property is designated *Institutional* in both the District Official Community Plan (OCP) and the North Lonsdale-Delbrook OCP reference document reflecting the existing school use on the site. Land designated *Institutional* is intended predominantly for a range of public assembly uses such as churches, schools, recreation centres, care facilities and public buildings.



The proposed single-family development addresses policy in Section 2.3 of the OCP (Policy 2.3.1) which supports maintaining ground-oriented detached housing as the predominant housing form in keeping with the surrounding neighbourhood.

Zoning:

The subject site is currently zoned Public Assembly (PA) and therefore rezoning is required to permit the proposed residential development. Bylaw 8070 proposes the establishment of a new Comprehensive Development Zone 82 (CD82) tailored specifically to this project.

Public Assembly Use Strategy:

A Public Assembly Land Use Strategy was adopted by Council in 2013 in order to provide guiding principles as part of the review when considering applications that propose a change of use for Institutional (Public Assembly) lands.

A review of the guiding principles in the PA Strategy with respect to this development demonstrates the following:

- The primary public assembly use on the site (Braemar school) will remain if the development is approved;
- The subject portion of the site has not been developed for any Public Assembly purpose nor does the School Board have any plans for the future development of the subject portion of the site;
- The proposal will result in no loss of playing fields, school use, or community facilities associated with the school;
- Development of the subject portion of the lands for PA use such as a church, school, recreation centre or care facility could be expected to generate more traffic than 7 detached homes;
- The proposal is not located in a town centre and therefore the land is not anticipated to be required for institutional use associated with growth in an OCP designated growth centre;
- A portion of the site will be retained in a natural state as a "Preservation Area" to continue to act as a buffer to the existing school;
- The proposal will allow the School District to utilize an undeveloped asset while increasing family-oriented housing options in a way that is complimentary to the surrounding neighbourhood;
- The proposal will result in no loss of municipal investment on this site or impact joint use agreements;
- Community Amenity Contributions will be used for the replacement of an existing staircase at the north end of Calder Avenue with the balance going to other area improvements some of which may improve safe or alternate routes to schools (such as path upgrades and signage as appropriate).

ANALYSIS

The Site and Surrounding Area:

The 5,414m^2 (58,273 sq ft) portion of the site proposed for development is located on the east side of the existing Braemar school site. This undeveloped portion of the school site is not used by the school and slopes upwards from west to east.

Adjacent properties consist of single family lots (zoned RSNQ) to the north, east and south with Braemar Elementary School to the west. The proposed development site is accessed from Calder Avenue to the south and at the south end of the site a set of stairs extends down from Calder Avenue to the Braemar school site.

Development Permit Areas:

The site is located in Development Permit Areas for "Streamside Protection", "Form and Character of Commercial, Multi-Family or Industrial Development", "Protection of the Natural Environment" and "Water and Energy Conservation and Greenhouse Gas Reduction".

To address the requirements of the Protection of the Natural Area DPA, the applicant will work with staff and a qualified professional to ensure that the project landscaping reflects the natural surroundings and incorporates new planting that replaces lost trees and adds new diversity to the site.

A watercourse, Thain Creek, runs through the north-west portion of the school site separated from the development area by the existing school building. The new development is outside the protected area and is therefore exempt from the Streamside Development Permit. As the proposal will involve zoning and subdivision, green building requirements will be applied as described later in this report.

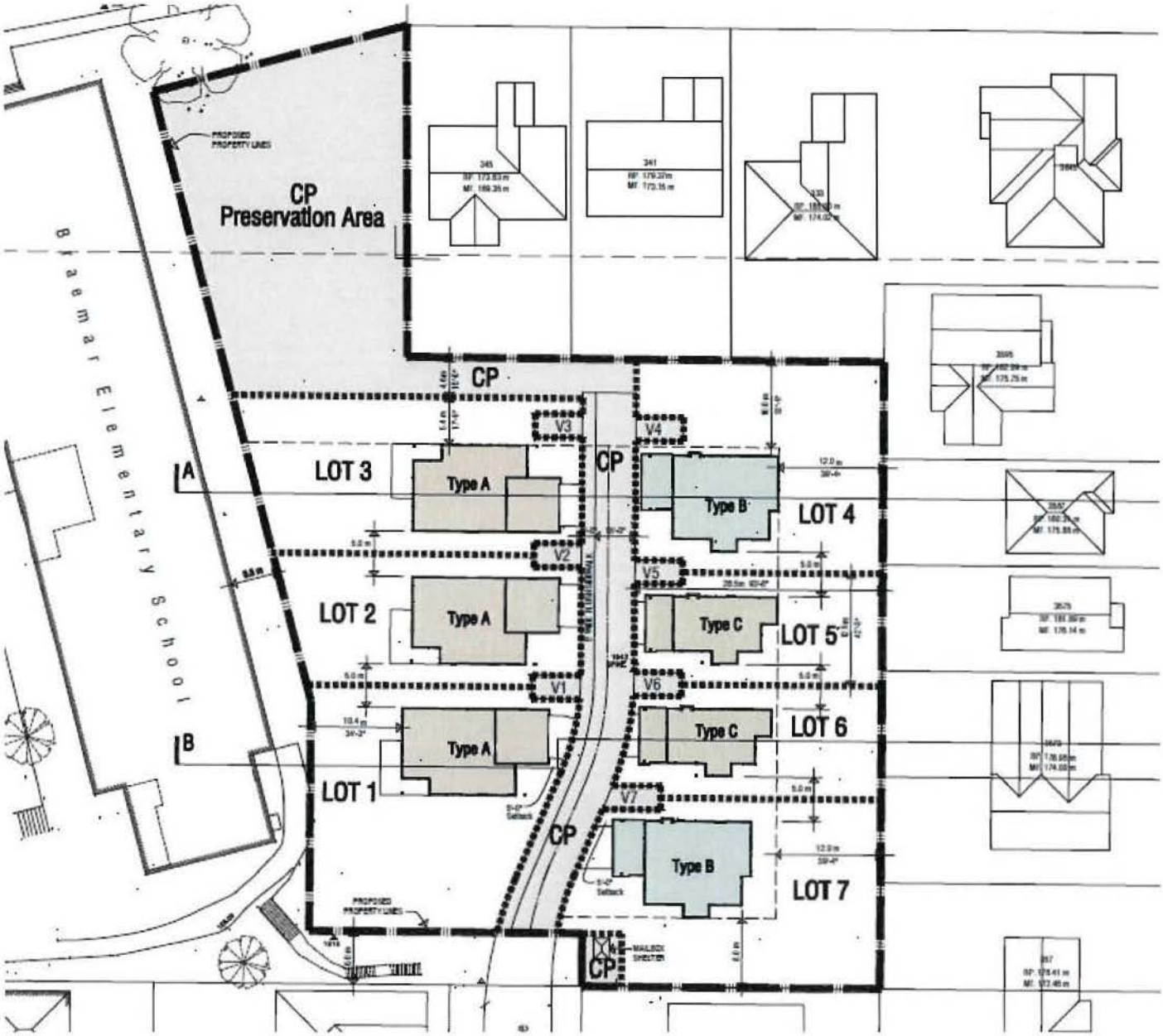
The proposal is for single-family so is therefore exempt from the Form and Character DP however the development concept will be secured by a restrictive covenant.

Project Description:

Proposal:

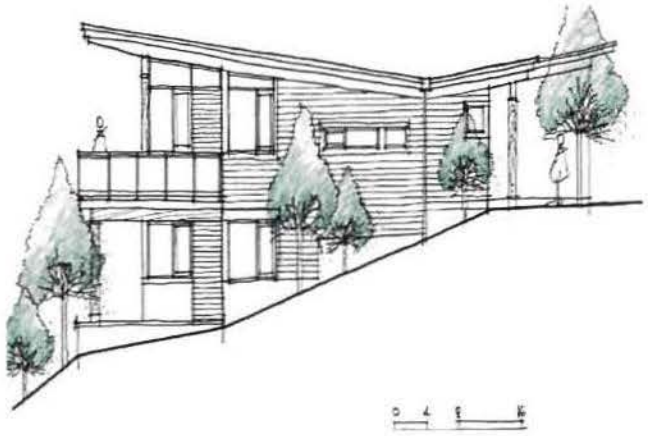
The proposal is for seven bare-land strata single-family lots on a private road that extends north from the end of Calder Avenue as illustrated on the Site Plan below. The applicant proposed a bare-land strata development approach to allow for the single-family homes to be located on the site with attention to the sloping topography while reducing impacts on

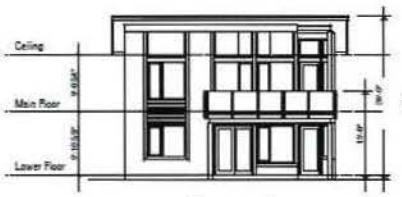
surrounding neighbours. The property at the north end of the site labelled "Preservation Area" will be retained as common property in an undeveloped state to provide a buffer to neighbouring single-famil y lots and the school to the west.



Site Plan

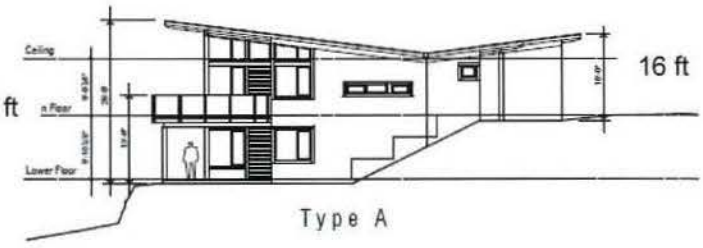
The proposed homes reflect a West Coast style and range in size from 214m^2 (2300 sq ft) to 265m^2 (2850 sq ft) including basements. The houses have been designed to integrate into the topography of the lot while respecting setbacks to the surrounding neighbours. In response to neighbour's concerns about traffic the applicant has committed to no secondary suites in the homes and so secondary suites are not permitted in the CD82 zone. Cross sections of each style of house proposed are shown below:





26 ft

Type A

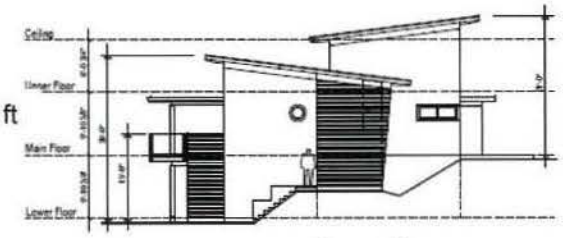


16 ft

Type A

28 ft

Type B

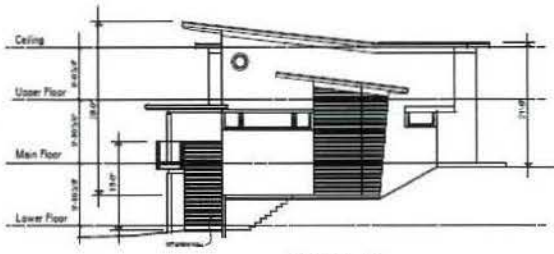


21 ft

Type B

28 ft

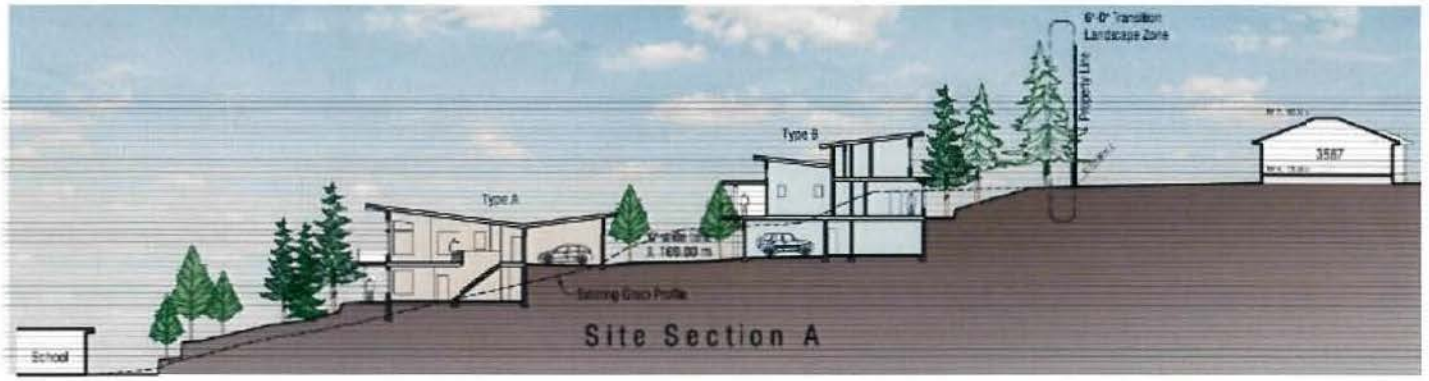
Type C



21 ft

Type C

The dwellings will range from 7.9m to 8.5m (26 ft to 28 ft) in height at the highest elevation on the downhill side which in each case is on an elevation facing either the private road or the school site. In order to respond to the sloping grade of the site and minimize the impact of the development on adjacent neighbours to the east, the CD82 zone will restrict the height of the homes to a maximum of 4.9m to 6.4m (16 ft to 21 ft) at the east elevations as shown on the cross-sections below.



Parking and Access:

Vehicle access to the site is via a private road extending from the north end of Calder Avenue. At the public information meeting there were concerns that a proposed cul-de-sac at the entry to the private road from Calder Avenue would encourage and facilitate an increase in school related vehicles for drop-off and pick-up for Braemar School.
In response to this concern the developer has revised the site plan to eliminate the cul-de-sac at the north end of Calder Avenue.

Each home has an attached double car garage and the CD-82 zone requires an additional seven visitor parking stalls which are located throughout the site. Parking proposed exceed the requirements of the surrounding RSNQ zone.

Landscaping and Trees:

Landscaping has been proposed throughout the site and concentrated at the perimeter in order to buffer the proposed development from both the school and adjacent neighbours. Additional landscaping and street trees are shown along the private road and between the individual strata lots. The area in the northwest portion of the site labelled "Preservation Area" is intended to be retained in its natural state with a mix of ground cover and a stand of Alder trees. At the entrance to the site is a mail kiosk and small seating area. One Western Red Cedar and one Hemlock at the south east portion of the site are proposed to be retained at the request of an adjacent neighbour.

Existing trees on the site in the development area consist primarily of Red Alder, Cottonwood and Cherry with many in poor condition. One Western Cedar and one Hemlock in poor condition are proposed to be removed. A final approved landscape plan and comprehensive replanting plan will be required prior to subdivision approval. These plans will ensure appropriate tree replacement be completed in conjunction with the Protection of Natural Environment DP process.

IMPLEMENTATION:

Implementation of this project will require adoption of an OCP amendment bylaw (Bylaw 8071) and rezoning bylaw (Bylaw 8070).

Bylaw 8070 (Attachment B) rezones the subject properties from Public Assembly (PA) to a new Comprehensive Development Zone (CD82) which:

- establishes zoning regulations for the proposed single-family residential use;
- allows home occupations as an accessory use;
- prohibits secondary suites; and
- regulates maximum house size and height.

Registration of restrictive covenants will be required to secure:

- construction in accordance with the development concept;
- registration of the bare-land strata plans;
- green building commitment;
- a stormwater management plan; and
- no development of the area shown as "preservation area" on the site plan.

COMMUNITY AMENITY CONTRIBUTION:

The District's Community Amenity Contribution (CAC) Policy requires an amenity contribution for projects proposing an increase in residential density. The CAC for this proposal has been calculated at $141,000.00. The developer has offered to contribute an additional $100,000 for local community improvements in lieu of the construction of a cul-de-sac. A total CAC payment of $241,000.00 will be required prior to adoption of the zoning bylaw. It is anticipated that the CAC's from this development will include contributions toward the rebuilding of a stairway at the north end of Calder Avenue that services Braemar School, with the balance going to local community improvements and/or public art.

GREEN BUILDING MEASURES:

Compliance with the Green Building Strategy is mandatory given the need for rezoning and the project is targeting an energy performance rating of Energuide 80 and will achieve a building performance equivalent to Built Green "Gold".

CONCURRENCE:

Staff:

The project has been reviewed by staff from Environment, Building, Parks, Engineering, Social Planning, Urban Design, Design, Transportation Planning, and the Fire Department.

Outside Agencies:

School District 44 has identified these lands as surplus to school needs and supports the development of single-family homes near the school.

PUBLIC INPUT:

Public Information Meeting:

The applicant held a facilitated Public Information Meeting on May 14, 2014 Prior to the meeting a total of 90 notices were distributed, a sign was installed on the property and an ad placed in the newspaper. The meeting was attended by 41 people.

There were a variety of questions of clarification about the specific proposal including timing and how it could be ensured that the site would be developed in accordance with plans as displayed by the developer.

Concerns were expressed regarding the drop-off and pick-up traffic associated with Braemar School both on Mahon Avenue and at north end of Calder Avenue. It was suggested that the proposed cul-de-sac at the entry to the site would exacerbate the existing drop-off and pick up situation on Calder Avenue. There were questions were related to on-site parking and visitor stalls and the possibility of secondary suites. The developer clarified that the proposal would not include secondary suites and would allow for 2 parking stalls per strata lot plus seven common property visitor parking stalls.

The other key concern expressed at the meeting was opposition related to the sale of Public Assembly Land for residential use. Throughout the meeting people also spoke in favour of the proposal. Following the meeting 25 comment sheets were received with 13 opposed and 12 in favour of the proposal.

In response to the concerns raised at the meeting the developer has:

- Revised the proposal to eliminate a proposed cul-de-sac at the north end of Calder Avenue at the entrance to the private road; and
- Suggested that no secondary suites will be included in the development.

CONCLUSION:

This project is consistent with the guiding principles for potential changes of public assembly lands outlined in Council's Public Assembly Lands Strategy Policy. The applicant has amended the proposal to address concerns from the neighbourhood related to vehicle traffic which may be generated from houses with suites and which may be geared toward school drop-off and pick-up. The land is separated from Braemar School by a slope and has not been developed with school buildings and as such School District 44 has identified this

portion of Braemar school as surplus lands. The project is now ready for Council's consideration.

Options:

The following options are available Council's consideration:

1) Introduce Bylaws 8071 and 8070 and refer them to a Public Hearing (staff recommendation); or

2) Defeat Bylaws 8071 and 8070 at First Reading.

Kathleen Larsen
Community Planner

A - Reduced project plans
B - Facilitator Report
C - Bylaw 8071
D - Bylaw 8070

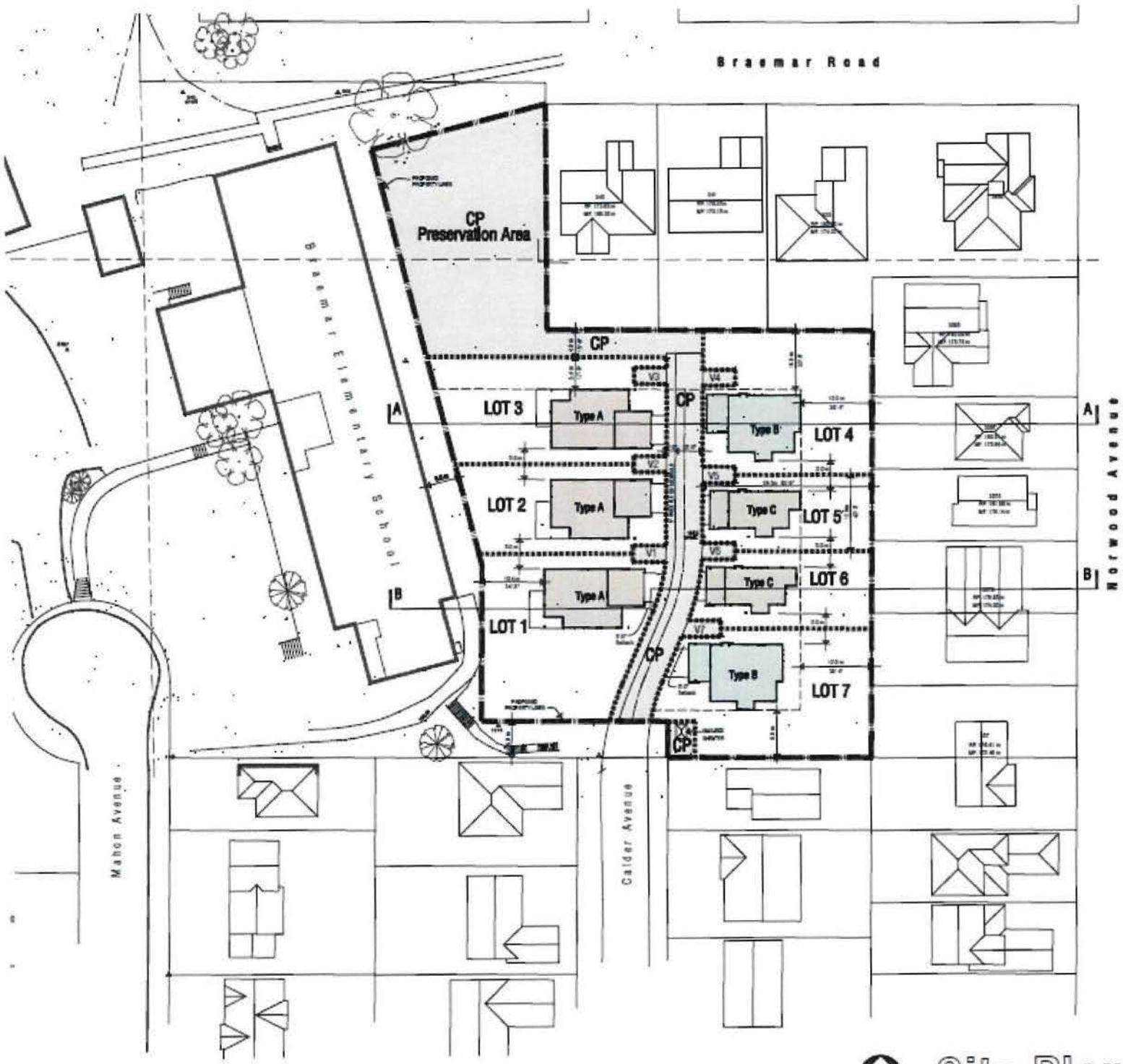
REVIEWED WITH:

				External Agencies:	
❑ Sustainable Community Dev.	____	❑ Clerk's Office	____		
❑ Development Services	____	❑ Communications	____	❑ Library Board	____
❑ Utilities	____	❑ Finance	____	❑ NS Health	____
❑ Engineering Operations	____	❑ Fire Services	____	❑ RCMP	____
❑ Parks & Environment	____	❑ ITS	____	❑ Recreation Com.	____
❑ Economic Development	____	❑ Solicitor	____	❑ Museum & Arch.	____
❑ Human resources	____	❑ GIS	____	❑ Other:	____

eta landscape architecture

Braemar School Site
WEDGEWOOD VENTURES
Calder Ave
District of North Vancouver

ATTACHMENT A



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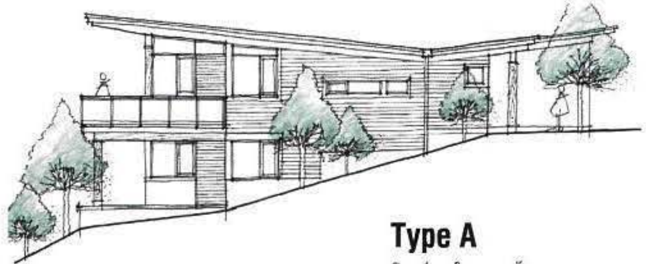
Revisions
May. 29. 2014
Re-Issued for Rezoning Application

Braemar School Site
North Vancouver, BC

For
Wedgewood Ventures Limited

Site Plan
1" = 30'-0"
May. 29. 2014

Site Plan A-1.4



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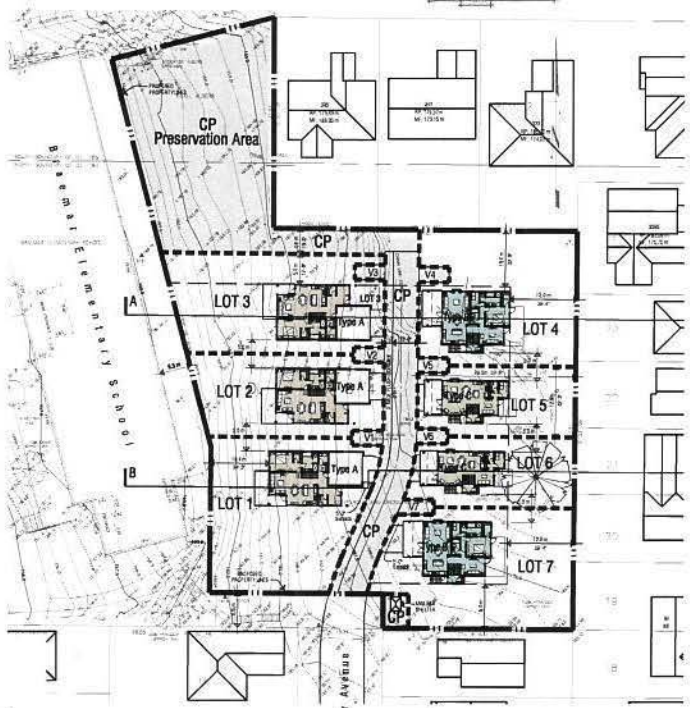
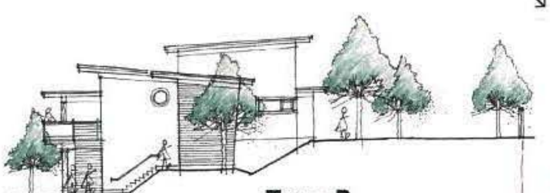




Type B

Type C

RAYMOND LETKEMAN architects inc.

Revisions

May 29, 2014
Re-issued for Rezoning Application

Braemar School Site

North Vancouver, BC

For
Wedgewood Ventures Limited

Image Board

N.T.S.
May 29, 2014

A-1.7

RAYMOND LETKEMAN
ARCHITECT LTD.

Revisions
May 29, 2014
Re-Issued for Rezoning Application

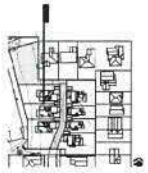
Braemar
School Site
North Vancouver, BC

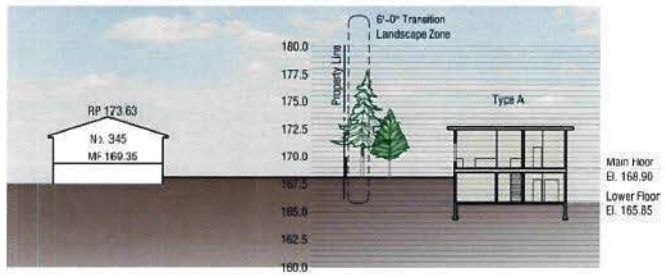
For
Wedgewood Ventures Limited

Site Section

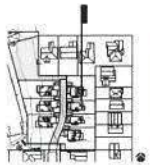
1/16" = 1'-0"
May 29, 2014

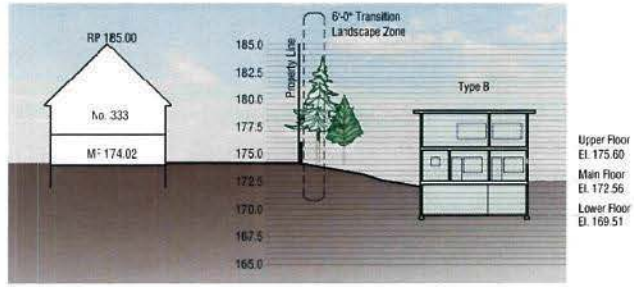
Site Section A-1.5





Site Section At Neighbour No. 345





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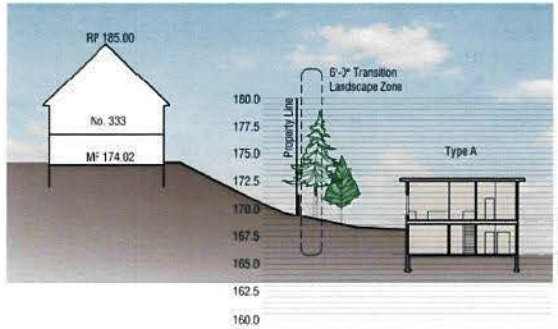


Site Section At Neighbour No. 333

RAYMOND LETKEMAN
architects inc.

May 29, 2014
Re-Issued for Rezoning Application

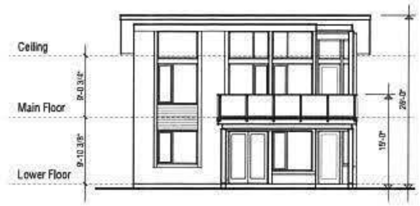
Braemar
School Site
North Vancouver, BC

For
Wedgewood Ventures Limited

Site Section

1/16" = 1'-0"
May 29, 2014

Site Section A-1.6



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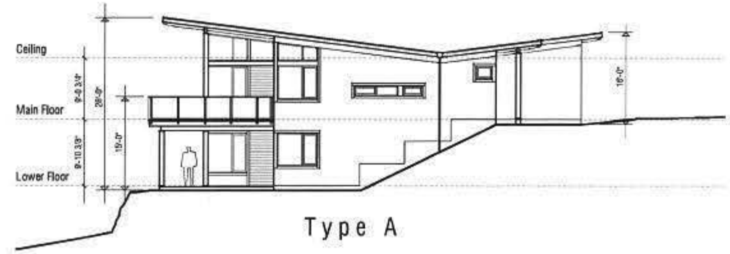
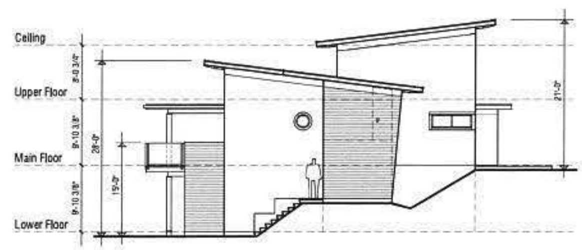


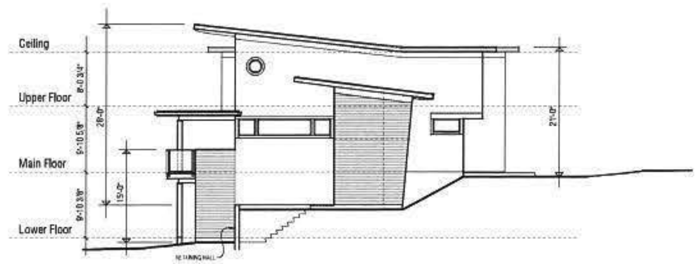
Type A

Type B



Type B

Type C



Type C

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architects inc.

Revisions

May 29, 2014
Re-Issued for Rezoning Application

Braemar School Site

North Vancouver, BC

For
Wedgewood Ventures Limited

Elevations

1/8" = 1'-0"
May 29, 2014

Elevations A-3.1

ATTACHMENT B

ROCKANDEL&ASSOCIATES
Building Success Through Process Facilitation,
Community & Organizational Engagement
Partnership Planning

PUBLIC INFORMATION MEETING SUMMARY REPORT

To: Kathleen Larsen, Community Planner
District of North Vancouver E: LarsenK@dnv.org

Cc: James Fox, Wedgewood Ventures E: wedgewoodventures@shaw.ca

From: Catherine Rockandel, IAF Certified Professional Facilitator, Rockandel & Associates
Tel: 1-604-898-4614 E: cat@growpartnerships.com

Re: Public Information Meeting Summary for Wedgewood Ventures

I. EVENT DETAILS

Event Date:	Wednesday, May 14, 2014
Time:	7:00pm – 9:00pm
Location:	Braemar Elementary School, 3600 Mahon, North Vancouver
Attendees:	Forty-one (41) people attended. Thirty-seven (37) people signed in. Four (4) people declined to sign in but said they lived in neighbourhood.

Notification

Flyer Invitation

An invitation was delivered to approximately one hundred (100) homes as per the District of North Vancouver requirements, as indicated by the map in the appendix.

Newspaper Advertisement

Inserted in North Shore Newspaper on May 7 and 9, 2014. A copy is included in the appendix.

Site Signs

There was one (1) site sign notifying the community of the meeting at the end of Calder.

Team in Attendance:

James Fox, Principal, Wedgewood Ventures
Peter Duyker, Project Community Consultant
Raymond Letkeman, Architect, Letkeman Raymond Architects
Gerry Eckford, Landscape Architect, Eckford Tyacke + Associates

District of North Vancouver

Kathleen Larsen, Community Planner

Facilitator

Catherine Rockandel, Rockandel & Associates

Wedgewood Ventures
Public Information Meeting Summary
May 14, 2014

II. PUBLIC INFORMATION MEETING PROGRAM

The purpose of the Public Information Meeting was for citizens to provide input on the proposal by Wedgewood Ventures for an Official Community Plan Amendment, Rezoning, and a Development Permit for a portion of 3600 Mahon Avenue (Braemar School). The proposal is for:

- 7 detached single family homes, from 1,865 to 2,287 square feet (excluding unfinished basements);
- Green building: the houses will meet the equivalent of "BuiltGreen Gold";
- Access to proposed houses by a private lane and new cul-de-sac at the north end of Calder Avenue; and
- 2 parking spots per house & 7 visitor parking spots

Citizens were invited to review presentation boards set up in an Open House format from 7:00pm to 7:30pm. At 7:30am the facilitator welcomed participants, provided an overview of the process and participation guidelines for the session. James Fox, Principal of Wedgewood Ventures provided a presentation, which was followed by a facilitated discussion.

The two key themes communicated by many participants was that: the School District should not be selling public assembly land for residential use; and concerns relating to neighbourhood parking and traffic. In addition to these concerns others are captured in the following Q&A.

III. PUBLIC/RESIDENT COMMENTS: Q & A (Q: Questions C: Comment A: Answers)

Q1 My biggest concern is traffic. Where will the seven visitor parking spots be going?

A1 There will be three on the downhill side of the road and four on the uphill side. Each home has a double car garage within the home. Beyond that, there is another visitor-parking bay on surface immediately adjacent to the garage. This means that each of the seven homes has an adjacent parking spot next to the home.

Q2 Are the driveways long enough to park a car or do you have to park in the garage?

A2 You have to park inside the garage. Driveways cannot be used.

Q3 Would the Strata prevent people from blocking in their garages and making them suites or storage?

A3 The intent is for the garage to be used for cars. The strata can enforce this if it is in the bylaws.

Q4 Will Calder be gated or closed?

A4 No

Q5 Will the strata allow secondary suites because you only have seven suites of two thirds of the property? If you start adding in secondary suites, we are talking about a lot more density

A5 We didn't design or intend to be secondary suites. Zoning says seven units so a secondary suite would not be allowed.

Q6 So would there be a covenant? On your website, it seems to indicate that one of the reasons you put in for these extra parking spots was for secondary suites.

A6 Yes, I saw that. We have to clarify with the District because our intent is not to have secondary suites. We will do whatever covenant is required to say we won't have suites.

Q7 If I have a 2800 square foot house and teenagers going to university, are you still assuming there are only two cars in the household?

A7 I know what you are saying. The intent is that the third parking spot is for a visitor.

Q8 How many bedrooms will they have?

A8 Three

Q9 What is the neighbouring secondary school that was alluded to in the slide because that was more a logic of years passed? It is not relevant now.

A9 I didn't see that on the slide. Sorry that was an error.

Q10 Would the District consider permit parking so that this doesn't become a problem?

A10 That would be decided with the DNV traffic department and engineering, it is not something that we have considered at this time.

C11 I would suggest permit parking and speed bumps

Q12 With the strata option, is this something that you have come up with to hit a homerun to maximize your profit for the space or are you getting encouragement from the District that this is ok? Once the strata precedent is set it snowballs.

A12 The value of a strata home is significantly lower than a non-strata. If the District said you could build seven single family homes non-strata, that would be worth way more. The intent of the strata is to control the development building and landscaping.

C13 The closest strata is Westview and this doesn't fit with our neighbourhood. People should be aware that you are opening the door to this.

C14 The decision to sell this portion of School District land was made in 2003, which is a long time ago. The community has been through a lot of change since then and I think it makes sense that the school district remind the community why this decision was made back then.

Also It is important to maximize the amount of light in the school for the kids. If a new structure affects the amount of light in the school that is a significant consideration.

A14 (Architect) My opinion is that the light would be very little impact because the development is on the east side of the school. There might be a shadow in the early morning however it is only two stories in height.

Q15 What is the relevance of this left over green space to the other seven properties? If we are trying to come up with an agreement that works for everybody, why aren't we leaving that space for the school?

A15 With respect to that upper piece of land, we plan to keep it as is except for the alders on it. The school doesn't want it because it has the same issue as the rest of the site. It is very steep behind there and they don't feel they can use it now or in the future.

C16 I know this school is on the capital project list for seismic upgrade. If the sun is situated the way you say it is around noontime, why wouldn't the school district spend their five million dollars and build the school in the right direction? That is how Highlands was built when it was reconstructed.

A16 They couldn't because of the steep bank. It would have been an issue with the topography.

We can easily do a sun shadow analysis of the impact of our development on the school and we can provide that.

C17 I am shocked that we are even here having this conversation because of the length of time from when we started the initial conversation. Robust community engagement around maintenance and management of our public assembly lands has not happened. This is not a minor issue at all. When we sell all the land to pay for capital projects, the capital projects still have to happen. How are we then going to fund the capital projects? So this is a short-term decision with long-term implications. The buffer was originally intended to protect our children as they went to school. This clearly violates the spirit of why they segmented off this land to begin with. The process is flawed and violates the OCP and rezoning and not aligned with the public lands assembly document ratified by council. I think we need to take this back to first principals and engage with the school district and the Ministry of Education. District council has a responsibility to ensure that the decisions that are made are the right ones for our community. When there is no more land to build schools on and we need to expand, what then?

C18 I have been to every meeting, there seems to be a very negative response the whole time. Everybody is saying why we are suddenly changing the neighbourhood that we have lived in and not thought there was going to be strata units. It has all been very clear and yet somehow it just keeps coming back. What are we doing to our neighbourhood? We want to protect this land as is.

Q19 I bought my house because it was on a cul-de-sac, now they are taking that away and giving to another group of people. What is the reasoning behind this process from the district or whoever designed the development? Why is that happening?

Q20 This is zoned public assembly land right now. Is it possible for the school district to sell it as public assembly land with community input?

A20 My agreement with the school district is that I am not going to buy the land unless it can be sub-divided. To get it sub-divided, we have to come up with a land use that works for us. They may be able to sell it as a public assembly use if they sub divided it and the district agreed. Our experience is that the School District want to sell this piece of property. It is part of their plan. I am not going to buy it as public assembly land.

C21 If it wasn't a contradiction of OCP, you wouldn't need a formal change to the OCP. It is that simple.

Q22 I believe the school board can sell land if it wants to. It could sell it as public assembly lands. People in this community want to know what other things the school board could do with their land?

A22 For them to sell that land they have to have it sub divided which requires district approval. I cannot answer if they would approve a sub division or not. It has to be a separate legal parcel.

A23 (Kathleen Larsen) If the property were sub divided, the new use would have to fit into the public assembly lands use such as churches and schools. It would also have to fit into institutional as well. There is something called a sighting t some of the schools have and some don't. They wouldn't be able to cover more than 10% of the property without establishing some parameters.

Q24 I just want to be clear on if the school district can sell the land, and this is one way to sell it, are there other options that we are not aware of that might also be of concern?

Q25 On the built Green Gold standard, how does that relate to the LEED standard? Is it higher, lower or somewhere in there?

A25 It is more of a residential application. LEED standard is more of a commercial office building.

Q26 Does that exceed the standard that is already there?

A26 The district is on a push right now to build green so there are many layers of green building. Gold is the top level. The Argyle project that is under construction is Green Gold.

Q27 What is the expected date? I know there is a lot of what ifs because it has to go through the OCP and zoning process. Say it went through all of that process, what would be your earliest build date or break ground?

A27 I honestly can't answer that because there is so much that has to happen before hand.

C28 I spend a lot of time at the school district meetings and get my comments from there. Seismic upgrades may not happen, even though they have been promised, so to say they are going to apply it to that is odd. The numbers they say the owe seem to change,

sometimes they say they owe up to twelve million, depending on what project meeting you are at, that they have to pay back to the government by December 31, 2015. I don't know why they wouldn't apply it to that since it has been going on for 10 years now. I know there is no one here from the school board so I am hopeful that they get this information. I would like to see people go talk to the school board and they have two more meetings left this school year.

C29 Why isn't the school board here tonight? No matter what is going to happen, there are four players, the school board, the developer, the community and the district. How many of these meetings do we have to come to? Time is precious and I am tired of coming to these meetings so is everyone involved, that have the answers, should be at these meetings. I have a big concern with the school board selling 1.3 acres for 2 million dollars. That is ridiculous and is scary that they don't know the value of real estate. It doesn't make sense that they are selling this off to go and pay for other things. We could have canvassed the area and raised funds to buy it ourselves and make a park out of it.

C30 If it does go ahead, I like this project a lot and think it takes in the sensitivities of the area well. I used to be concerned about strata's a lot more than I am now and like the idea that this is going to be a strata. If you get a troublesome neighbour, you can go to the strata.

Q31 If you get the land, will you be entitled to resell it or will you be obligated to build on it?

A31 Anyone that owns land can sell it or not. I have never considered selling it.

C32 I am in favour of this project and would very much like to see a nice housing project for young families rather than an institution that could be built there.

C33 To speak to the "could he sell the property." He could but it would have to be as approved. No developer is going to buy and assemble 58,000 square feet of land if it is not already a parcel land and there are no more parcel lands up here. You could not redo this again.

Q34 If this does go ahead, I don't understand why there is that little corner of land. Why aren't those 7 houses spread out over the whole thing?

A34 That is a good question. When the school board decided which land was part of the excess that was part of it. In some of the previous schemes, that Colliers group did, they showed a house going in there and a whole bunch of weird schemes. It is part of the parcel but they are not going to use it because of the slope. The school board did not want. We offered it back to the district and they didn't want it either so it is part of our development and it will just be kept green.

Q35 Could it be a park to benefit the neighbours?

A35 There are immediate neighbours that may not want that. For now we are just keeping it the way it is.

C36 Would you be willing to have something in place to ensure it stays green? Could it maybe be used for a place for children to learn how to grow things?

A36 Sure

Q37 If we try to keep the traffic low on this street, why don't we have the entrance straight onto that area from Braemar?

A37 There is huge grade issues and no road there right now, it is just a trail. From a design perspective it would be kind of strange and I don't think you could physically do it anyway.

C38 I like the development, it has to happen and fits well with the neighbourhood. I don't like the cul-de-sac and think we are bringing in too much traffic down Calder Avenue that was never designed for it. Get rid of the stairs, use it across from Evergreen. Beautify that landscape there and put the stairs there to go to the home and not have this cul-de-sac.

A38 There is no doubt that the traffic to the school is a problem on Calder Avenue. I actually went to the district of North Vancouver and they suggested a cul-de-sac. In the scheme of the current traffic issue, we would not really be making it worse with maybe an additional 14 vehicles. We asked the district to consider different solutions and we would put money towards that. We would gladly do that because the existing traffic is an issue and we would like to be part of the solution.

Q 39 If enough people comment on that, you are suggesting that that information will get to the city. Will that be heard?

A39 (Kathleen Larsen) Anyone that is concerned should make it part of their comments and these will get to the traffic and engineering department

C40 If it is a concern for the fire department, I assume that is where the stumbling block will be. Put the cul-de-sac at the end of the new development because that is the end of Calder.

C41 I don't think this should go forward. Calder was never meant to be an access point for the school. We don't have any sidewalks and our children are walking down the middle of the road on drop offs. If this goes through, all access to the school from Calder should be blocked off completely. The cul-de-sac size needs to be decreased. Families need to go back to the primary access point for the school, which was always supposed to be Mahon because there are sidewalks there to keep our children safe.

Q42 The size of the lane isn't a proper road size so you wouldn't be able to park cars there and have access right?

A42 No, it is the required width for fire access and you can't park on the road.

C43 I think it is fabulous and am all for it. If you have a good strata, things will be kept up and look good 20 years from now. They will look after each and every house and this will bring value to your homes that surround the area. This is the way to go.

C44 Traffic has been a problem for years and will continue to go on because of the schools location. Even if the project doesn't go through, I believe that Calder should be blocked off because there is nowhere to turn around. To gets roads closed is almost impossible and the police will not help unless it is something violent.

Q45 I like the development and am glad that they are selling the property because schools need the money. I love the idea that we will have 7 little houses in there, but I am wondering how will they get the snowplow up there because it doesn't go up now?

A45 We would have to have a private contractor for snow plowing

C46 Every body is impacted differently. For me, it wouldn't matter how many houses are built there, everything about my property, any value that it had with a view or quality of life is 100% removed.

C47 We have to keep together as a unit because everyone's little concerns are all our concerns. This is a good proposal but we jumped a little too far ahead because the district and school board let us down. This property should not be sold but if it does, this is a good proposal.

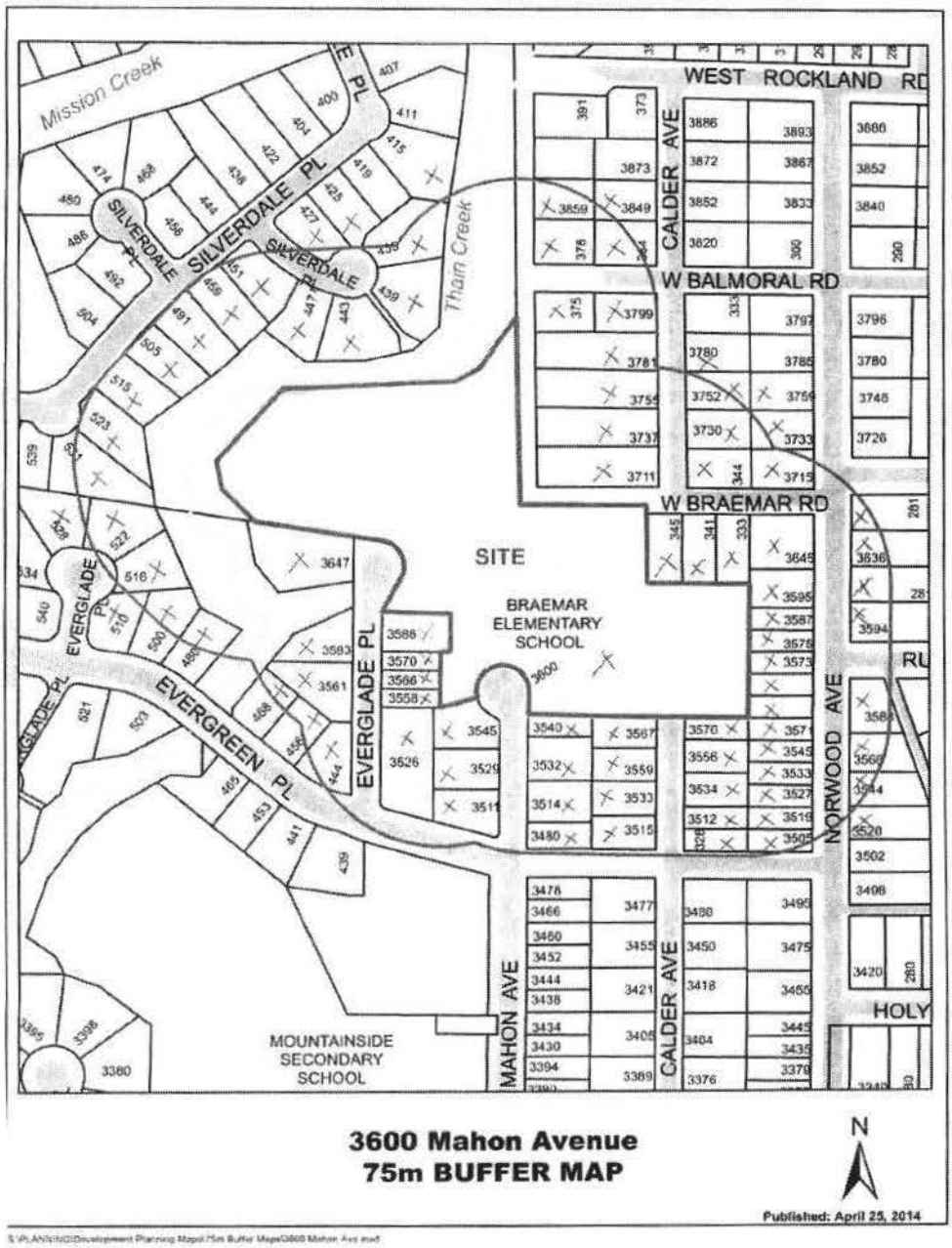
C48 Just wanted to remind you all that the school is up for a seismic upgrade and it is a sizable investment. I think it makes sense that the school board brings back its plans and say, here is what I am going to do with my 5 million dollars on this 52 million dollar piece of land for this 20 million dollar building before we make a 2 million dollar decision. We need to keep our eye on the ball and what is best for the school.

Q49 We pay more money to live on a quiet street. When our land values are decreased because we no longer have a quiet street, will the District be reducing our taxes?

C50 Some governments push things through with no rhyme or reason and this seems to be maybe what has happened with this group. You are not going to change the provincial government. My advice to people that have a lot of emotion around this is get what you can out of the project. My second comment is I have lived in the neighbourhood since 1980, change happens. I am sitting here with two new neighbours that built monster homes right next to me. This seems to be a very good project.

Wedgewood Ventures
Public Information Meeting Summary
May 14, 2014

IV. APPENDIX: DNV NOTIFICATION MAP



Wedgewood Ventures
Public Information Meeting Summary
May 14, 2014

NEWSPAPER ADVERTISEMENT

PUBLIC INFORMATION MEETING

A redevelopment is proposed for 3600 Mahon Avenue (a portion of Braemar School site) to construct 7 strata single family homes. You are invited to a meeting to discuss the project.

Date: Wednesday, May 14, 2014, 7:00pm- 8:45pm
Place: 3600 Mahon Ave (Braemar Elementary School Activity Room)

The applicant proposes to rezone a portion of the Braemar school site

from Public Assembly zoning to a Comprehensive Development Zone to permit 7 strata single family houses. Information packages are being distributed to residents within a 75 meter radius of the site. If you would like to receive a copy or more information, contact James Fox of Wedgewood Ventures Ltd at 604-649-5658 or Kathleen Larsen of the Community Planning Department at 604-990-2387.

This is not a Public Hearing. DNV Council will receive a report from staff on issues raised at the meeting and will formally consider the proposal at a later date.

ATTACHMENT C

The Corporation of the District of North Vancouver

Bylaw 8071

A bylaw to amend the District of North Vancouver Official Community Plan Bylaw 7900, to designate the following property: A portion of 3600 Mahon Drive legally described as Lot I, Block G, District Lots, 578, 617,784 and 785,Plan 12849, PID: 008-796-033

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

1. Citation

This bylaw may be cited as "The District of North Vancouver Official Community Plan Bylaw 7900, 2011, Amendment Bylaw 8071 (Amendment 12)".

2. Amendments

The following amendment is made to the "District of North Vancouver Official Community Plan Bylaw 7900, 2011":

i) Map 2 Land Use:, by changing the land use designation of the portion of the lot outlined from **"Institutional"** to **"Residential Level 2: Detached Residential"**;
All as illustrated on Bylaw 8071 Schedule " A" attached.

READ a first time

PUBLIC HEARING held

READ a second time

READ a third time

ADOPTED

Mayor

Municipal Clerk

Certified a true copy

Municipal Clerk

Bylaw 8071 Schedule A

BYLAW 8071

The District of North Vancouver Official Community Plan Bylaw 7900 (2011) Amendment Bylaw 8071 (2014)

INSTITUTIONAL (INST)
TO RESIDENTIAL LEVEL 2: DETACHED RESIDENTIAL (RES2)

ATTACHMENT D

The Corporation of the District of North Vancouver

Bylaw 8070

A bylaw to amend the District of North Vancouver Zoning Bylaw 3210, 1965 to rezone the following property: A portion of 3600 Mahon Drive legally described as Lot I, Block G, District Lots, 578, 617,784 and 785, Plan 12849, PID: 008-796-033

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

1. Citation

This bylaw may be cited as "The District of North Vancouver Rezoning Bylaw 3210, 1965, Amendment Bylaw 8070 (Amendment 1313)".

2. Amendments

The following amendments are made to the "District of North Vancouver Zoning Bylaw 3210, 1965":

a) Section 301(2) is amended by inserting the following zoning designation:

"Comprehensive Development Zone 82 (CD 82)"

b) Part 4B Comprehensive Development Zone Regulations is amended by inserting the following zone:

"4B82 Comprehensive Development Zone 82 (CD82)

The CD 82 Zone is applied to:

A portion of 3600 Mahon Drive legally described as Lot I, Block G, District Lots, 578, 617,784 and 785, Plan 12849, PID: 008-796-033 as outlined on Schedule A

4B82-1 Intent

The purpose of the CD82 zone is to permit development of 7 detached residential homes.

4B82-2 Permitted Uses

(a) Uses Permitted without Conditions:

Not applicable

(b) Conditional Uses:

Single-family residential units.

.

4B82-3 Conditions of Use:

In the CD82 zone residential single-family units may not contain a secondary suite

4B82-4 Accessory Use

(a) ***Home occupations*** are permitted.

4B82-5 Height

The maximum permitted Building Heights in the CD82 zone for each Lot 1 to 7 noted in Schedule B to this Bylaw shall be as outlined in the Maximum Height table below and as illustrated in Schedule C to this Bylaw.

Lot	Maximum Height
Lot 1	8.0m (26 ft)
Lot 2	8.0m (26 ft)
Lot 3	8.0m (26 ft)
Lot 4	8.5m (28 ft)
Lot 5	8.5m (28 ft)
Lot 6	8.5m (28 ft)
Lot 7	8.5m (28 ft)

4B82-6 Density

1. The maximum permitted floorspace in the CD82 zone for each Lot 1 to 7 noted in Schedule B to this Bylaw shall be regulated as follows:

Lot Area	Maximum Floorspace (Including finished and unfinished basement area)
Lot 1	228m^2 (2450 sq ft)
Lot 2	228m^2 (2450 sq ft)
Lot 3	228m^2 (2450 sq ft)
Lot 4	265m^2 (2850 sq ft)
Lot 5	214m^2 (2300 sq ft)
Lot 6	214m^2 (2300 sq ft)
Lot 7	265m^2 (2850 sq ft)

2. The following shall be excluded from maximum floor space calculation

   a) Parking Structures not exceeding 37.2m2 (400 sq ft)

   b) Covered Balconies and Decks

   c) Accessory Buildings not exceeding 19m2 (205 sq ft)

4B82-7 Maximum Principal Building Size

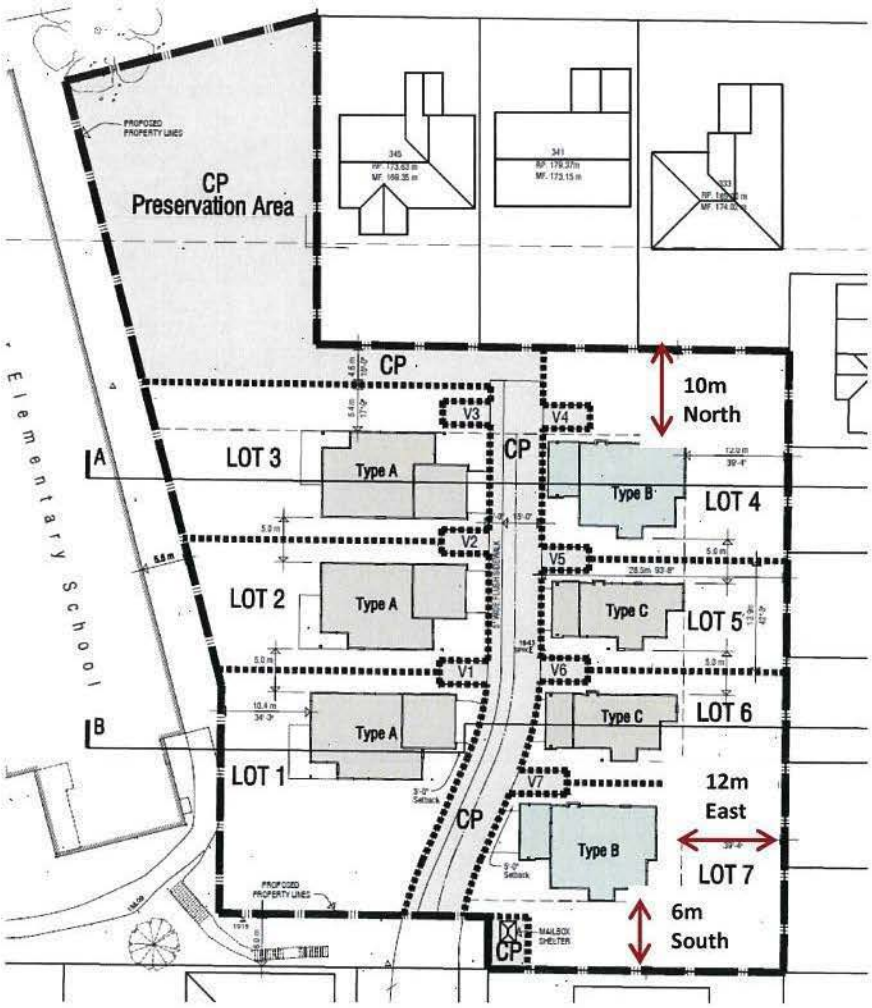
Shall be in accordance with Section 4B82-6 Density.

4B82-8 Setbacks

The minimum required setbacks in the CD82 zone shall be regulated as outlined below:

Setback	Buildings and Structures
From north lot line	10m (32.8 ft)
From east lot line	12m (39.0 ft)
From south lot line	6m (19.7 ft)
Accessory Structure from any lot line	1.5m (5 ft)
Swimming Pools from rear lot line	3.0m (10 ft)

As illustrated on the following Site Plan:



Setbacks to North, East and South for Primary Single-Family Building

4B82-10 Maximum Building Depth

The maximum permitted building depth in the CD82 zone for each of Lot 1 to 7 noted in Schedule B of this Bylaw shall not exceed a building depth of 19.8m (65 ft).

4B82-11 Maximum Upper Storey Floor Area

The maximum permitted upper storey floor area in the CD82 zone for each of Lot 1 to 7 noted in Schedule B of this Bylaw shall not exceed 92.9m^2 (1000 sq ft).

4B 82-12 Coverage

The maximum permitted building coverage in the CD82 zone for each of Lot 1 to 7 noted in Schedule B of this Bylaw shall be regulated as follows:

a) Building Coverage shall not exceed a maximum of 40% (including parking and accessory structures).

b) Site Coverage shall not exceed a maximum of 60%.

4B 82-13 Accessory Buildings

a) The maximum permitted size of an accessory building in the CD82 zone for each Lot 1-7 noted in Schedule B to this Bylaw shall not exceed $19m^2$ (205 sq ft).

4B 82-14 Landscaping

a) All land areas not occupied by buildings, structures, common roadway area, parking spaces, loading spaces, driveways, manoeuvring aisles and sidewalks shall be landscaped or finished or preserved in accordance with an approved landscape plan; and

b) All electrical kiosks and garbage and recycling container pads not located underground or within a building shall be screened with landscaping.

4B 82-16 Subdivision Requirements

a) Subdivision layout shall be in accordance with Bylaw 8070 Schedule B

4B 82-17 Parking and Loading Regulations

a) Two parking stalls shall be provided per residential unit plus 7 visitor parking stalls. "

3. The Zoning Map is amended in the case of the lands illustrated on the attached Schedule A to this Bylaw by rezoning a portion of the land from Public Assembly (PA) to Comprehensive Development 82 (CD82).

READ a first time

PUBLIC HEARING held

READ a second time

READ a third time

Certified a true copy of "Rezoning Bylaw 8070" as at Third Reading

_____
Municipal Clerk

ADOPTED

_____ _____
Mayor Municipal Clerk

Certified a true copy

_____
Municipal Clerk

Bylaw 8070 Schedule A: Zoning Map

BYLAW 8070

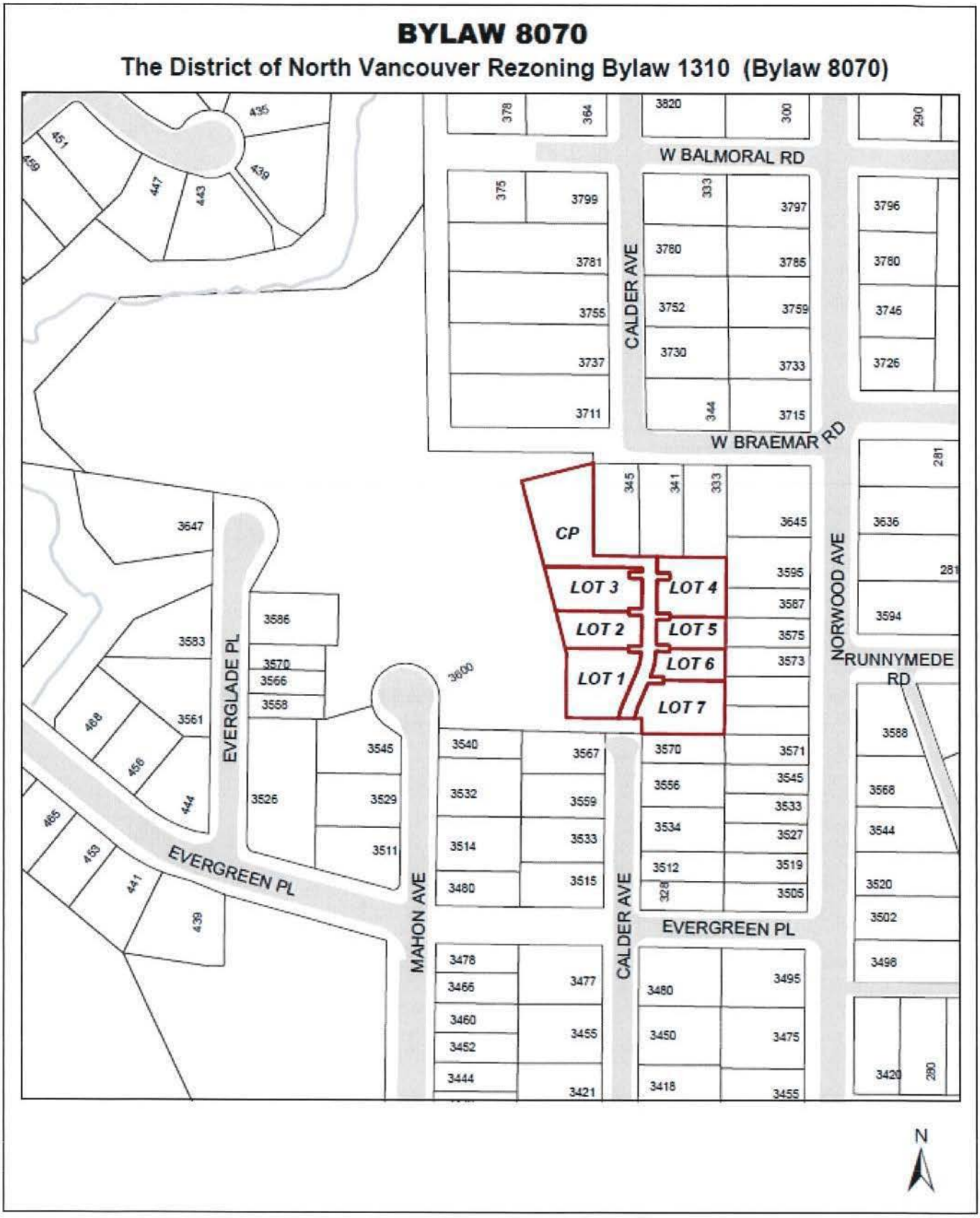
The District of North Vancouver Rezoning Bylaw 1310 (Bylaw 8070)

PUBLIC ASSEMBLY AREA (PA) TO
COMPREHENSIVE DEVELOPMENT ZONE 82 (CD82)

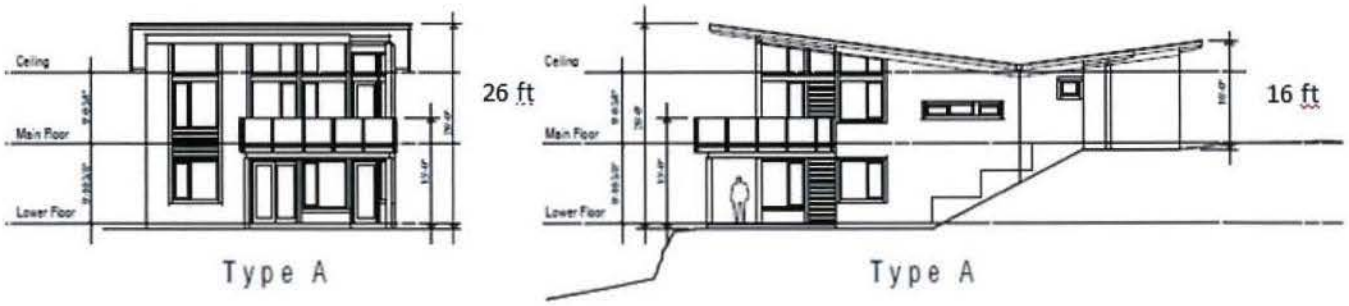
N

Document: 2332839

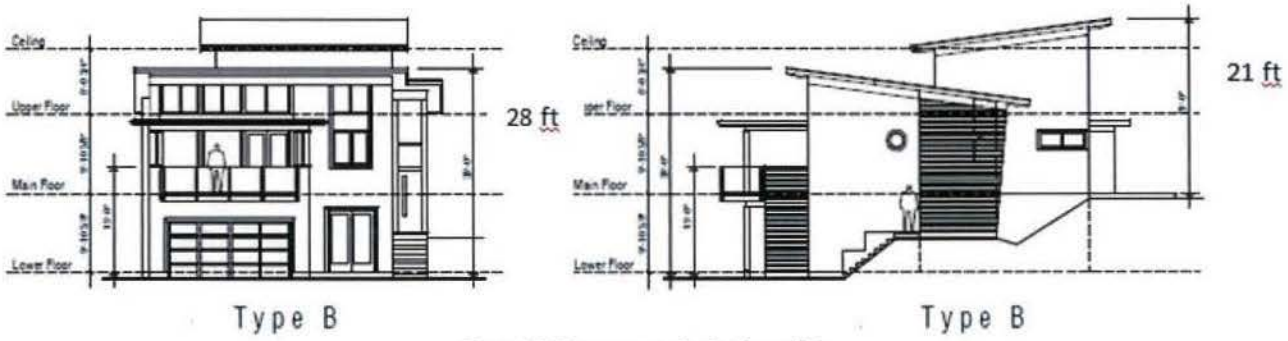
Bylaw 8070 Schedule B: Lot Map



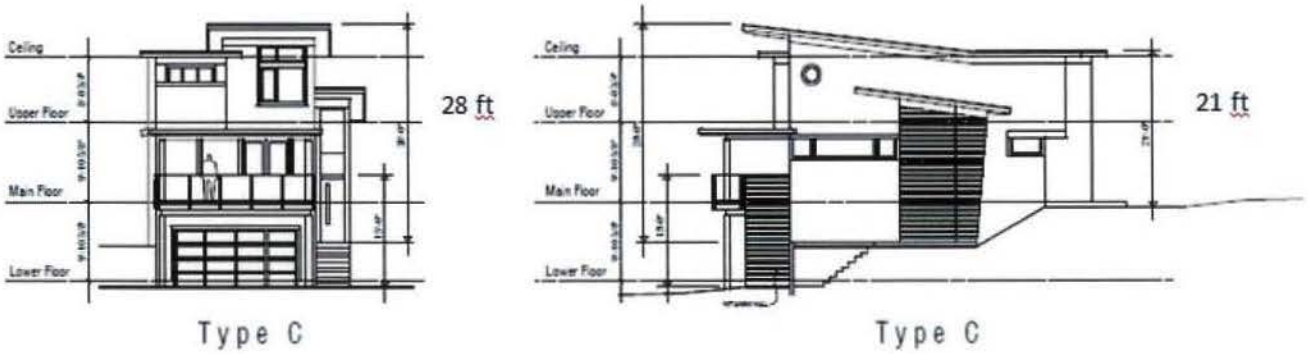
Schedule C to Bylaw 8070



Type A Houses on Lots 1, 2 and 3



Type B Houses on Lots 4 and 7



Type C Houses on Lots 5 and 6

District of North Vancouver
North Vancouver School District #44

2011 School Transportation and Safety Review

FINAL REPORT

URBANSYSTEMS.

February 29, 2012

1333.0017.01

TABLE OF CONTENTS

1.0 INTRODUCTION

The District of North Vancouver (DNV) and the North Vancouver School District #44 (NVSD) have conducted a school safety review and Safe Routes to School Plan for Cleveland, Braemar, and Ross Road Elementary Schools. The study was undertaken in order to identify current transportation issues and opportunities around each school; to develop recommendations to improve the safety and access to schools; and to promote healthy and active modes of transportation to school such as walking and cycling. The outcomes of the study include:

- Identification of high priority, cost-effective improvements and transportation management strategies to improve safety conditions and access; and
- Development of route suggestions and travel information for students and parents.

This report presents findings regarding transportation issues and opportunities at each of the schools, and includes recommendations and an implementation strategy to effectively deliver improved safety and access conditions to each school, as well as to encourage students to walk and bicycle to school.

1.1 Study Process

Urban Systems Ltd. was retained by the DNV and NVSD to prepare the 2011 School Safety Review. This study was conducted through close collaboration with the DNV, NVSD, and parents and staff at each school. Activities conducted throughout the course of the study included:

- Meetings with the DNV, NVSD and school principals in June 2011 to provide an overview of the study and identify preliminary transportation issues and opportunities;
- Comprehensive site visits by the Urban Systems project team in early June 2011 to review existing transportation infrastructure, travel patterns, and safety and access issues. Field observations were made during both the morning drop-off period (between 7:30am to 8:30am) and afternoon pick-up period (between 2:30pm to 3:30pm) at each school;
- An on-line survey that was sent to all Braemar, Cleveland and Ross Road Elementary School parents to understand current travel patterns and identify transportation issues and opportunities at each school. An overview of the study and invitation to complete the survey was e-mailed by the Principal of each school to parents in early June 2011. The survey was available on-line between June 10 and June 24, 2011. 160 responses to the survey were received, including 61 responses from Braemar Elementary parents, 63 responses from Cleveland Elementary parents, and 36 surveys from Ross Road Elementary parents. Taking the number of students per household into account, the surveys received represented over 250 students at the three schools, or approximately 17% of the student enrolment at the schools (see **Appendix A** for a summary of survey results)

- Meetings with the Parent Advisory Committee (PAC) representatives of each school in October and November 2011 to confirm and discuss transportation issues, to develop recommendations to improve safety conditions and access, and to encourage students to walk and bicycle to school.

1.2 What is Safe Routes to School?

Safe Routes to School is a term used to describe an international movement to improve children's safety as they walk and bicycle to school. Safe Routes to School initiatives are built on five key components, typically called the "5 E's" of Safe Routes to School, as described below:

Engineering: The built environment is often a key determinant in whether parents allow their children to walk or bicycle to school. Engineering treatments can change the physical infrastructure, design, or operation of key routes in order to improve conditions for children walking and cycling to school. This can be achieved through a range of short and long-term improvements such as landscaping, marked crosswalks, stop signs, sidewalks, pathways, traffic calming treatments, and redesigned intersections. It is important that engineering treatments be applied in conjunction with the other "E's" to ensure consistent and safe use.

Education: Education is a key program component that seeks to inform and promote safety and awareness of the goals and benefits of Safe Route to School programs. It is important that education initiatives be relevant to parents and hands-on and practical for kids. Education initiatives may include promotion of traffic safety behaviors and rules of the road, and encouraging drivers to share the road with pedestrians and cyclists. Hands-on activities for students can include in-classroom bicycle and pedestrian safety training and bicycle workshops for older students.

Encouragement: This element is based on encouraging people to try walking or bicycling to school through special events, contests, and other initiatives. An enthusiastic and fun event attracts attention to issues of safety and active transportation, and encourages busy families to break their routines and try something new. Events can involve coordinating a Bike or Walk to School Week (or day or month), bike trains, and walking school busses.

Enforcement: Enforcement targets unsafe behaviors and seeks to maintain a level of safety to keep children comfortable in their journeys on foot or bike. This can involve having a law enforcement officer to speak to students about issues related to crime and safety concerns (such as stranger danger or bullying), the development of programs such as crossing guards, and/or the use of 'eyes on the street' in terms of volunteer parents monitoring school zones and popular routes during peak hours.

Evaluation: This involves documenting the current situation at the school, in terms of infrastructure evaluation, reasons that parents choose to drive, and safety concerns. This also involves determining the proportion of students that walk, bike, take transit, are driven, or carpool to school. Information and data collected through this evaluation process plays a key role in determining the scope of the Safe Routes to School program.

A combination of these program elements can lead to Safe Routes to School programs that effectively facilitate the safe walking or cycling movements of school children through a variety of approaches while encouraging active transportation and healthier travel behaviours.

A key component of a Safe Routes to School program is the development of a map highlighting the safest ways to access the school. Safe Routes to School maps for each school are provided in **Appendix B.** These maps highlight the best walking routes to school, which generally include trails, busier streets with sidewalks, or low volume local streets that don't have sidewalks but which provide direct access to the school. These maps highlight marked crosswalks and traffic signals as well as current bicycle parking locations at each school. The maps also identify drop off zones and 'park and walk' areas to provide options for those students who live outside the catchment areas for each school.

1.3 Relevant Policies and Directions

The District of North Vancouver recently adopted a new Official Community Plan (OCP). The OCP contains a community vision for 2030, which includes the following statements:

> ...Our young have safe and healthy environments in which to grow and succeed...our enviable pedestrian and cycling network connects [residents] to destinations and our unparalleled natural environment. Many people walk, cycle, take transit, and leaving cars at home as viable alternatives are available.

This vision emphasizes the District's commitment to promoting the health and well-being of all residents through increased transportation choices. The District's demographic profile is resulting in fewer new families and recent school closures, and the OCP addresses this through goals and policies that foster a sustainable community for residents to live, work, and play for years to come. In particular, the plan focuses on enhancing the District's pedestrian and cyclist networks to provide safe and efficient options for all types of modes and users. This includes encouraging sidewalk and bicycle infrastructure improvements, integrated active transportation networks, pedestrian-friendly features, traffic calming, public realm improvements and overall enhancements in accessibility. The OCP also promotes the establishment of a strong network of community programs and services for all residents, including children and youth, to further support the development of a healthy community. In particular, one of the policies identified in the OCP to improve is to "work with schools to provide safe walking and cycling routes to schools." The 2011 School Safety Review promotes the safety, well-being, and health of children which directly supports the goals and objectives articulated within the OCP.

2.0 BRAEMAR ELEMENTARY

2.1 Context

Braemar Elementary is located on Mahon Avenue in the Upper Lonsdale neighbourhood in North Vancouver. The school provides instruction to approximately 500 students from Kindergarten through Grade 7. Braemar is unique in the North Vancouver School District, as it is the only school in the School District with a three-track program, meaning that it offers an English Program (K to 7), an Early French Immersion Program (K to 7), and a Late French Immersion Program (Grade 6 and Grade 7). The school's catchment area for the English language program is bounded by West Queens Road to the south, Lonsdale Avenue to the east, Delbrook Avenue and Mosquito Creek to the west, and the mountains to the north.

The neighbourhood surrounding the school is generally characterized by low-density, single family housing. The neighbourhood also contains two other schools, Balmoral Junior Secondary School and École André-Piolat. Both of these schools are primarily accessed via Mahon Avenue, as École André-Piolat is located on the northeast corner of Mahon Avenue and West Kings Road, and Balmoral Junior Secondary is located west of the Mahon Avenue and West Osborne Road intersection. École André-Piolat is a K to 12 French school, with a current enrolment of approximately 300 students. Balmoral Junior Secondary School currently has approximately 650 students (grades 8 to 10) from Carson Graham Secondary, who will be relocated to the new Carson Graham replacement school in Fall 2012. Once the students are relocated, it is understood that the School District currently plans to use Balmoral for the future site of the consolidated Community Learning Program, a centre offering grade 9 to 12 programs to improve student completion and achievement, as well as adult basic education classes. With these potential changes to programming at Balmoral School, the student enrollment is expected to change from the current 650 students to less than 300 students by Fall 2012. The recommendations of this report do not reflect the implications of any changes at Balmoral.

2.2 Demographics

Braemar Elementary's student enrollment for the 2010/2011 school year was slightly more than 500 students. As shown in **Table 2.1**, approximately 45% of the student population was enrolled in French Immersion, with approximately 35% in the Early French Immersion Program and 10% in the Late French Immersion Program. As a result of the fact that Braemar Elementary is a triple-track school with both

Early French Immersion and Late French Immersion Programs, there is a higher than typical proportion of Grade 6 and 7 students at Braemar Elementary, with nearly a third of all students in Grade 6 or 7.

Table 2.1: Student Enrollment by Program

Program	Number of Students	Proportion of Students
English	277	55%
Early French Immersion	175	35%
Late French Immersion	53	10%
Total	***505***	***100%***

Largely due to the fact that Braemar Elementary is home to a sizeable French Immersion student population, a significant proportion of students live outside the traditional English Language Program catchment area. In fact, many students live well beyond a reasonable walking distance from the school (approximately 800 metres, or a ten-minute walking distance), as shown in **Figure 2.1** below. As shown in **Table 2.2**, less than 15% of students live within a five minute walking distance from the school (within 400 metres), and approximately 43% of students live within a ten minute walking distance from the school. Conversely, over half (57%) of students live further than a ten minute walk from the school, with over a third (37%) of students living more than a twenty minute walk from the school (greater than 1,600 metres).

Figure 2.1: Braemar Elementary Student Location

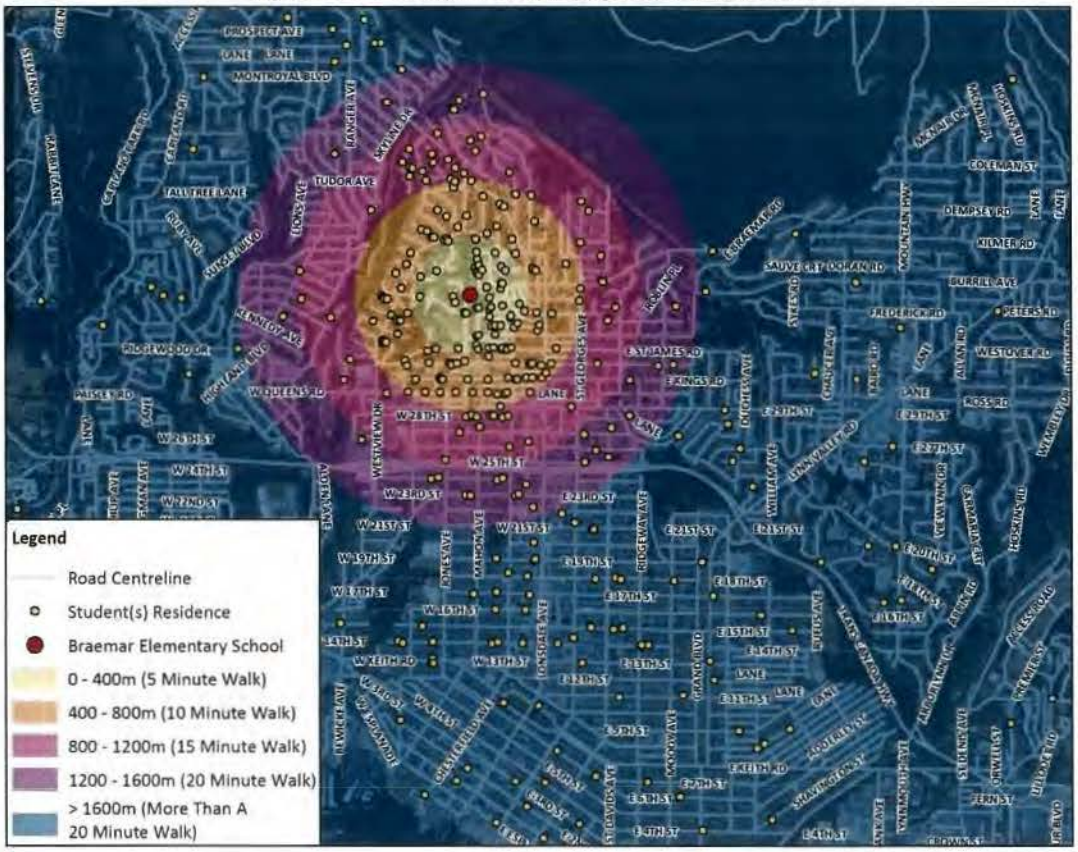


Table 2.2: Student Enrollment by Distance from School

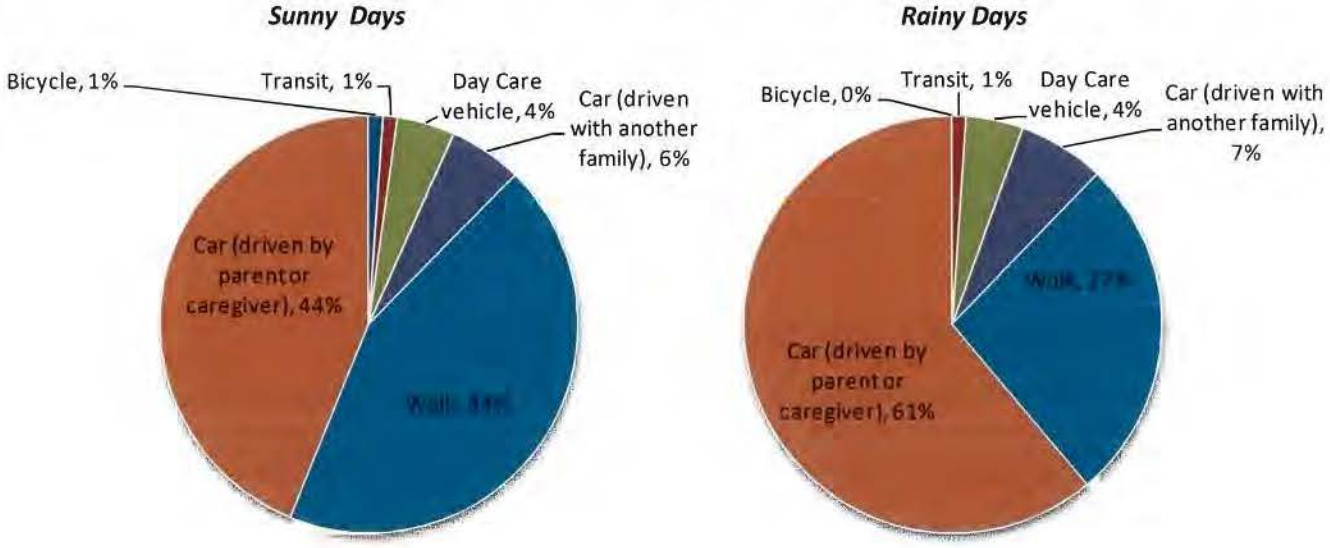
Distance From School	Proportion of Students
< 400 metres	14%
400 – 800 metres	28%
800 – 1200 metres	13%
1200 – 1600 metres	7%
>1600 metres	37%
Total	***100%***

2.3 Travel Patterns

The on-line survey asked respondents to indicate how their children typically travel to and from school. In recognition of the fact that travel patterns can vary considerably based on weather, the survey asked respondents to indicate their typical mode of transportation on both dry or sunny days, and on rainy days. The results of the on-line survey indicated that the vast majority of Braemar Elementary students (88%) arrive at the school by walking or in a car driven by their parent or caregiver on both sunny and rainy days. The remaining students typically take transit, bicycle, or are driven in a day care vehicle with another parent or caregiver.

As shown in **Figure 2.2**, travel patterns vary based on weather conditions. For example, while nearly half (44%) of students walk to school on dry or sunny days, this drops to just over a quarter (27%) of students that walk to school on rainy days.

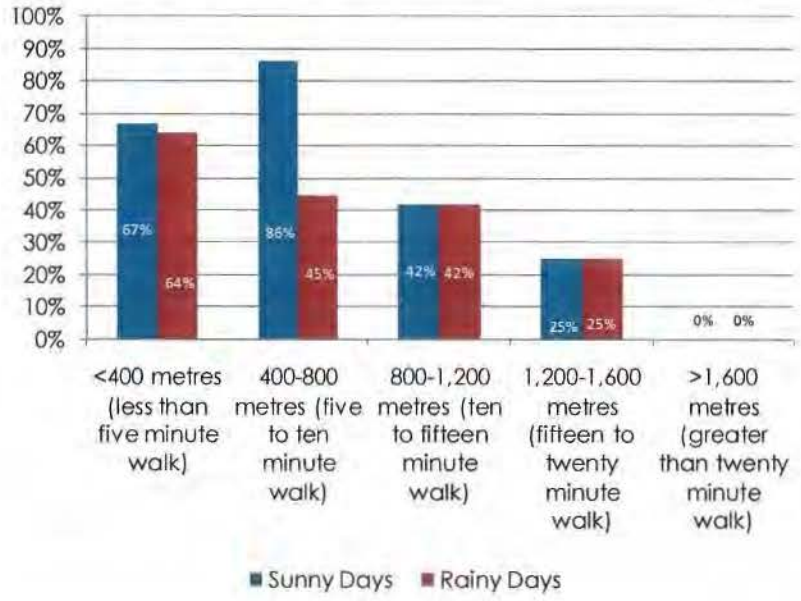
Figure 2.2: Mode Share to Braemar Elementary on Sunny and Rainy Days



As noted above, a large proportion of Braemar Elementary students are in the French Immersion program and, and over half of the students live beyond a ten minute walking distance to the school. This has significant implications on the travel patterns to and from Braemar Elementary. As noted above, approximately 44% of students typically walk to school on dry or sunny days. However, this varies significantly among students in the English and French Immersion Programs, as approximately 57% of students in the English Program walk to school on dry or sunny days, compared to only 32% of French Immersion students.

The difference in travel patterns are even more pronounced based on the travel distance to Braemar Elementary. As shown in **Figure 2.3**, the majority of students who live within approximately 800 metres (roughly a ten minute walk) walk to school on both sunny and rainy days. The percentage of students who walk to school decreases significantly beyond a ten minute walking distance.

Figure 2.3: Walking Mode Share to School Based on Distance to School



2.4 Transportation Initiatives

Braemar Elementary has undertaken several initiatives that support safety and/or health of the students In order to improve the safety of traffic movements during drop-off and pick-up hours, Braemar Elementary and DNV staff worked together to implement a new traffic regulation (as of March 2011) in the Mahon Avenue cul-de-sac. This regulation prohibits any cars entering the cul-de-sac to drop-off or pick up students, and pylons placed at the entrance of the cul-de-sac further enforce this restriction. The entrance to the Mahon Avenue cul-de-sac has been often monitored by a crossing guard; however lack

of student volunteers this school year has put the crossing guard program on hold. Additional initiatives include walking class field trips, and the school newsletter regularly providing information on pedestrian safety, traffic awareness, parking restrictions, and traffic flow.

2.5 Existing Conditions

This section describes existing transportation conditions in the area around Braemar Elementary school. This includes a summary of existing access points, road network characteristics, pedestrian facilities, bicycle facilities, transit services and facilities, parking, drop-off and pick-up zones, and safety.

2.5.1 Access Points

The main entrance to the school is located at the north end of the Mahon Avenue cul-de-sac. Until recently, the Mahon Avenue cul-de-sac was the primary access point for student drop-offs and pick-ups. Traffic and safety concerns resulted in a recent change by the administration to implement new regulations in the cul-de-sacs on both Mahon Avenue and Everglade Place, prohibiting student drop-offs and pick-ups in both cul-de-sacs during peak hours (8:30am to 9:30am and 2:30pm to 3:30pm on school days).

In addition, there are several other access points to the school via trails on the north, west, and south sides of the school property. These trails provide connections from the school to Calder Avenue (north side), Calder Avenue (south side), Everglade Place, Silverdale Place, and West Balmoral Road. These trails pass through the forested areas surrounding the school, and are generally not signed.

2.5.2 Road Network

Road Classification

As shown in **Figure 2.4**, Lonsdale Avenue and Delbrook Avenue are classified as arterial roads. The primary function of arterial roads is to support traffic movement of all vehicle types. Both of these roads have one travel lane in each direction and accommodate on-street parking on both sides. Collector roads include Evergreen Place, Mahon Avenue, and Norwood Avenue. Each of these roads also has one travel lane in each direction and accommodates on-street parking on both sides. Collector roads support both mobility and access, and are designed to accommodate volumes of 1,000 and 8,000 vehicles per day in both directions.

All of the remaining streets in the vicinity of the school are classified as local roads. Parking is generally available on both sides of local roads, with traffic volumes typically less than 1,500 vehicles/day. The majority of local roads in the neighbourhood of the school do not have sidewalks on either side, as discussed in further detail below.

Intersections

The most significant intersection in the immediate vicinity of Braemar Elementary is at Mahon Avenue and Evergreen Place. This three-way intersection contains marked crosswalks on the west leg and the south leg of the intersection. Motor vehicle traffic is restricted on Mahon Avenue north of Evergreen Place during peak hours due to the drop-off and pick-up restrictions in the Mahon Avenue cul-de-sac noted above. This intersection is monitored by crossing guards in the morning and afternoon to ensure pedestrian safety. The Evergreen Place and Everglade Place intersection is another key intersection around the school, which now experiences higher volumes than previously due to the peak hour access restrictions on Mahon Avenue noted above. With the closure of the Mahon Avenue cul-de-sac, a number of drivers also use Everglade Place to turn around, increasing the volumes going through the intersection. Other key intersections with noted safety concerns are the intersections of Mahon Avenue at West Queens Road, Delbrook Avenue at Silverdale Place, and Evergreen Place at Calder Avenue.

2.5.3 Pedestrian Facilities

Sidewalks

As shown in **Figure 2.5**, the only streets in the immediate vicinity of Braemar Elementary with sidewalks are on Mahon Avenue, Evergreen Place, and Osborne Road. As a collector road and main access route to Braemar Elementary, Mahon Avenue has a sidewalk on both sides of the street. However, Evergreen Place contains a sidewalk only on the south side of the street. None of the remaining streets that surround Braemar Elementary have sidewalks on either side of the street, which forces pedestrians to walk on the roadway to access the school. In particular, the issue of no sidewalks on the north side of Evergreen Place, Calder Avenue (north and south) and Everglade Place is significant due to these being well used by students and parents walking to school.

Trails

As noted above, several trails provide access to the school from the west, north, and east. These trails provide connections from the school to Calder Avenue (north side), Calder Avenue (south side), Everglade Place, Silverdale Place, and West Balmoral Road, as shown in **Figure 2.5**. The trails that lead to the school grounds cross through hilly and wooded areas, and often contain wooden or concrete steps. The stairs on the trail from Calder Avenue (north side) contains handrails for users. Some of the stairs and trails have overgrown shrubs extending into the trail, and some of the trails become challenging to traverse in snow conditions.

Figure 2.4: Braemar Elementary Road Network Classification

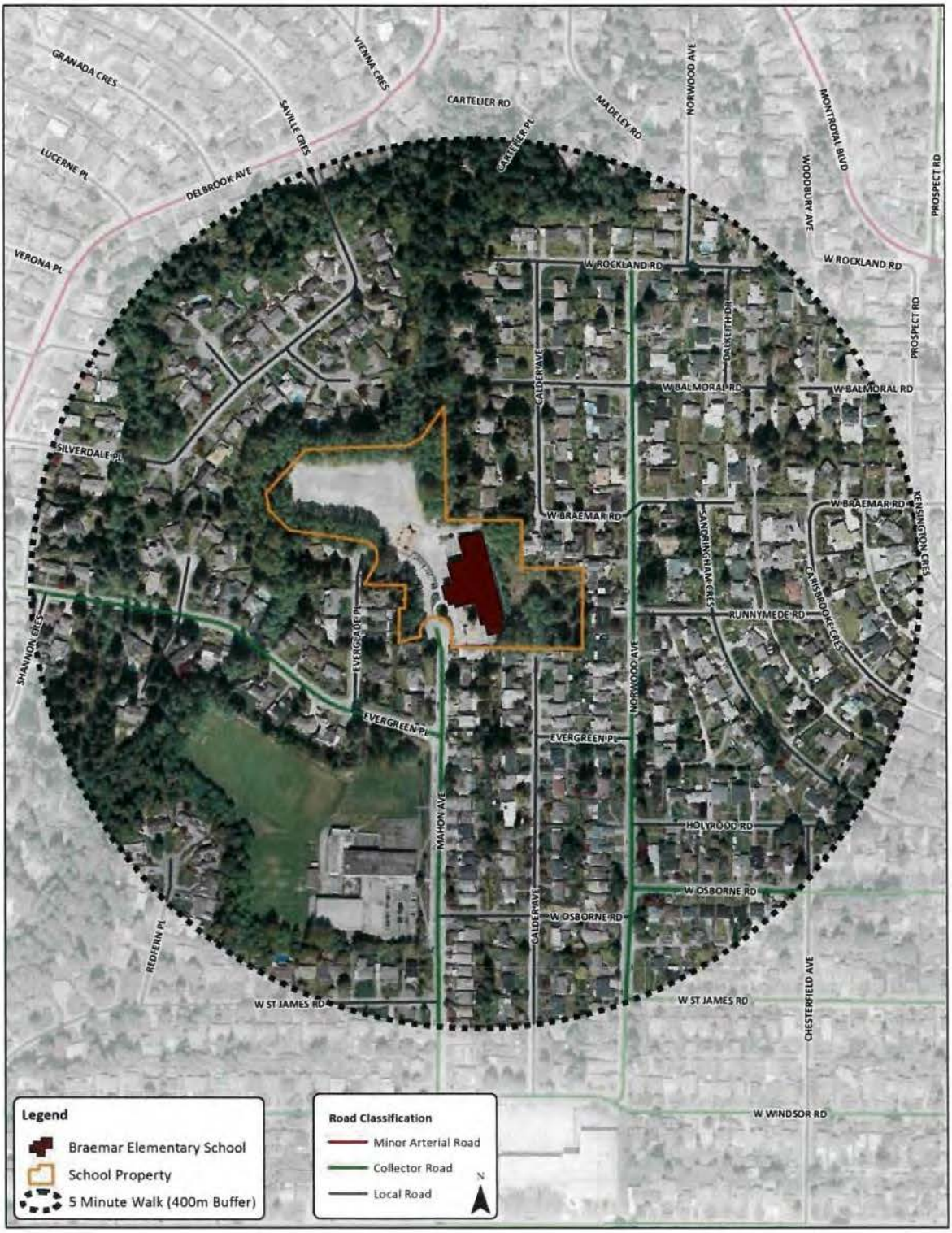
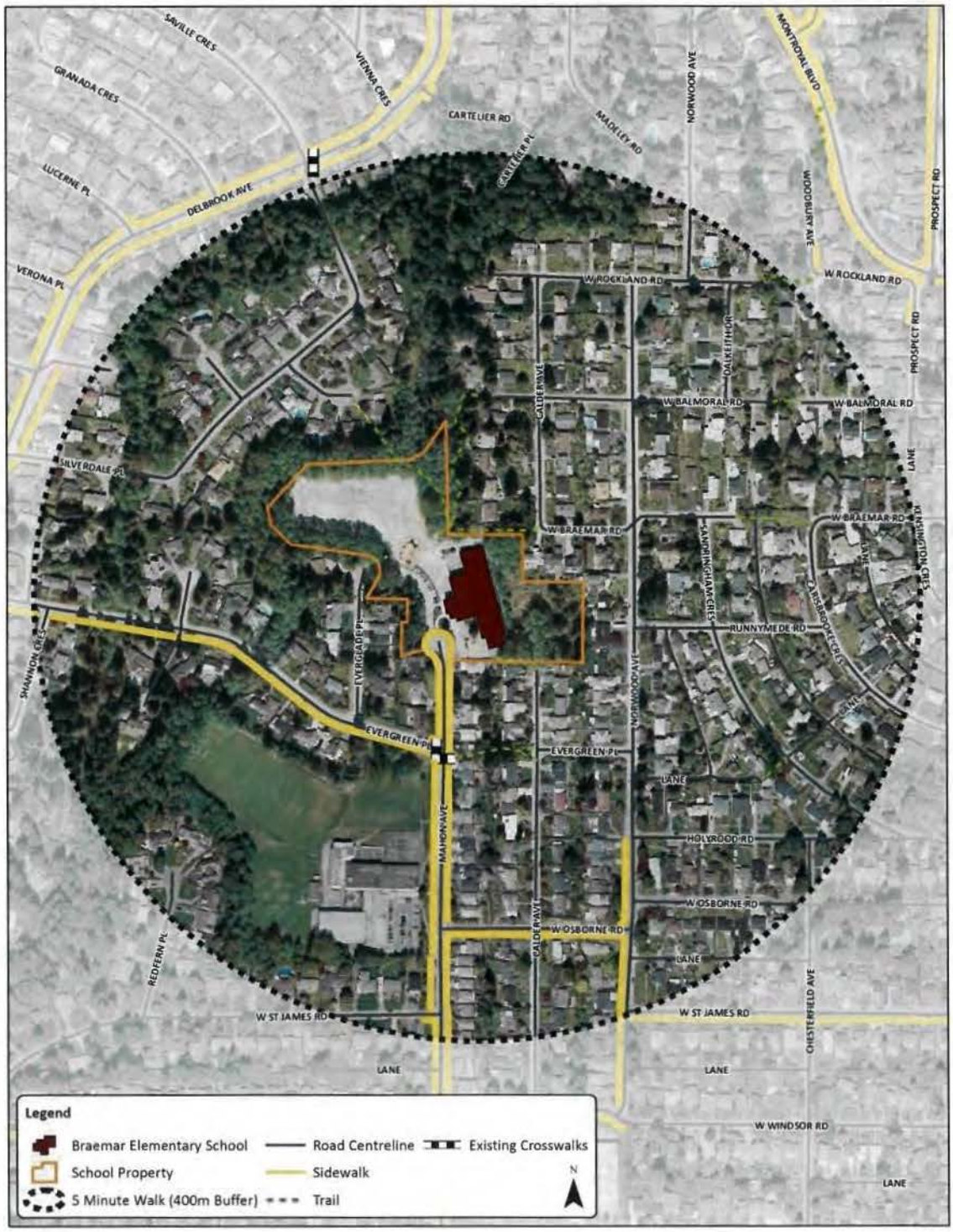


Figure 2.5: Braemar Elementary Existing Pedestrian Facilities



URBANSYSTEMS.

Crosswalks

There are two marked crosswalks at the intersection of Evergreen Place and Mahon Avenue. There is also a marked crosswalk across Mahon Avenue at Osborne Road. The other streets that have connecting trails to the school do not have any marked crosswalk facilities.

2.5.4 Bicycle Facilities

Bicycle Routes

There are no existing bicycle routes in the vicinity of the school. The District's draft 2011 Bicycle Master Plan identifies Evergreen Place, Osborne Road, and Mahon Avenue between Evergreen Place and Mahon Avenue as planned bicycle routes, which would provide an east-west connection to Delbrook Avenue in the west and Norwood Avenue in the east.

Trails

The trails that connect to the Braemar Elementary mainly contain stairs and terrain that is difficult to navigate for young cyclists. Access to the school grounds through Mahon Avenue is likely a preferred option for cyclists.

Bicycle Parking

There are currently three bicycle racks are on the Braemar Elementary school grounds, located on the west side of the building near the main entrance to the school. One of the bicycle racks offers weather protection as it is covered by an overhang, while the two other bicycle racks do not offer weather protection. The bicycle racks were not observed to be in high use, even on fair weather days.

2.5.5 Transit Services and Facilities

Braemar Elementary is not directly served by any transit routes. The closest transit route is approximately 500 metres to the west on Delbrook Avenue , with a stop at the intersection of Delbrook Avenue and Evergreen Place. Services on Delbrook and other major routes in proximity to Braemar Elementary include:

- ***#230 Upper Lonsdale, Lonsdale Quay*** - operates every 10 to 15 minutes in peak hours, and every 30 minutes in non-peak hours. A linear route providing service on Lonsdale Avenue from Lonsdale Quay to West Rockland Road and West Balmoral Road in Upper Lonsdale.
- ***#246 Downtown, Lonsdale Quay, Highlands*** - operates every 15 minutes in peak hours and every 30 minutes in non-peak hours, and provides connections to Lonsdale Quay, Edgemont Village, and downtown Vancouver with routing on Delbrook Avenue and Mont Royal Boulevard

- ***#232 Grouse Mountain, Phibbs Exchange*** – operates every 30 minutes. Connects Phibbs Exchange to Grouse Mountain via Capilano Road, West Queens Road, Lonsdale Avenue, and Keith Road.
- ***#241 Upper Lonsdale, Vancouver*** – Monday to Friday peak hour service only, operates every 10 to 15 minutes and connects downtown Vancouver with Upper Lonsdale Avenue
- ***#242 Upper Lonsdale, Vancouver*** – Early morning weekend service only, provides service every 30 minutes between downtown Vancouver and upper Lonsdale Avenue.

2.5.6 Parking

Off-Street Parking

Braemar Elementary has one off-street parking lot for staff use only. The staff parking lot is located on the west side of the school building, with the entrance to the north of the Mahon Avenue cul-de-sac. The staff parking lot has a capacity of 28 regular parking stalls, two reserved parking stalls (for administration), and one disabled parking stall. The number of parking stalls is generally sufficient to accommodate staff demand, with less than 24 full-time equivalent (FTE) teachers and administrators on staff. During site visits, the parking lot was observed to be near capacity almost all day, indicating that parking supply adequately meets demand of the staff.

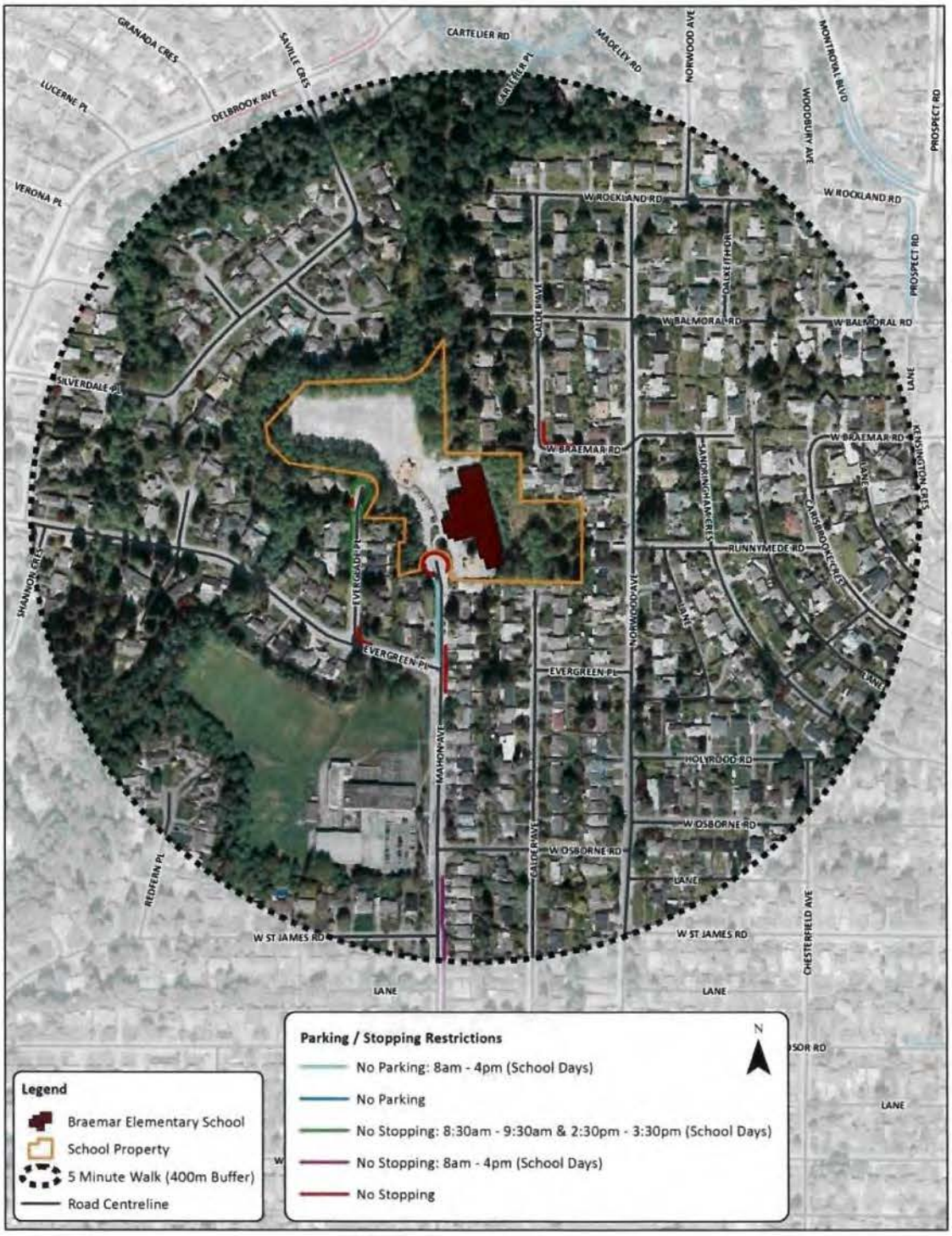
On-Street Parking

The staff parking lot is intended exclusively for staff members and does not contain any parking for parents or other visitors. Signage also restricts parents from using the parking lot for any drop-off and pick-up activities. As shown in **Figure 2.6**, on-street parking is available in the Mahon Avenue cul-de-sac at all times on the east side, and outside of school hours on the west side. On-street parking is also permitted on both sides of Evergreen Place and Mahon Avenue south of Evergreen Place. As such, the majority of parent parking occurs on the north and south side of Evergreen Place, and in Everglade Place.

2.5.7 Drop-off / Pick-up Zones

Braemar Elementary does not have any designated drop-off and pick-up zones for parents who are driving their children. Due to the access restrictions to Mahon Avenue north of Evergreen Place in the morning and afternoon peak hours, many parents have shifted their drop-off and pick-up activities to Evergreen Place and Everglade Place, although as shown in **Figure 2.6,** drop-offs and pick-ups are not permitted in the Everglade Place cul-de-sac. To a lesser extent, drop-off and pick-up of students occurs at the trailheads located on both the north and south segments of Calder Avenue, which has resulted in some traffic and safety issues on these local roads.

Figure 2.6: Braemar Elementary Parking and Stopping Restrictions



2.5.8 Safety

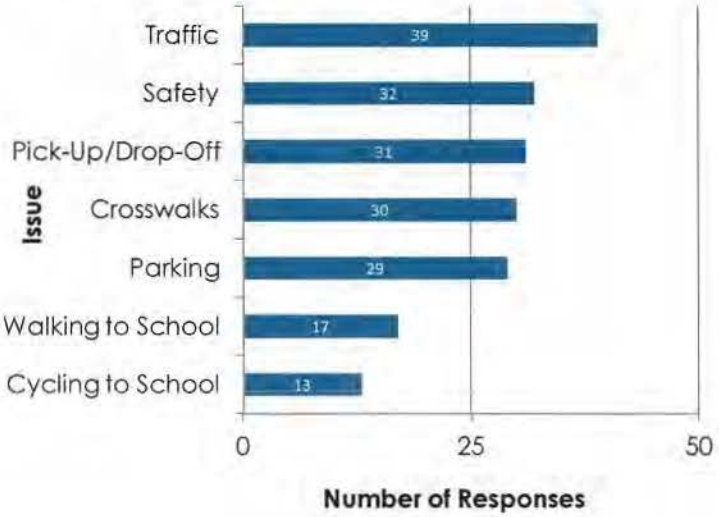
ICBC collects and maintains statistics for all reported collisions in British Columbia. The collision data classifies reported collisions based on the type of reported collision as follows: fatality, injury, material damage (above $1,000), and material damage (under $1,000), and also includes reported collisions involving pedestrians or cyclists. Collision data for all roads within approximately 400 metres of Braemar Elementary was reviewed for the past five years (2006 to 2010) to identify overall collision frequencies around the school. Overall it was found that collisions around schools are not very common, and those that do occur are generally relatively minor and do not usually involve pedestrians or cyclists. In fact, between 2006 and 2010, only one reported collision resulted in injury. This occurred on Calder Avenue north of Evergreen Place, and did not involve any pedestrians or cyclists. Three locations around the school have had more than one average reported collision per year (Mahon Avenue at Evergreen Place, West Osborne Road, and between West Osborne Road and West St. James Road). No reported collisions in the area were noted to have involved pedestrians or cyclists over this period.

2.6 Issues

This section describes transportation and safety issues that have been identified to date based on the on-line survey responses, field visits, and existing conditions summary in the previous section.

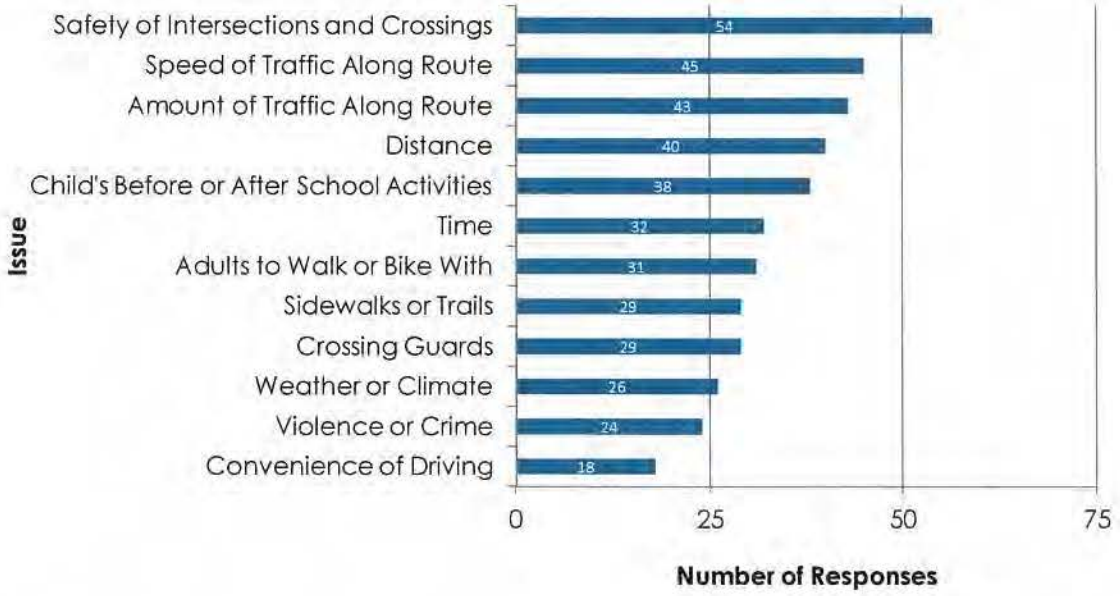
The on-line survey asked respondents to identify which issues present safety concerns getting their children to and from school. As shown in **Figure 2.7**, the primary safety concerns identified by survey respondents were related to traffic and safety.

Figure 2.7: Braemar Elementary Reported Safety Concerns



The on-line survey also asked respondents to identify the key transportation issues affecting the decision to allow their children to walk or bicycle to or from school. As noted in **Figure 2.8**, the most significant issue identified by survey respondents for Braemar Elementary was the safety of intersections and crossings, followed by traffic speeds and traffic volumes. Other notable issues included affecting this decision included distance, before or after school activities, and time.

Figure 2.8: Braemar Elementary Transportation Issues



Specific transportation and safety issues that have been identified to date around Braemar Elementary include:

- ***Speeding*** is perceived as an issue on several roads near the school, including Mahon Avenue, Evergreen Place, and Delbrook Avenue;
- ***Missing sidewalks*** on several streets, including Evergreen Road (north side), Evergreen Place, Loraine Avenue, and Calder Avenue, which forces students to walk on the roadway;
- ***Intersection safety*** is perceived to be an issue on at the Evergreen Place intersections at Mahon Avenue, Everglade Place and Calder Avenue; Delbrook Avenue intersections at Saville Crescent, Silverdale Place, and Evergreen Place; Mahon Avenue at West Queens Road, Loraine Avenue and Lewister Road, and along Lonsdale Avenue at several locations;
- ***Drop-off and pick-up*** activities in Everglade Place, and the Calder Place north segment (at West Braemar road) and south segment (cul-de-sac) have been noted to present safety issues. This is

due to high traffic volumes in the peak drop-off and pick-up periods in combination with the lack of sidewalks;

- ***Lack of parking*** close to the school entrance;
- ***Traffic volumes*** during drop-off and pick-up periods on Mahon Avenue and Evergreen Avenue, particularly in conjunction with traffic generated by Balmoral Junior Secondary School and École André-Piolat. Potential future changes in programming at Balmoral School will considerably reduce student enrolment on-site by nearly half, but the new program will have students of driving age. As such, it is recommended that NVSD and Balmoral School develop parking and traffic management strategies as any future changes in programming occur at Balmoral School to understand changes in traffic patterns and identify mitigation measures;
- ***Driver behaviour***, including vehicles not following traffic regulations, such as parking in no-parking areas, not using turning signals, blocking of driveways, and stopping in the street;
- ***Increased use of Everglade Place***, with the implementation of the new traffic regulation in Mahon Avenue, parents driving their children have shifted to using Everglade Place, causing increased traffic and congestion problems as noted by the residents. Residents of Everglade Place are experiencing increased traffic and increased noise. Curbside space is limited on the Everglade Place and so drivers often resort to temporarily blocking the driveways of residents.
- ***Parents noted that speeding is sometimes a problem for latecomers,*** which poses a danger when there are parents and children walking in the roadway. Further, when parking is occurring on both sides such as on Everglade Place, the available roadway space for pedestrians narrows, which also increases the likelihood of vehicle and pedestrian collisions.
- ***Accessibility of trails,*** present challenges for cyclists as well as parents with strollers.

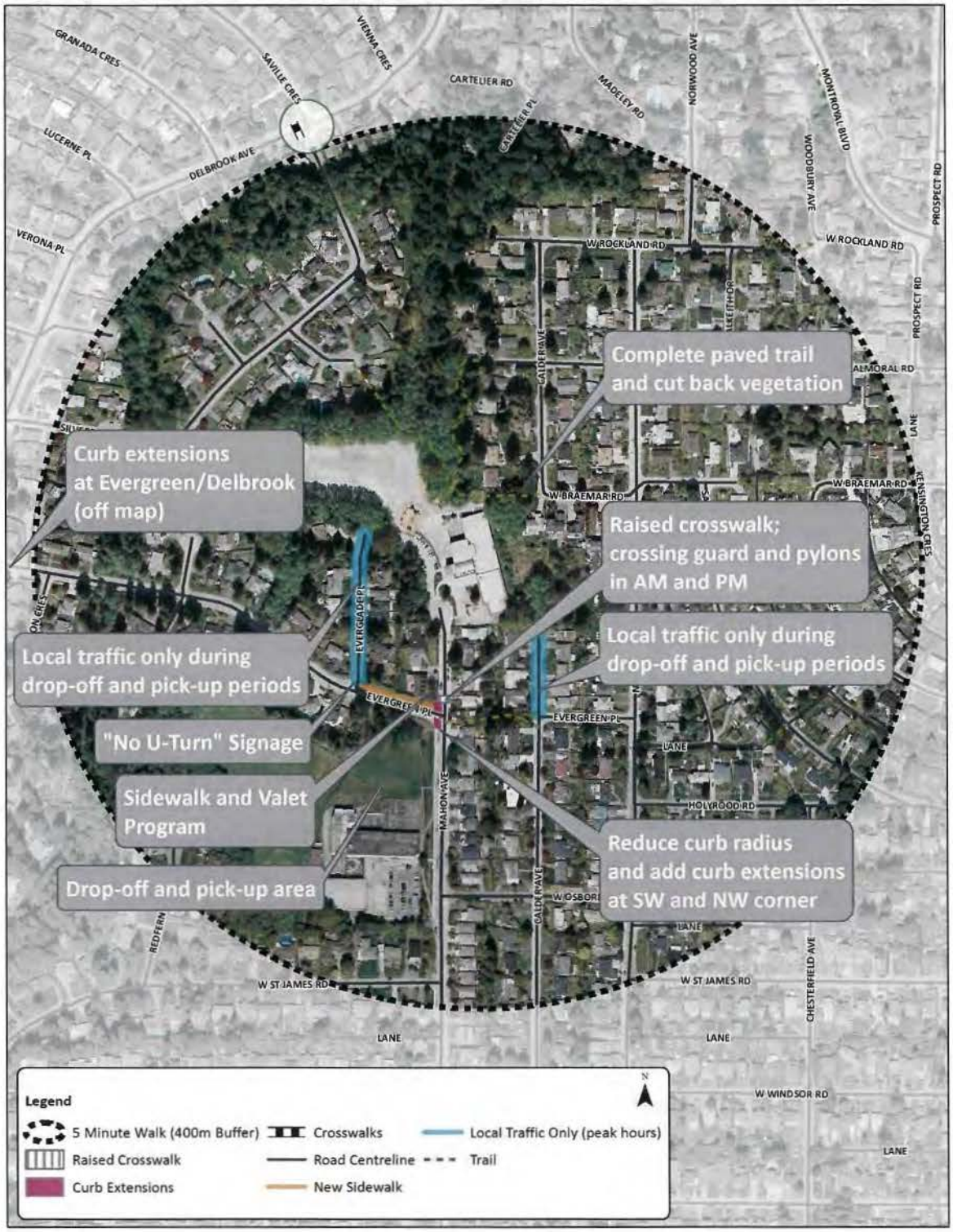
2.7 Improvement Options

The existing conditions and issues at Braemar Elementary School were assessed, and improvements were identified to enhance the environment for walking and cycle routes to the school grounds and improve community livability. **Table 2.3** below describes the recommended improvement options proposed to the Braemar PAC, DNV, and NVSD for potential inclusion in the final school safety implementation strategy (discussed further in Section 5.0). **Figure 2.9** shows the location of these improvement options.

Table 2.3: Improvement Options – Braemar Elementary

Improvement Type		Location	Description
1. Curb extensions	1a	Mahon Avenue at Evergreen Place	Reduce curb radius at existing sidewalk and provide curb extensions on northwest and southwest corner to reduce pedestrian crossing distance
	1b	Delbrook Avenue at Evergreen Place	Provide curb extensions at existing sidewalk to reduce pedestrian crossing distance
2. Sidewalks	2a	Evergreen Place	Provide sidewalk on north side of Evergreen Place, between Everglade Place and Mahon Avenue in conjunction with valet program (5a) to designated a preferred pick-up and drop-off area
3. Marked Crosswalks	3a	Mahon Avenue at Evergreen Place	Provide new raised crosswalk on north leg of Mahon Avenue and Evergreen Place intersection to discourage vehicles entering cul-de-sac and improve pedestrian safety
	3b	Mahon Avenue at Evergreen Place	Crossing guards and pylons in morning and afternoon to discourage vehicles entering cul-de-sac and improve pedestrian safety
	3c	Delbrooke Avenue at Saville Crescent	Relocate crosswalk to south leg of intersection for better sightlines
4. Signs	4a	Evergreen Place	"No U-turn" Signs to discourage U-Turns on Evergreen lance
5. Valet Program	5a	Evergreen Place	Implement valet program, with drop-offs occurring on Evergreen Place and student volunteers escorting dropped off students to the school entrance. (Can acquire BCAA support for this initiative, as BCAA offers training to support valet program and traffic safety patrol programs)
6. Trails	6a	West Braemar Road/Calder Avenue trail	Complete paved trail, and cutback vegetation to improve visibility and accessibility
7. Traffic Restrictions	7a	Calder Place, north of Evergreen Place (cul-de-sac)	Local traffic only 8:30am to 9:30am, 2:30pm to 3:30pm to improve pedestrian safety
	7b	Everglade Place	Local traffic only 8:30am to 9:30am, 2:30pm to 3:30pm to improve pedestrian safety
	7c	Evergreen Place (south side)	No parking 8:30am to 9:30am, 2:30pm to 3:30pm to provide for a drop off & pick up zone
8. Programs / In-Class Initiatives	9a	- Participate in TransLink's TravelSmart program for elementary schools. - Pursue rideshare initiatives/education through online carpooling networks (https://online.ride-share.com/en/my/) and information at www.travelsmart.ca - Issue announcements/reminders to parents on safety improvements and/or changes in traffic rules, as well as information on safe routes to school - Promote in-class education promoting walking, cycling and traffic safety including "walking field trips", in conjunction with the RCMP and ICBC - Include information on the school website on safe routes to school / active transportation - Promote a Walking or Cycling School Bus Program - Engage in bike/walk to school events such as bike to school week, Winter Walk Day, IWalk with contests and prizes with related in-class activities - Consider a traffic safety patrol program	

Figure 2.9: Preliminary Improvement Options – Braemar Elementary



3.0 CLEVELAND ELEMENTARY

3.1 Context

Cleveland Elementary is located on Eldon Road, east of Capilano Road in the northern part of the Capilano neighbourhood. The school provides instruction to nearly 500 students from Kindergarten through Grade 7. Cleveland is a dual-track school that offers an English Program and French Immersion Programs from Kindergarten to Grade 7.

The neighbourhood surrounding the school generally consists of low density, single-family residential housing, and is located near Eldon Park. The school's catchment area for the English language program is bounded by Capilano River to the west, Ridgewood Drive to the south, Mackay Creek to the east, and Handsworth Road to the north.

3.2 Demographics

Cleveland Elementary had a student enrollment in the 2010-2011 school year of 486 students. As shown in **Table 3.1**, the school has a very high proportion of students enrolled in French Immersion, with nearly two-thirds (63%) of the student population enrolled in the French Immersion program.

Table 3.1: Student Enrollment by Program

Program	Number of Students	Proportion of Students
English	186	38%
French Immersion	300	62%
Total	*486*	*100%*

Cleveland Elementary has a significant number of students who live beyond a reasonable walking distance to the school, as shown in **Figure 3.1**. As noted in **Table 3.2**, while approximately 17% and 40% of students live within a five and ten minute walking distance to school, respectively, approximately 60% of students live further than a ten minute walking distance from the school, with over a third (37%) of students living more than a twenty minute walk from the school (greater than 1,600 metres).

Figure 3.1: Cleveland Elementary Student Location

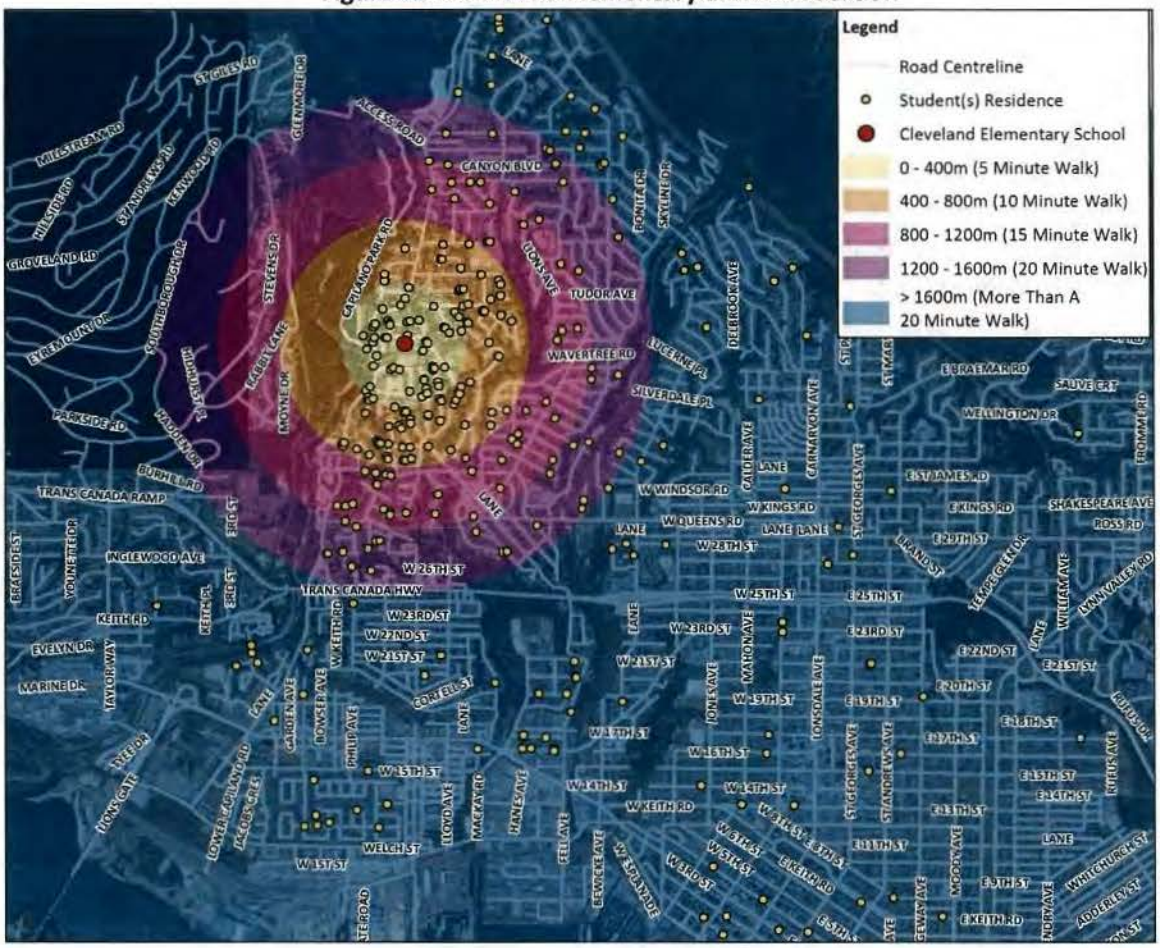


Table 3.2: Student Enrollment by Distance from School

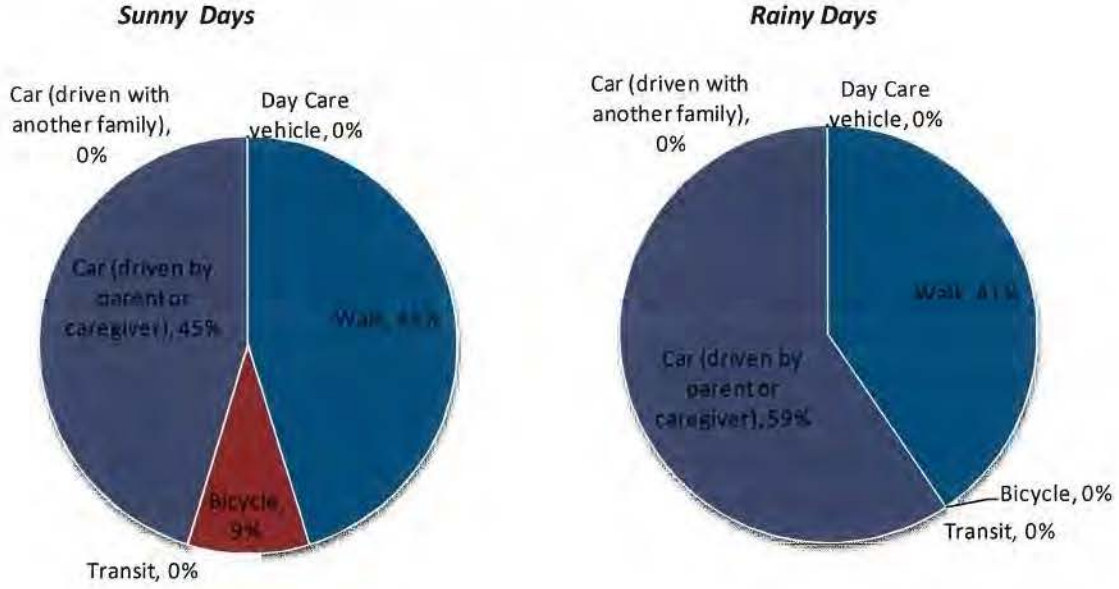
Distance From School	Proportion of Students
< 400 metres	17%
400 – 800 metres	24%
800 – 1200 metres	12%
1200 – 1600 metres	10%
>1600 metres	37%
Total	*100%*

3.3 Travel Patterns

The results of the on-line survey indicated that the vast majority of Cleveland Elementary students arrive at the school by walking or in a car driven by their parent or caregiver on both sunny and rainy days.

As shown in **Figure 3.2**, travel patterns were relatively similar on dry and sunny days and rainy days. In fact, the proportion of trips made by walking did not change significantly on dry or sunny days (45% of trips) compared to rainy days (41%). 9% of students typically bicycle to work on sunny days, but no reported cycling trips were made on rainy days. No survey respondents indicated that they took transit, used a day care vehicle, or rode in vehicles with another parent or caregiver to get to school on either sunny or rainy days.

Figure 3.2 – Mode Share to Cleveland Elementary on Sunny and Rainy Days

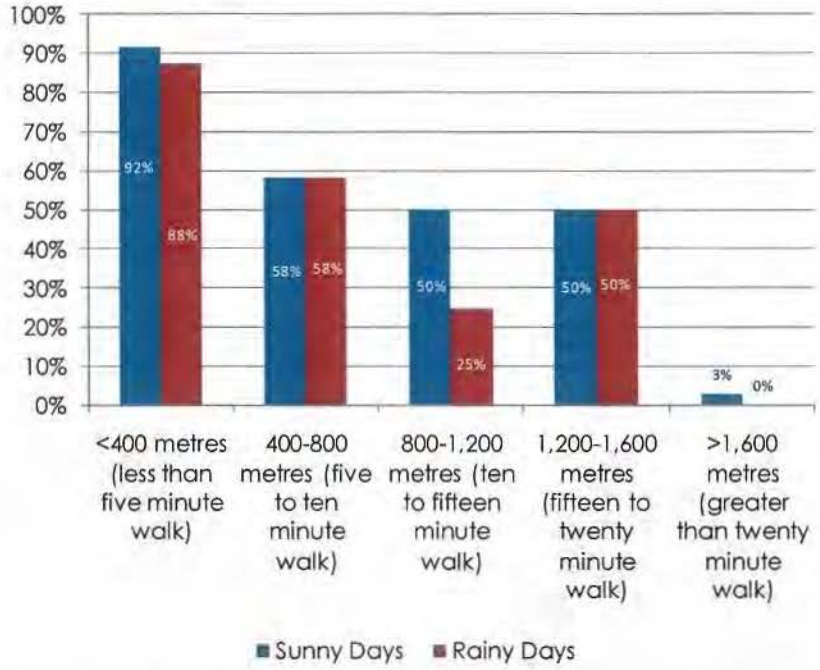


As noted above, a large proportion of Cleveland Elementary students are in the French Immersion program and, and over half of the students live beyond a ten minute walking distance to the school, which has significant implications on the travel patterns to and from Cleveland Elementary. As noted above, approximately 45% of students typically walk to school on dry or sunny days. However, this varies significantly among students in the English and French Immersion Programs, as approximately 79% of students in the English Program walk to school on dry or sunny days, compared to only 32% of French Immersion students.

As shown in **Figure 3.3**, the overwhelming majority of students who live within approximately 400 metres (roughly a five minute walk) walk to school on both sunny and rainy days (92% and 88% of students, respectively). The number of students reporting that they walk to school declines significantly

beyond a five-minute walking distance. Approximately half of students who live between a five and twenty minute walking distance to school walk to school on sunny days, although this drops somewhat on rainy days.

Figure 3.3: Walking Mode Share to School Based on Distance to School



3.4 Transportation Initiatives

Traffic safety initiatives at Cleveland Elementary include the placement of on-street pylons on Eldon Road in front of the school for the duration of the school day, and a parent and student crossing guard program in the morning and afternoon on Eldon Road. Until recently, the school had a kindergarten valet program due to the proximity of the classrooms to the parking lot, but this initiative was recently discontinued when kindergarten classes were relocated. The school participates and promotes Bike to School week, which has seen high participation rates, with the 2010/2011 school year seeing on average 250 participants biking to school daily. Cleveland Elementary also has a Walk to School program, which includes "Walking Wednesdays" where parents and children are encouraged to take active modes to school rather than drive on Wednesdays. The school has also participated International Walk to School month through promoting IWALK Day, and promotes awareness to parents through the school newsletter. The school newsletters also issue notices to parents about drop-off/pick-up zones and traffic regulations.

3.5 Existing Conditions

This section describes existing transportation conditions in the area around Cleveland Elementary school. This includes a summary of existing access points, road network characteristics, pedestrian facilities, bicycle facilities, transit services and facilities, parking, drop-off and pick-up zones, and safety.

3.5.1 Access Points

The main entrance to Cleveland Elementary is on Eldon Road, with the majority of drop-off and pick-ups occurring here during peak hours. Access to the school is also provided by trails connecting to the school from Mount Crown Road, Lewister Road, Loraine Avenue, and Kendal Place. These trails allow students and parents to walk and bicycle from the southern and eastern parts of the neighbourhood, and also allow parents driving to school to drop-off and pick-up their children at the trailheads.

3.5.2 Road Network

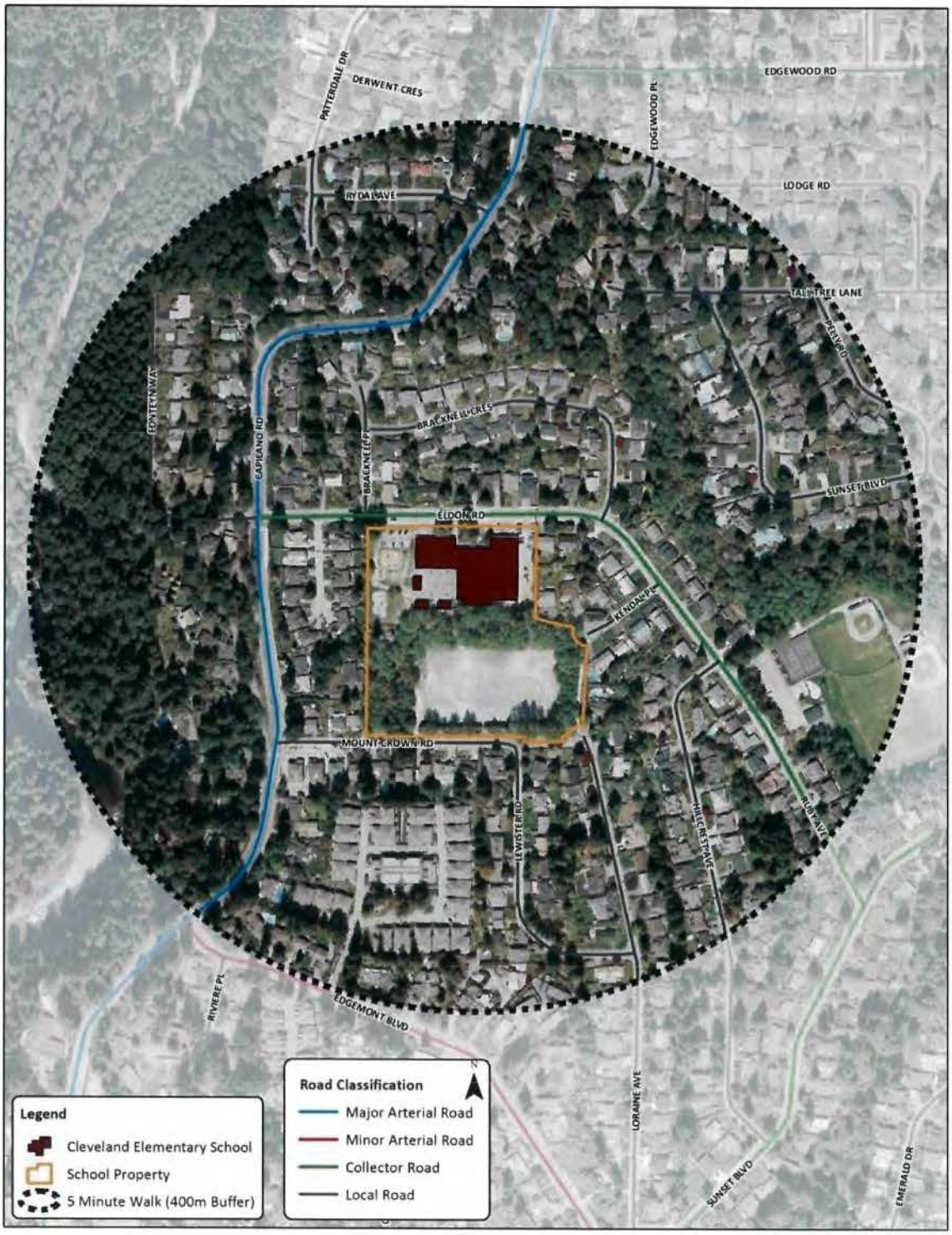
Road Classifications

As shown in **Figure 3.4**, the neighbourhood around Cleveland Elementary is typically characterized by local roads, with the exception of Eldon Road and Capilano Road. Capilano Road is classified as a major arterial road with a primary function to support traffic movement of all types of vehicles. Capilano Road has one travel lane in each direction, with parking generally permitted on both sides of the street. Eldon Road is classified as a collector road, with one travel lane in either direction and parking allowed on both sides, excluding the restricted school zones, as described in further detail below.

Intersections

The most notable intersection near the school is at Capilano Road and Eldon Road. This intersection has only a pedestrian activated signal to cross Capilano Road and traffic queues were observed here during peak hours as vehicles wait to turn left onto Capilano Road. Further congestion issues are augmented at this intersection by the queuing of southbound vehicles on Capilano Road waiting to turn left onto Eldon Road. Other notable intersections around the school include Eldon Road at Bracknell Place, and Capilano Road at Mount Crown Road. Further afield from the school, the Loraine Avenue intersections at Lewister Road and at Sunset Boulevard present safety challenges for those walking on these key routes to school.

Figure 3.4: Cleveland Elementary Road Network Classification



3.5.3 Pedestrian Facilities

Sidewalks

As shown in **Figure 3.5,** Eldon Road has sidewalks on both sides of the street between Capilano Road and Bracknell Crescent. East of Bracknell Crescent, the sidewalk only continues on the south side of the street. Bracknell Place contains a short segment of sidewalk on its west side, which stops before Bracknell Crescent. Similarly, Mount Crown Road contains a small segment of sidewalk on its south side, near the intersection with Capilano Road. Other than these facilities, pedestrians using Mount Crown Road, Bracknell Crescent, Lewister Road, and Loraine Avenue must walk in the roadway.

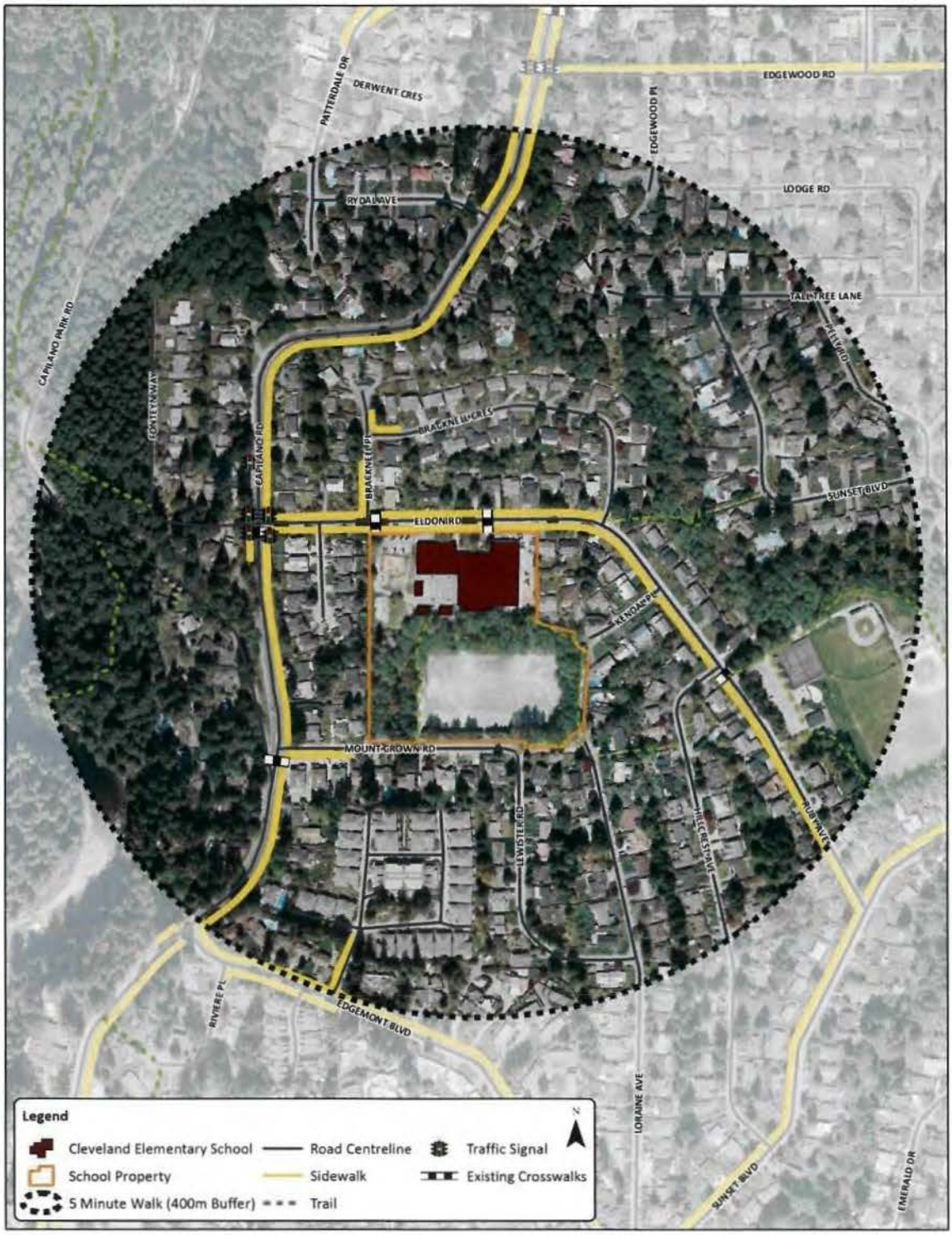
Crosswalks

The main marked crosswalk across Eldon Road is located near the school entrance, and is demarcated with traffic cones during school hours. Curb extensions were recently installed to shorten the distance crossed by pedestrians. This marked crosswalk is monitored by a volunteer parent and students during peak hours. There is also a marked crosswalk at the Eldon Road and Bracknell Place intersection which is not monitored by crossing guards, but is also demarcated with cones and pylons to increase the awareness of drivers. Marked crosswalks are also provided across Capilano Road at both Eldon Road and Mount Crown Road.

Trails

As shown in **Figure 3.5**, there are a number of trails that provided access to Cleveland Elementary from a number of different directions. From the south of the school property, there are two main trails. The trail from Mount Crown Road, through the wooded area on the west of the gravel field, provides access to the back and west side of the school. A trail leading from Loraine Avenue around the eastern edge of the school property provides access to the back of the school. The Kendal Place cul-de-sac also connects to this east trail. Additional trails facilitate access to the school from adjacent neighbourhoods, such as those from Sunset Boulevard to Eldon Road, and from Hillcrest Avenue to Loraine Avenue.

Figure 3.5: Cleveland Elementary Existing Pedestrian Facilities



3.5.4 Bicycle Facilities

Bicycle Routes

There are no designated bicycle routes in the area around Cleveland Elementary, although the District's draft 2011 Bicycle Master Plan identifies a planned on-street bicycle route on Capilano Road in the future.

Trails

Most of the trails on the school grounds contain staircases and thus deter use by cyclists. To facilitate use of the trail on the western edge of the gravel field, the school has one bicycle rack placed at the foot of the staircase, which allows students to lock up their bicycles before ascending the trail.

Bicycle Parking

There are currently two bicycle racks on the school property – The first near the main entrance on Eldon Road, and the second located on the back gravel field. Both of the racks were observed to be moderately used on sunny days, with approximately 7 to 10 bicycles in each rack.

3.5.5 Transit Services and Facilities

Capilano Road is the nearest transit corridor, with several north-south bus routes, including:

- ***#236 Lonsdale Quay, Grouse Mountain*** – operates every 15 minutes;
- ***#246 Downtown, Lonsdale Quay, Highlands*** – operates every 15 minutes during peak hours, and every 30 minutes during off-peak hours;
- ***#247 Downtown, Upper Capilano, Grouse Mountain*** – operates every 30 minutes between 8:00am to 9:00 am and 4:00pm to 6:00pm;
- ***#232 Grouse Mountain, Phibbs Exchange*** – operates every 30 minutes.

The nearest bus stop to Cleveland Elementary is at the Eldon Road and Capilano Road intersection.

3.5.6 Parking

Off-Street Parking

Staff parking at Cleveland Elementary is divided into three parking lots, with a total of 32 parking stalls. The lots were observed to have a vacancy of approximately 1 to 3 spots per lot. The number of parking stalls is generally sufficient to accommodate staff demand, with less than 25 full-time equivalent (FTE) teachers and administrators on staff.

On-Street Parking

Parents are restricted from using the staff parking lot for drop-off and pick-up activity. As shown in **Figure 3.6**, there are several areas on Eldon Road where parking is restricted during school hours. As a result, the majority of parent parking occurs in the designated drop-off/pick-up zones on Eldon Road, and on Bracknell Crescent and Ruby Avenue where no parking restrictions apply. Peak hour parking was

observed to extend along Ruby Avenue as far as Hillcrest Avenue. Further, considerable congestion can occur at the intersections of Bracknell Place and Eldon Road, as many parents use this road to park, and then to turn around.

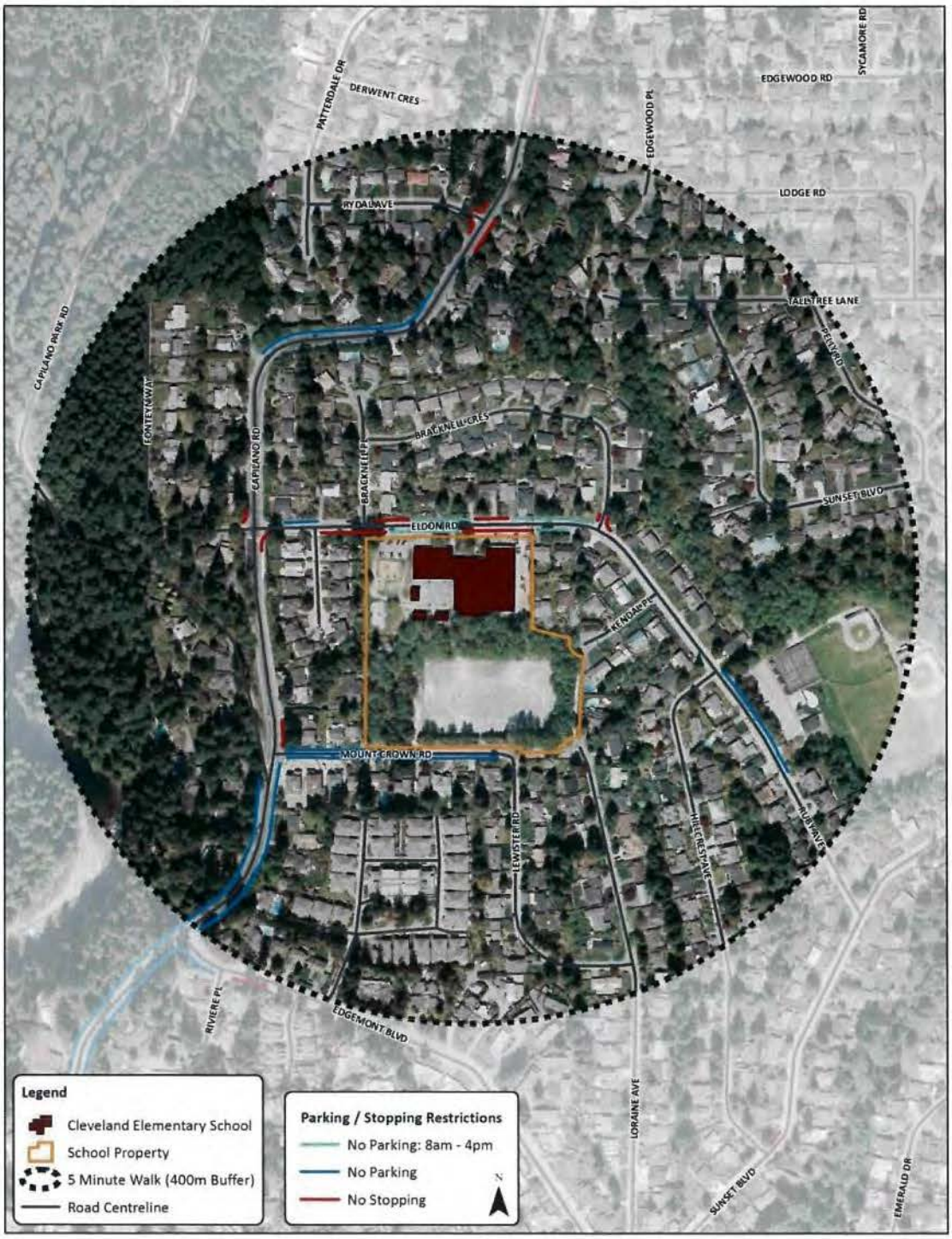
3.5.7 Drop-off Zones

Eldon Road has several designated drop-off/pick-up zones on both sides of the street. The zones are delineated by pylons during school hours, and are located intermittently between Bracknell Place and Bracknell Crescent. These drop-off zones prohibit parking during 8:00am to 4:00pm on school days, but parents were observed to use these zones to park and wait for their children at day's end.

3.5.8 Safety

ICBC collects and maintains statistics for all reported collisions in British Columbia. The collision data classifies reported collisions based on the type of reported collision as follows: fatality, injury, material damage (above $1,000), and material damage (under $1,000), and also includes reported collisions involving pedestrians or cyclists. ICBC collision data was reviewed for all roads within approximately 400 metres of Cleveland Elementary for the past five years (2006 to 2010) to identify overall collision frequencies around the school. Overall it was found that collisions around schools are not very common, and those that do occur are generally relatively minor and do not usually involve pedestrians or cyclists. The highest number of reported collisions was found along Capilano Road at the Eldon Road intersection, followed by Capilano Road at Mount Crown Road, Capilano Road north of Eldon Road, and Eldon Road adjacent to Cleveland Elementary between Bracknell Place and Bracknell Crescent. However, it should be noted that the majority of reported collisions around the school (84%) only involved material damage. 16% of reported collisions did result in an injury, all of which occurred along Capilano Road. No reported collisions were noted to have involved pedestrians, and one collision over this period along Capilano Road between Edgemont Boulevard and Mount Crown Road was noted to have involved a cyclist.

Figure 3.6: Cleveland Elementary Parking and Stopping Restrictions

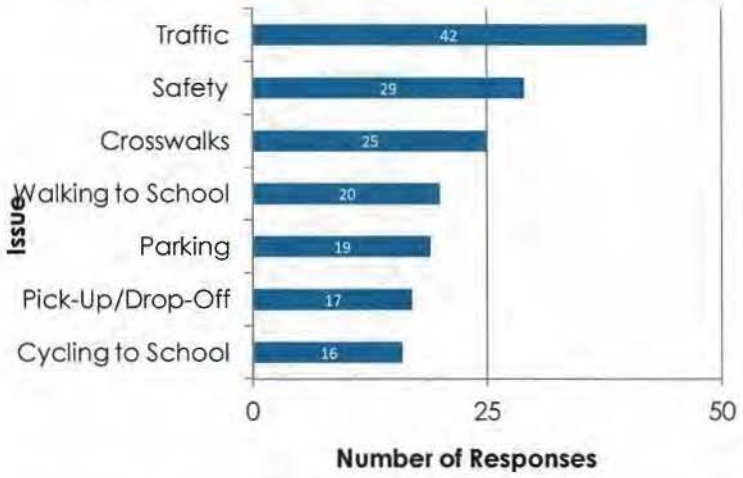


3.6 Issues

This section describes transportation and safety issues that have been identified to date based on the on-line survey responses, field visits, and existing conditions summary in the previous section.

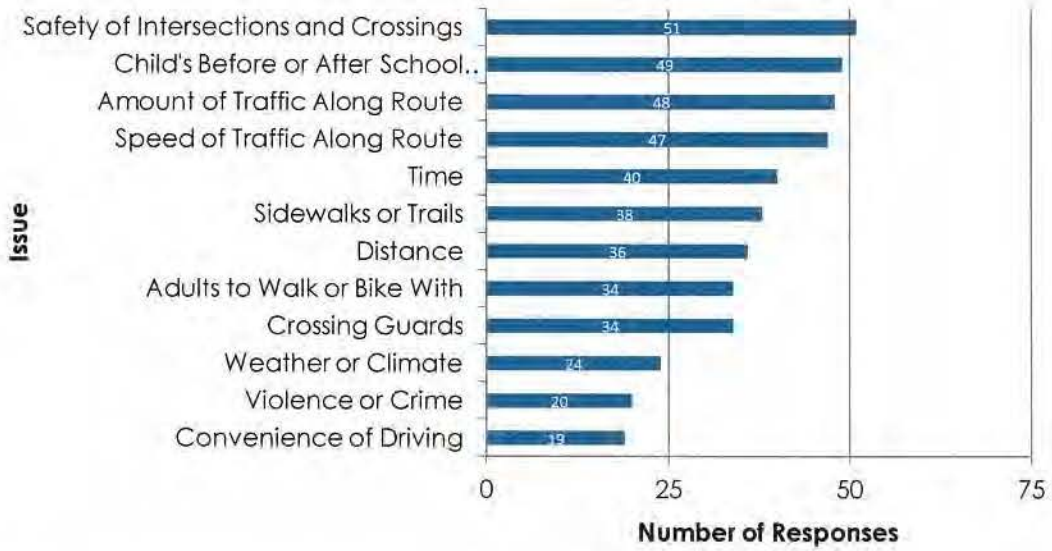
The on-line survey asked respondents to identify which issues present safety concerns getting their children to and from school. As shown in **Figure 3.7**, the primary safety concerns identified by survey respondents were related to traffic, safety, and crosswalks.

Figure 3.7: Cleveland Elementary Reported Safety Concerns



The on-line survey also asked respondents to identify the key transportation issues affecting the decision to allow their children to walk or bicycle to or from school. As noted in **Figure 3.8**, the most significant issue identified by survey respondents for Cleveland Elementary was the safety of intersections and crossings, followed by children's before or after school activities, traffic volumes, and traffic speeds. Other notable issues included affecting this decision included the time and distance to school and the presence of sidewalks of trails.

Figure 3.8: Cleveland Elementary Transportation Issues



Specific transportation and safety issues that have been identified to date around Cleveland Elementary include:

- ***Speeding*** is perceived as an issue on several roads near the school, including Capilano Road, Eldon Road, Ruby Avenue, Sunset Boulevard, and Ridgewood Drive;
- ***Missing sidewalks*** on several streets, including the west side of Capilano Road, east side of Ruby Road, the north side of Mount Crown Road, and on Loraine Avenue;
- ***Vegetation overgrowth*** on sidewalks including those along Eldon Road;
- ***Intersection safety*** is perceived to be an issue at several locations, including the Capilano Road intersections at Mount Crown Road and Eldon Road; Ridgewood Avenue at Paisley Road/Sunset Boulevard; Sunset Boulevard intersections at Edgemont Boulevard and Virginia Crescent, the Loraine Avenue and Lewister Road intersection which lacks both a stop sign and sidewalks; and the Eldon Road and Bracknell Road intersection which lacks a marked crosswalk.
- ***Lack of parking*** close to the school entrance;
- ***Traffic volumes*** during drop-off and pick-up periods, particularly along Eldon Road leads to difficulty crossing from stairs, as well as along Capilano Road;
- ***Intermittent speed restriction signage*** particularly along Ruby Avenue near Eldon Park, where the signage is neither prominent nor frequent;
- ***Traffic congestion*** at the Capilano Road and Eldon Road intersection with vehicles queuing both on Eldon Road westbound and Capilano Road southbound waiting to turn left; and

- ***Driver behavior***, including vehicles not following traffic regulations, such as parking in no-parking areas, not stopping for pedestrians in crosswalks, u-turns, blocking of and turning around in driveways, and stopping in the street.

3.7 Improvement Options

The existing conditions and issues at Cleveland Elementary School were assessed, and improvements were identified to enhance the safety of walking and cycle routes to the school grounds. **Table 3.3** below describes the recommended improvement options proposed to the Cleveland PAC, DNV, and NVSD for potential inclusion in the final school safety implementation strategy (discussed further in Section 5.0). Please note that recommendations are aligned with the 2007 Upper Capilano Road Crosswalk Location Priority and Safety Review study by ICBC. **Figure 3.9** shows the location of these improvement options.

Table 3.3: Improvement Options – Cleveland Elementary

Improvement Type		Location	Description
1. Curb extensions	1a	Eldon Road at Bracknell Place	Provide curb extensions on east side of intersection at existing marked crosswalk to reduce pedestrian crossing distance
	1b	Eldon Road at Capilano Rd.	Provide curb extensions on south side of intersection at existing marked crosswalk to reduce pedestrian crossing distance
2. Sidewalks	2a	Bracknell Place	Construct sidewalk on east side of Bracknell Place to improve pedestrian safety
	2b	Mount Crown Road	Extend existing sidewalk on south side of road to intersection with Lewister Rd. to improve pedestrian safety
3. Marked Crosswalks	3a	Eldon Road at Bracknell Place	Raise existing marked crosswalk to reduce traffic speeds and improve pedestrian safety
	3b	Eldon Road (in front of school entrance)	Raise existing marked crosswalk to reduce traffic speeds and improve pedestrian safety
	3c	Ruby Avenue at Hillcrest Avenue	Raise existing marked crosswalk to reduce traffic speeds and improve pedestrian safety
	3d	Mount Crown Road	Provide no-stopping zone at trail entrance to ensure visibility
4. Signs	4a	Mount Crown Road	Provide "No U-turn" signs to discourage u-turn movements
	4b	Mount Crown Road	Provide signs at trailhead to improve visibility and awareness of trail
	4c	Ruby Avenue, Eldon Road	Provide additional 30 km/hr signs to reduce vehicle speeds
5. Intersection Improvemens	5a	Eldon Road at Capilano Road	Consider intersection improvements as part of the Capilano Road Road Safety Plan
6. Outlying Intersections	6a	Sunset Blvd at Pelly Road/Virginia	Implement traffic calming treatments (i.e. curb extensions, traffic circle) to improve safety
	6b	Sunset Blvd at Edgemont Blvd	Conduct separate study on intersection safety/treatments
	6c	Loraine Avenue at Lewister Road	Install a stop sign to improve intersection safety
7. Bike racks	7a	School grounds	Provide more bicycle racks in the upper and lower grounds
8. Traffic restrictions	8a	Lorraine Avenue (cul-de-sac)	No stopping 8:30a to 9:30am and 2:30 to 3:30 to prevent pick-ups and drop-offs in the cul-de-sac
8. Program / In-class Initiatives	8a	- Participate in TransLink's TravelSmart program for elementary schools - Pursue rideshare initiatives/education through online carpooling networks (https://online.ride-share.com/en/my/) and information at www.travelsmart.ca - Issue announcements/reminders to parents on safety improvements and/or changes in traffic rules, as well as information on safe routes to school - Promote in-class education promoting walking, cycling and traffic safety including "walking field trips", in conjunction with the RCMP and ICBC - Include information on the school website on safe routes to school / active transportation - Consider promoting a 'Park and Walk' or Walking School Bus from Eldon Park parking Lot to the school entrance - Promote (or continue to promote) bike/walk to school events such as bike to school week, Winter Walk Day, IWalk with contests and prizes with related in-class activities - Consider a traffic safety patrol program, can acquire safety training from BCAA	

Figure 3.9: Improvement Options – Cleveland Elementary

4.0 ROSS ROAD ELEMENTARY

4.1 Context

Ross Road Elementary is located on Bushnell Place, south of Ross Road in Lynn Valley. The school provides instruction to over 500 students from Kindergarten through Grade 7. Ross Road is a dual-track school that offers an English Program and French Immersion Program from Kindergarten to Grade 7.

The surrounding neighbourhood is predominantly a low to medium-density residential neighbourhood, and enjoys a close proximity to the services and amenities of the Lynn Valley Town Centre. The school's catchment area for the English language program is bounded by Mountain Highway to the west, Lynn Creek to the east, East 27th Street and Hastings Creek to the south, and Ross Road and Westover Road to the north.

4.2 Demographics

Ross Road Elementary had a student enrollment in the 2010-2011 school year of 525 students. As shown in **Table 4.1**, the school has the highest proportion of students enrolled in French Immersion of the three schools in this study, with nearly two-thirds (64%) of the student population enrolled in the French Immersion program.

Table 4.1: Student Enrollment by Program

Program	Number of Students	Proportion of Students
English	188	36%
French Immersion	338	64%
Total	***526***	***100%***

Ross Road Elementary has a significant number of students who live beyond a reasonable walking distance to the school, as shown in **Figure 4.1**. However, the majority (52%) of Ross Road students actually live within 800 metres (approximately ten minute walking distance) from the school, as noted in **Table 4.2**. In contrast, less than half (48%) of students live further than a ten minute walking distance (800 metres), while only 18% of students live further than a twenty minute walking distance (1,600

metres). As will be discussed further below, the distances that students travel to school has significant implications for travel patterns to Ross Road Elementary.

Figure 4.1: Ross Road Elementary Student Location

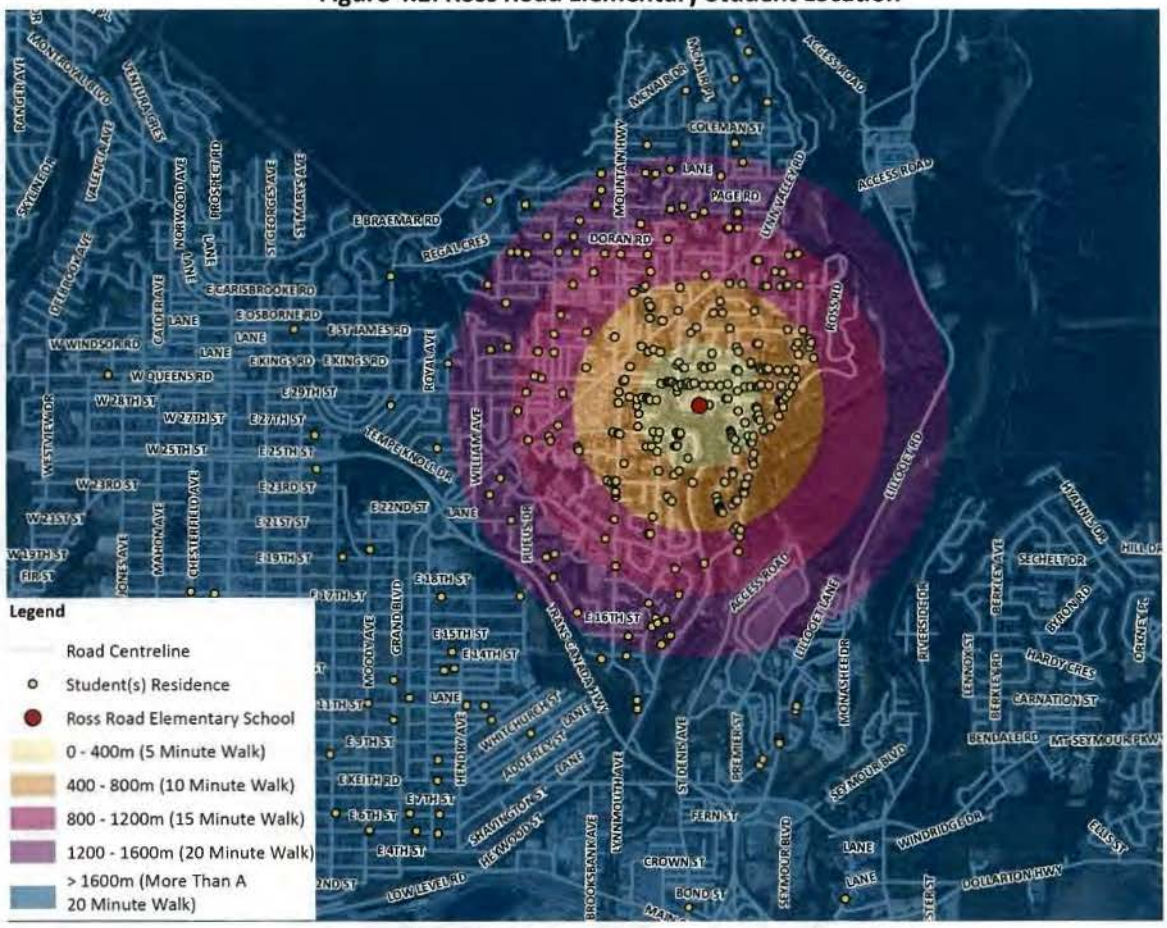


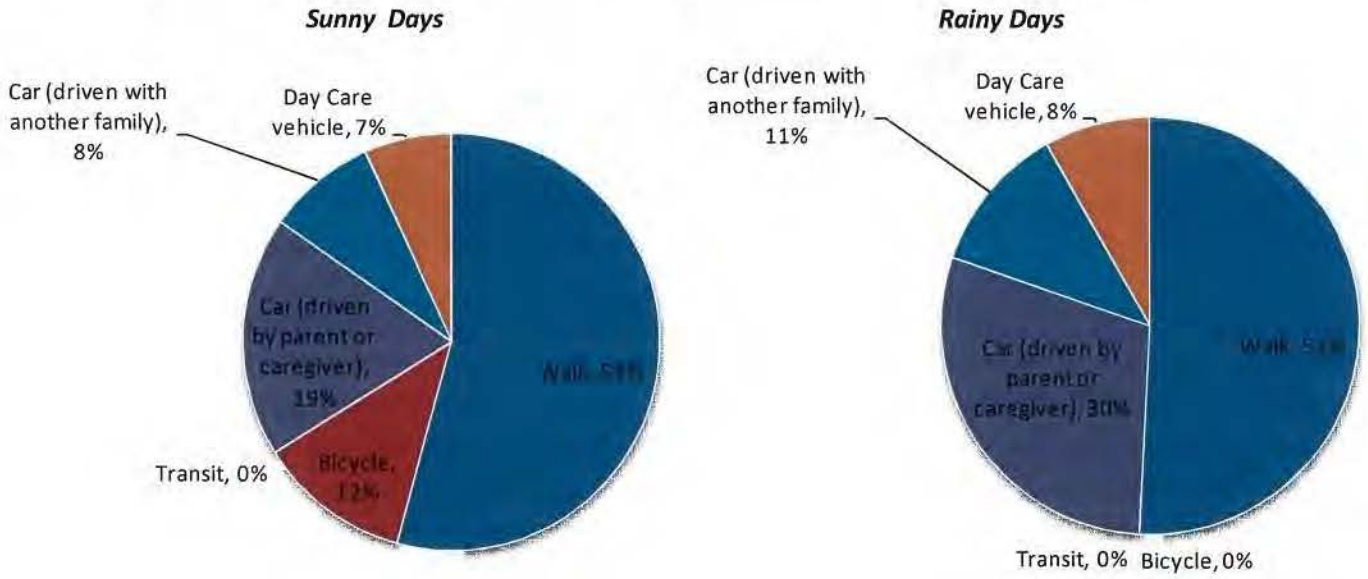
Table 4.2: Student Enrollment by Distance from School

Distance From School	Proportion of Students
< 400 metres	20%
400 – 800 metres	32%
800 – 1200 metres	17%
1200 – 1600 metres	13%
>1600 metres	18%
Total	*100%*

4.3 Travel Patterns

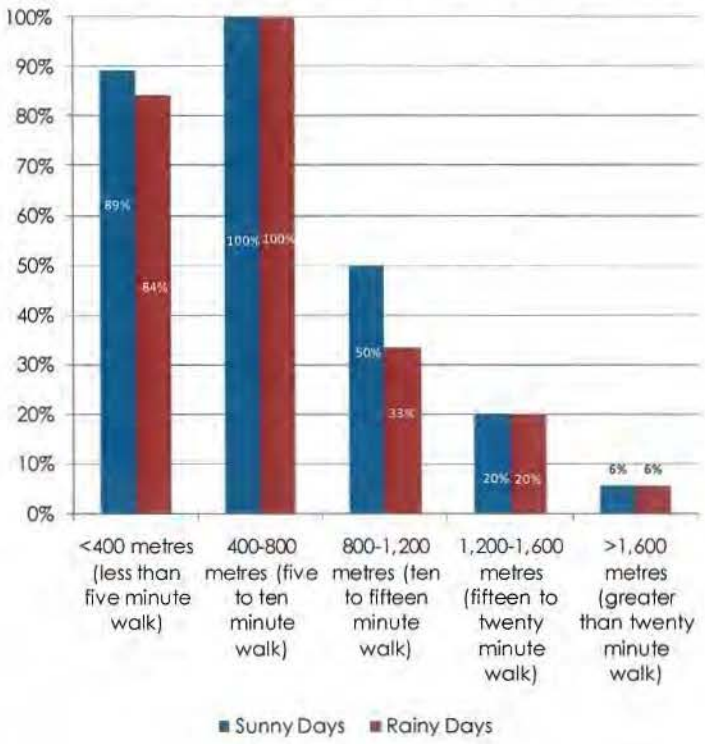
The results of the on-line survey indicated that the majority of students walk to school on both dry or sunny days (54%) and on rainy days (51%). In fact, as shown in **Figure 4.2**, the proportion of trips to school by walking is significant, even on rainy days. Ross Road Elementary also has a significant proportion of students (12%) who bicycle to school on sunny days. Of particular note is that there is a relatively low proportion of students who are driven to school by their parent or caregiver. In addition to a higher proportion of walking and cycling trips to Ross Road is partially accounted for by respondents indicating they use more varied transportation option, most notably vehicles driving with another family and day care vehicles.

Figure 4.2: Mode Share to Ross Road Elementary on Sunny and Rainy Days



As shown in **Figure 4.3**, the overwhelming majority of students who live within approximately 800 metres (roughly a ten minute walk) walk to school on both sunny and rainy days. This is particularly significant due to the fact that the majority of students live within 800 metres of the school. The percentage of students who walk to school decreases significantly beyond a ten minute walking distance, particularly on rainy days.

Figure 4.3: Walking Mode Share to School Based on Distance to School



4.4 Transportation Initiatives

Ross Road Elementary has already taken steps to promote active transportation and manage traffic movements and improve safety conditions at the school. The school promotes Bike to School week through providing incentives (i.e. class pizza rewards) and getting students to make awareness posters. The District implemented a one-way traffic loop that is in effect during peak hours in order to streamline traffic movements. Ross Road school newsletters often promote awareness about the one-way traffic loop, designated pick-up/drop-off locations, safety awareness, and reminders about no idling and blocking driveways. The school has a valet program to ensure smoother and safer traffic movements, where students are dropped off near the school entrance and then escorted into the school grounds by student volunteers. Parent volunteers also help to direct traffic and ensure safety and efficiency during the morning peak period.

4.5 Existing Conditions

This section describes existing transportation conditions in the area around Ross Road Elementary school. This includes a summary of existing access points, road network characteristics, pedestrian facilities, bicycle facilities, transit services and facilities, parking, drop-off and pick-up zones, and safety.

4.5.1 Access Points

The main entrance to Ross Road Elementary is located on Bushnell Place. Students can also access the school through the Allan Road cul-de-sac, which backs onto the school property, as well as through a trail that connects to East 27th Street to the south of the school.

4.5.2 Road Network

Road Classifications

As shown in **Figure 4.4**, there are a number of collector and arterial roads near Ross Road Elementary. Lynn Valley Road and Mountain Highway are classified as major arterial roads, with a primary function to support traffic movement of all types of vehicles. Ross Road is currently classified as a minor arterial road, which also has a primary function to support traffic movement on roads with 3,000 – 10,000 vehicles per day. However, as part of the District's Transportation Plan, Ross Road is being considered to be reclassified as a collector road to better reflect its existing traffic volumes of approximately 3,700 vehicles per day and because a previously planned extension of Ross Road is not longer being considered. Other roads currently classified as collector roads near the school include Bushnell Place, Hoskins Road, Allan Road north of Ross Road, East 27th Street west of Viewlynn Drive, and Viewlynn Drive. All remaining roads near the school are classified as local roads.

Intersections

Key intersections in close proximity to the school include Bushnell Place at Kilkenny Road, Bushnell Place at Ross Road, and Kilkenny Road at Hoskins Road.

4.5.3 Pedestrian Facilities

Sidewalks

The majority of the streets in the area around Ross Road Elementary have a sidewalk on at least one side of the street. This is largely a reflection of the number of collector and arterial roads in the area around the school. Hoskins Road south of Ross Road has sidewalks on both sides of the street. Ross Road, Bushnell Place, Kilkenny Road, Allan Road north of Ross Road, and Hoskins Road north of Ross Road all have sidewalks on one side of the street.

Trails

The forested area to the south of the school property contains a trail network that facilitates the movement of students from the southern neighbourhoods. There is a short trail connection from East 27th Street, and also a longer trail that runs along Hastings Creek, with connections to some of the adjacent residential areas. The trail has steep topography in areas, is well-maintained, and is unsigned at the trailheads. The trail from East 27th Street is well used by students and parents walking in and out with their children.

Figure 4.4: Ross Road Elementary Road Network Classification

Figure 4.5: Ross Road Elementary Existing Pedestrian Facilities

Crosswalks

Marked crosswalks are provided at several locations, including the south side of the Bushnell Place and Kilkenny Road intersection, west side of the Allan Road and Ross Road intersection, and the south side of the Kilkenny Road and Hoskins Road intersection.

4.5.4 Bicycle Facilities

Bicycle Routes

There District's 2011 draft Bicycle Master Plan identifies bicycle routes on East 27th Street, Viewlynn Drive, and Lynn Valley Road. Trails in Hastings Creek are not amenable to cyclists due to the steep topography and presence of stairs and steep embankments.

Bicycle Racks

There are four bicycle racks at Ross Road Elementary. One rack is located in the front of the building near the playground, which is used mainly by the students in the primary grades. This bicycle rack is considerably newer than the other racks, and as such is in very good condition. Field observations were made in early June during both the morning and afternoon peak period, and the front rack was observed to be in high use (over 15 bicycles per day) on sunny days, with bicycles also locked to a nearby tree because of lack of space. The other three bicycle racks are located in the rear of the building, and are primarily used by older students. These racks were also observed to be very well used, with approximately 20 to 30 bicycles per day. In addition to the formal bicycle parking, the chain 'fence' that separates the rear play area from the gravel field as an informal bicycle parking was also observed to be a popular parking spot for bicycles. In total, approximately 40 to 50 bicycles were observed to be parked on the school grounds during fair weather days in June. While this may have been due to sunny weather, it was also noted that the school had promoted Bike to School Week the previous week, with daily prizes for the class with the most participants. This may have effectively encouraged more students to use bicycles even after Bike to School week finished.

4.5.5 Transit Facilities

Ross Road and Hoskins Road are the nearest transit corridors to Ross Road Elementary, served by the 229 route. Descriptions of this route and other nearby transit routes are as follows:

- ***#229 West Lynn, Phibbs Exchange, Lonsdale Quay*** – This bus operates on Hoskins Road, with the closest bus stop at the intersection with Kilkenny Road. The frequency of Route #229 is every 30 minutes, except during the evening peak hour period when the bus operates every 15 minutes.

- ***#228 Lonsdale Quay*** – Operates every 15 to 30 minutes during peak hours, and every 30 minutes during non-peak hours. Provides service between Lonsdale Quay and Upper Lynn Valley, with service on Lynn Valley Road.
- ***#209/210 Vancouver*** – Offers peak hour service every 10 to 15 minutes, with non-peak hour service every 30 minutes. Provides service between Upper Lynn Valley and downtown Vancouver, with service on Mountain Highway.
- ***#255 Capilano University/Dundarave*** – Provides service via Mountain Highway, Lynn Valley Road and Marine Drive between Dundarave in West Vancouver and Capilano University in eastern North Vancouver. Morning peak hour service is provided every 30 minutes and evening peak hour service is every 15 minutes. Non-peak hour service is offered every 30 minutes.

4.5.6 Parking

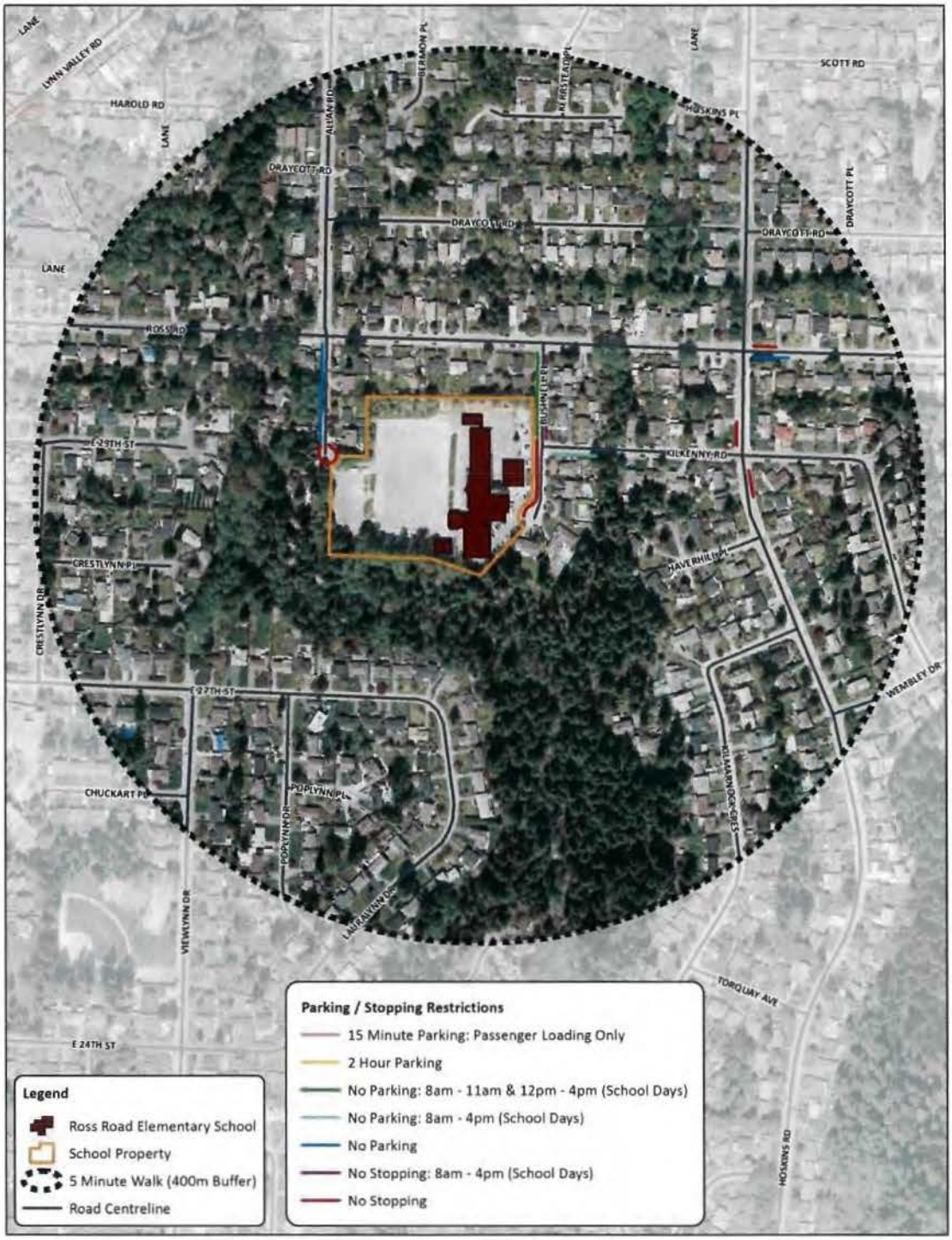
Off-Street Parking

Ross Road Elementary has two lots available for staff parking only with a total of 28 parking spaces. The primary lot, which has an entrance off of the Bushnell Place cul-de-sac, has 22 parking stalls, while the secondary lot has 6 stalls. There is no preferential parking, except one stall for disabled parking in the primary lot. The demand for the parking spaces is primarily from the school staff, of which Ross Road has approximately 26 full-time equivalent (FTE) teachers and administrators, approximately 12 office and support staff members, and additional student services members on staff. Both of the parking lots were observed to be at or near capacity on multiple occasions, suggesting the current parking lot supply may not sufficiently meet staff parking demands.

On-Street Parking

As shown in **Figure 4.6**, on-street parking is not permitted any time on the west side of Allan Road south of Ross Road. Parking is not permitted during school hours (8:00am to 4:00pm) on the south side of Kilkenny Road east of Bushnell Place, and on the west side of Bushnell Place north of Kilkenny Road. In addition, there is no stopping or parking permitted on the east side of Bushnell Place, in order to enforce the one-way traffic loop that is in place during peak hours. Parking is permitted on both sides of all other streets.

Figure 4.6: Ross Road Elementary Parking and Stopping Restrictions



4.5.7 Drop-off Zones

In the morning drop-off period, Ross Road Elementary has implemented a successful "valet" parking program on the west side of Bushnell Place, which allows parents to drive their children to the front of the school where a student volunteer will escort those students dropped off to the school entrance. This avoids parents having to park and walk in with their children, and allows for more efficient traffic movements on Bushnell Place and Kilkenny Road. In both the morning and afternoon, many parents use Kilkenny Road and Ross Road for drop-offs and pick-ups. In the afternoon, there is much more parking activity occurring on Kilkenny Road, with cars lining up on along almost the entire length of both sides of the road. As well, parents were observed to park on Allan Road, which causes considerable congestion in the narrow roadway.

4.5.8 Safety

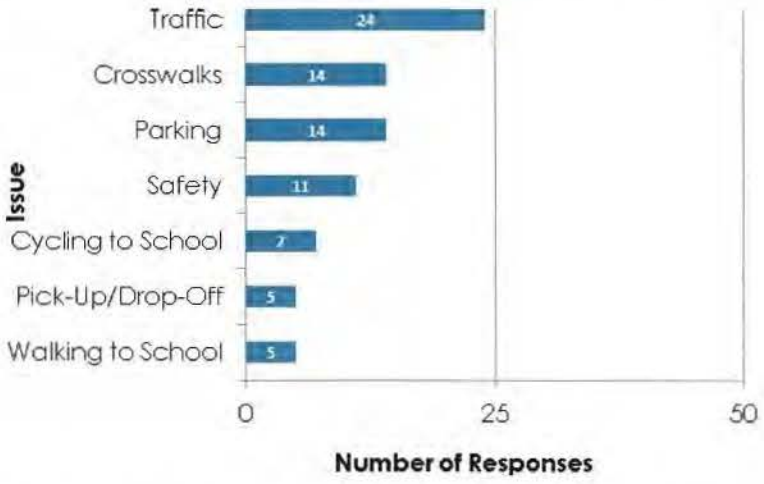
ICBC collects and maintains statistics for all reported collisions in British Columbia. The collision data classifies reported collisions based on the type of reported collision as follows: fatality, injury, material damage (above $1,000), and material damage (under $1,000), and also includes reported collisions involving pedestrians or cyclists. ICBC collision data was reviewed for all roads within approximately 400 metres of Ross Road Elementary for the past five years (2006 to 2010) to identify overall collision frequencies around the school. Overall it was found that collisions around schools are not very common, and those that do occur are generally relatively minor and do not usually involve pedestrians or cyclists. The highest number of reported collisions was found at the Ross Road and Hoskins Road intersection, followed by Ross Road between Allan Road and Bushnell Place, and Bushnell Place south of Kilkenny Road. It should be noted that the majority of reported collisions around the school (93%) only involved material damage. 7% of the reported collisions did result in an injury, most of which occurred along Ross Road and at the Ross Road and Hoskins Road intersection. No reported collisions were noted to have involved cyclists, and one collision over this period was noted to have involved a pedestrian along Ross Road.

4.6 Issues

This section describes transportation and safety issues that have been identified to date at Ross Road Elementary based on the on-line survey responses, field visits, and existing conditions summary in the previous section.

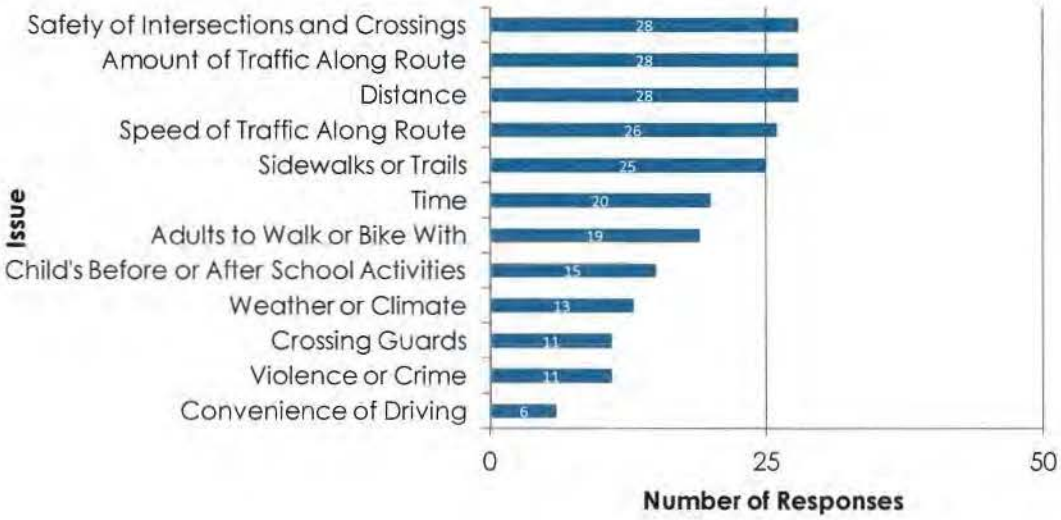
The on-line survey asked respondents to identify which issues present safety concerns getting their children to and from school. As shown in **Figure 4.7**, the primary safety concerns identified by survey respondents were related to traffic, crosswalks, and parking.

Figure 4.7: Ross Road Elementary Reported Safety Concerns



As noted in previous sections, the on-line survey also asked respondents to identify the key transportation issues affecting the decision to allow their children to walk or bicycle to or from school. As noted in **Figure 4.8**, the most significant issue identified by survey respondents for Ross Road Elementary was the safety of intersections and crossings, followed by traffic volumes, distance to school, and traffic speeds.

Figure 4.8: Ross Road Elementary Transportation Issues



Specific transportation and safety issues that have been identified to date around Ross Road Elementary include:

- ***Speeding*** is perceived as an issue on Ross Road , Lynn Valley Road, and Mountain Highway;
- ***Missing sidewalks*** on several streets, including the north side of Ross Road, north side of Kilkenny Road, east side of Bushnell Road, and both sides of East 27th Street;
- ***Intersection safety*** on Ross Road at Hoskins Road;
- ***Traffic volumes*** during drop-off and pick-up periods, particularly along Ross Road;
- ***Pick-up and drop-off in the Allan Road cul-de-sac*** presents issues regarding safety, congestion, and blocked driveways due to the narrow width of Allan Road
- ***Driver behavior***, including vehicles not following traffic regulations, such as parking in no-parking areas, double parking, and blocking of driveways.

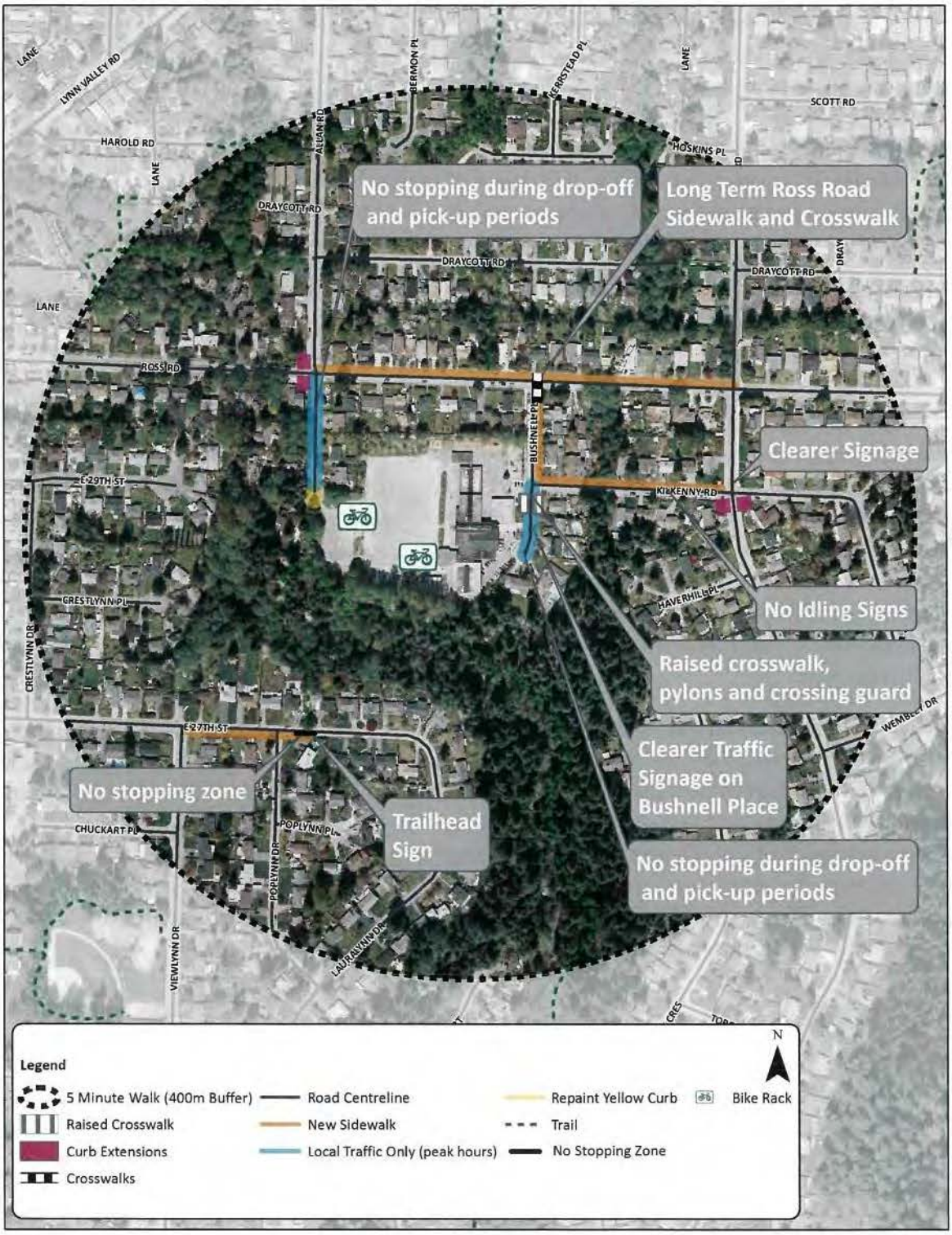
4.7 Improvement Options

The existing conditions and issues at Ross Road Elementary School were assessed, and opportunities were identified to introduce improvements to enhance safety of walking and cycle routes to the school grounds. **Table 4.3** below describes the recommended improvement options proposed to the Ross Road PAC, DNV, and NVSD for potential inclusion in the final school safety implementation strategy (discussed further in Section 5.0). **Figure 4.9** shows the location of these improvement options.

Table 4.3: Improvement Options – Ross Road Elementary

Improvement Type		Location	Description
1. Curb Extensions	1a	Ross Road at Allan Road	Upgrade temporary curb extension to permanent curb extension on northwest corner of intersection to reduce pedestrian crossing distance and improve pedestrian visibility
	1b	Kilkenny Road at Hoskins Rd.	Provide curb extensions on south side of intersection at marked crosswalk to reduce pedestrian crossing distance
2. Sidewalks	2a	Ross Road	Construct sidewalk on north side between Allan Road and Hoskins Road to improve pedestrian safety and accessibility
	2b	Bushnell Place	Construct sidewalk on east side to improve pedestrian safety and accessibility
	2c	Kilkenny Road	Construct sidewalk on north side to improve pedestrian safety and accessibility
	2d	East 27th Street	Extend existing sidewalk on south side of East 27th street to connect sidewalk to trail
3. Marked Crosswalks	3a	Ross Road at Bushnell Place	Provide new marked crosswalk, only in conjunction with sidewalk improvements on Bushnell Place/Ross Road (2a/2b)
	3b	Bushnell Place at Kilkenny Road	Upgrade existing marked crosswalk to raised crosswalk and/or introduce pylons at marked crosswalk to discourage vehicles from entering cul-de-sac and improve pedestrian safety
	3c	East 27th Street	Implelement no stopping zone to trail head to improve visibility
4. Signage	4a	Bushnell Place	Simplify amount of signs
	4b	Kilkenny Road at Hoskins Rd	Provide clearer signs (i.e. "no left-turn during peak hours")
	4c	Entrance to East 27th trail	Provide wayfinding signs at trailheads to improve visibility
	4d	Kilkenny Road	Provide "No idling" signs
5. Painted Curbs	5a	Allan Road cul-de-sac	Repaint yellow curb to make no-parking restrictions more visible
6. Traffic Restrictions	6a	Allan Road (cul-de-sac)	Local traffic only during peak hours to restrict vehicles in cul-de-sac and improve pedestrian safety
	6b	Bushnell Place (cul-de-sac, south of Kilkenny Road)	Local traffic only during peak hours to restrict vehicles in cul-de-sac and improve pedestrian safety
7. Crossing Guard	7a	Crosswalk at Bushnell Place/Kilkenny Road	Designated crossing guard to school entrance
8. Bicycle Infrastructure	8a	School grounds	Additional racks near Allan Road entrance, replace existing racks at rear of school (south grounds)
9. Programs/In-Class Initiatives	9a	- Participate in TransLink's TravelSmart program for elementary schools - Pursue rideshare initiatives/education through online carpooling networks (https://online.ride-share.com/en/my/) and information at www.travelsmart.ca - Issue announcements/reminders to parents on safety improvements and/or changes in traffic rules, as well as information on safe routes to school - Include information on the school website on safe routes to school / active transportation - Promote in-class education promoting walking, cycling and traffic safety including "walking field trips", in conjunction with the RCMP and ICBC - Consider promoting a Walking (or Cycling) School Bus Program - Promote (continue to promote) in bike/walk to school events such as bike to school week, Winter Walk Day, IWalk with contests and prizes with related in-class activities - Consider a traffic safety patrol program, potential for BCAA to support with safety training	

Figure 4.9: Improvement Options – Ross Road Elementary



5.0 IMPLEMENTATION

5.1 Priorities

The recommended implementation strategy for Braemar Elementary, Cleveland Elementary and Ross Road Elementary is organized into the time frame of short-term and medium-long term. Short-term implementation strategies for each school are described in **Tables 5.1, 5.3** and **5.5**, and medium-long term strategies are outlined in **Table 5.2**, **5.4** and **5.6**.

Priorities were identified by the DNV and School District staff in conjunction with PAC representatives at each school. Short-term priorities were identified as the most pressing and effective improvements that will significantly improve conditions and community livability in the near future. Short-term implementation of engineering infrastructure generally includes high priority sidewalk construction, installation of curb extensions, installation of bicycle racks, and/or the implementation of local traffic restrictions. Several programmatic initiatives are also included in the short-term strategies, such as a valet program, walking school bus or park and walk programs, and participation in TransLink's TravelSmart program – many of which can be undertaken by the school administration and/or School District. Further, short-term recommendations include incorporating in-class activities, such as active field trips or activities from Canadian safe routes to school organizations, in order to educate students on safety and active transportation. Enforcement, an activity often carried out by District bylaw officers, is also included in the short-term strategy, as it is necessary to ensure compliance to new parking and traffic restrictions.

Medium and long-term priorities are targeted more specifically on infrastructure improvements. These improvements are which are not perceived to be critical immediately, but would further enhance and improve the environment for walking and cycling of routes after short-term priorities are implemented. Programmatic recommendations, such as in-class education opportunities, promotion of bike/walk to school initiatives, and school announcements to parents on traffic rules and safe routes are intended to carry on from the short-term into the medium and long-term time frame in order to establish a continued focus on healthy and safe travel behaviors. Random enforcement by the District's bylaw officers is also recommended on an on-going basis into the medium and long-term.

Engineering Education Encouragement Enforcement Evaluation

Table 5.1: Short-Term Improvements – Braemar Elementary

Recommended Improvements	Responsibility			
	DNV	NVSD	School	Other
Evergreen Place, between Everglade Place and Mahon Avenue: Construct **sidewalk** on the north side (65m)	✓			
Engage in the **TravelSmart program** (TransLink) for elementary schools		✓	✓	✓
Pursue opportunities for in-class education such as active field trips, and Active and Safe Routes elementary classroom activities		✓	✓	
Issue **announcements/reminders** to parents on traffic rules and/or safety improvements			✓	
Evergreen Place: Potential **valet program**, with drop-offs occurring and student volunteers escorting dropped-off students to the school entrance			✓	
Promote a **Walking (or Cycling) School Bus program**		✓	✓	
Promote events (and/or continue to promote) such as bike/walk to school week, Winter Walk day, IWalk club, with contests and class prize incentives			✓	
Calder Place cul-de-sac: Implement **traffic restrictions** - "Local Traffic Only" 8:30am to 9:30 am and 2:30pm to 3:30pm (2 signs)	✓			
Consider a traffic safety patrol program			✓	
Bylaw officer enforcement upon changes to parking / traffic regulations	✓			
Evaluate if safety improvements are achieving goals and if adjustments are required	✓	✓	✓	

Table 5.2: Medium and Long-Term Improvements – Braemar Elementary

Recommended Improvements	Responsibility			
	DNV	NVSD	School	Other
Mahon Avenue at Evergreen Place:**Curb extensions** on northwest and southwest corner	✓			
Mahon Avenue at Evergreen Place: **Raise crosswalk** at existing crosswalk on north leg	✓			
Delbrook Avenue at Evergreen Place: **Curb extensions** at existing marked crosswalk	✓			
Continue in-class safe routes/active transportation learning activities		✓	✓	
Yearly promotion of walk/cycle to school events		✓	✓	
West Braemar Road/Calder Avenue trail: Complete paved **trail** and **trim vegetation**		✓	✓	
Crossing guard (in absence of valet program) and **pylons** during the school day			✓	
Evergreen Place: Install "No U-Turn" **signs** in conjunction with bylaw enforcement (2 signs)	✓			
Evergreen Place (south side): Implement **"No Parking"** restrictions 8:30am to 9:30 am, 2:30 pm to 3:30 pm (4 signs)	✓			
Everglade Place: Implement **traffic restrictions** "Local Traffic Only" 8:30 am to 9:30 am, 2:30 pm to 3:30 pm (2 signs)	✓			
Random **enforcement** checks on a on-going basis by bylaw offices	✓			
Evaluate if safety improvements are achieving goals and if adjustments are required	✓	✓	✓	

Engineering Education Encouragement Enforcement Evaluation

Table 5.3: Short-Term Improvements – Cleveland Elementary

Recommended Improvements	Primary Responsibility			
	DNV	NVSD	School	Other
Eldon Road at Bracknell Place: **Raise existing crosswalk**	✓			
Eldon Road (in front of school entrance): **Raise existing crosswalk**	✓			
Ruby Avenue at Hillcrest Avenue: **Raise existing crosswalk**	✓			
Install a **stop sign** at Loraine Avenue and Lewister Road (1 sign)	✓			
Engage in the **TravelSmart program** (TransLink) for elementary schools		✓	✓	✓
Pursue opportunities for in-class education such as active field trips, Active and Safe routes to school elementary classroom activities		✓	✓	
Issue **announcements/reminders** to parents on traffic rules and/or safety improvements			✓	
Promote (and/or continue to promote) events such as bike/walk to school week, Winter Walk day, IWalk club, with contests and class prize incentives		✓	✓	
Install more **bicycle racks** on the school grounds		✓	✓	
Consider a **park and walk** or **Walking School Bus** program from the Eldon Park parking lot to the entrance of Cleveland Elementary entrance		✓	✓	
More frequent/prominent 30 km/hr **signs** around Eldon Park (Ruby Ave)	✓			
Consider a traffic safety patrol program			✓	
Bylaw officer enforcement upon changes to parking / traffic regulations	✓			
Evaluate if safety improvements are achieving goals and if adjustments are required	✓	✓	✓	

Table 5.4: Medium and Long-Term Improvements – Cleveland Elementary

Recommended Improvements	Responsibility			
	DNV	NVSD	School	Other
Eldon Road at Capilano Road: **Curb extensions** on south side of intersection (existing marked crosswalk)	✓			
Eldon Road at Bracknell Place: **Curb extensions** on east side of intersection at existing marked crosswalk	✓			
Bracknell Place: Construct **sidewalk** on the east side (60m)	✓			
Mount Crown Road:Construct **sidewalk** on south side of road to Lewister Road (150m)	✓			
Mount Crown Road: Consider **no stopping zone** at trail entrance	✓			
At Pelly Road / Virginia: Implement traffic calming treatments	✓			
At Edgemont Boulevard: Conduct separate **study** on intersection safety/treatments	✓			
Continue in-class safe routes/active transportation learning activities		✓	✓	
Yearly promotion of walk/cycle to school events		✓	✓	
Mount Crown Road: Install "No U-Turn" **signs** at intersection with Lewister Road (2 signs)	✓			
Random **enforcement** checks on an ongoing basis for traffic/parking violations	✓			
Mount Crown Road: Install wayfinding **sign** at trailhead to school (1 sign)	✓			
Evaluate if safety improvements are achieving goals and if adjustments are required	✓	✓	✓	

Engineering Education Encouragement Enforcement Evaluation

Table 5.5: Short-Term Improvements – Ross Road Elementary

Recommended Improvements	Primary Responsibility			
	DNV	NVSD	School	Other
Ross Road at Allan Road: Upgrade temporary curb extension to permanent **curb extension** on the northwest corner of intersection; at the existing sidewalk	✓			
Engage in the **TravelSmart program** (TransLink) for elementary schools		✓	✓	✓
Pursue opportunities for in-class education such as active field trips, Active and Safe routes to school elementary classroom activities		✓	✓	
Issue **announcements/reminders** to parents on traffic rules and/or safety improvements			✓	
Promote (and/or continue to promote) events such as bike/walk to school week, Winter Walk day, IWalk club, with contests and class prize incentives		✓	✓	
School Grounds: Install additional bicycle racks near Allan Road entrance, and replace existing racks at the rear of school (south grounds)		✓	✓	
Promote a **Walking School Bus** program		✓	✓	
Allan Road (cul-de-sac): Implement **traffic restrictions** - "Local Traffic Only" during 8:30am to 9:30 am and 2:30pm to 3:30pm (2 signs)	✓			
Consider a traffic safety patrol program			✓	
Simplify **signs** in drop-off and pick-up area (8 signs)	✓			
Bylaw officer enforcement upon changes to parking / traffic regulations	✓			
Evaluate if safety improvements are achieving goals and if adjustments are required	✓	✓	✓	

Table 5.6: Medium and Long-Term Improvements – Ross Road Elementary

Recommended Improvements	Responsibility			
	DNV	NVSD	School	Other
Ross Road: Construct **sidewalk** between Allan Road and Hoskins Road (360m)	✓			
Ross Road at Bushnell Place: New marked **crosswalk** in conjunction with sidewalk improvement	✓			
Kilkenny Road at Hoskins Road: **Curb extensions** on south side of intersection, at existing marked crosswalk	✓			
Kilkenny Road: Construct **sidewalk** on north side (165m)	✓			
Bushnell Place: Construct **sidewalk** on east side (80m)	✓			
Bushnell Place at Kilkenny Road: Upgrade crosswalk to **raised crosswalk**	✓			
Continue in-class safe routes/active transportation learning activities			✓	
Yearly promotion of walk/cycle to school events		✓	✓	
East 27th Street: New **marked crosswalk** to trail head	✓			
East 27th: Extend existing **sidewalk** on south side of street to connect to trail	✓			
Continue in-class safe routes/active transportation learning activities		✓	✓	
Yearly promotion of walk/cycle to school events		✓	✓	
Wayfinding **signs** at the entrance of East 27th trail	✓			
Bushnell Place/Kilkenny Road: **Crossing guard** at crosswalk to school entrance			✓	
Bushnell Place cul-de-sac: "Local Traffic Only" **restrictions** 8:30am to 9:30 am, 2:30 pm to 3:30 pm	✓			
Allan Road cul-de-sac: **Repaint yellow curb**	✓			
Kilkenny Road at Hoskins Road: "No-left turn" **signs** during peak hours onto Kilkenny Road	✓			
Kilkenny Road: Install "No idling" **signs**	✓			
Random **enforcement** checks on an ongoing basis for traffic/parking violations	✓			
Evaluate if safety improvements are achieving goals and if adjustments are required	✓	✓	✓	

5.2 Cost Estimates

Cost estimates for short-term priorities are outlined in **Table 5.7**, and costs for medium and long-term priorities are outlined in **Table 5.8**. Cost estimates have been developed only for projects which are primarily the responsibility of the District of North Vancouver and which involve capital expenditures. Cost estimates are based on unit costs for each treatment and include a 20% contingency, but exclude HST. The approximate cost to implement the short-term priorities at each school is approximately $61,500, as summarized in **Table 5.7**. The approximately cost for medium- and long-term priorities at each school is approximately $350,000, as summarized in **Table 5.8**.

Table 5.7: Cost Estimates for Short-Term Priorities

Measure	Unit Cost	Braemar		Cleveland		Ross Road		Total	
		Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost
Sidewalks	$300/m	65m	$19,500					65m	$19,500
Raised crosswalks	$7,500			3	$22,500			3	$22,500
Curb extensions	$5,000					1	$5,000	1	$5,000
Signs	$250	2	$500	5	$1,250	10	$2,500	17	$4,250
Sub-Total			***$20,000***		***$23,750***		***$7,500***		***$51,250***
Contingency (20%)			*$4,000*		*$4,750*		*$1,500*		*$10,250*
Total (Including Contingency)			***$24,000***		***$28,500***		***$9,000***		***$61,500***

Table 5.8: Cost Estimates for Long-Term Priorities

Measure	Unit Cost	Braemar		Cleveland		Ross Road		Total	
		Quantity	Cost	Quantity	Cost	Quantity	Cost	Quantity	Cost
Sidewalks	$300/m			60m	$18,000	605m	$181,500	665	$199,500
Raised crosswalks	$7,500	1	$7,500			1	$7,500	2	$15,000
Painted crosswalks	$500			2	$1,000	2	$1,000	4	$2,000
Curb extensions	$5,000	6	$30,000	6	$30,000	2	$10,000	14	$70,000
Signs	$250	8	$2,000	3	$750	8	$2,000	19	$4,750
Sub-Total			***$39,500***		***$49,750***		***$202,000***		***$291,250***
Contingency (20%)			*$7,900*		*$9,950*		*$40,400*		*$58,250*
Total (Including Contingency)			***$47,400***		***$59,700***		***$242,400***		***$349,500***

Appendix A

Summary of Survey Results

2353 - 13353 Commerce Parkway, Richmond BC V6V 3A1
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URBANSYSTEMS.

MEMORANDUM

date:	July 12, 2011
to:	Tegan Smith, Jerry Guspie
cc:	Erica Geddes
from:	Brian Patterson
file:	1333.0017.01
subject:	**District of North Vancouver (DNV) / North Vancouver School District#44** **2011 School Safety Review** **Summary of On-Line Survey Results**

The District of North Vancouver (DNV) and the North Vancouver School District #44 (NVSD) are conducting a school safety review and developing a Safe Routes to School Plan for Cleveland, Braemar and Ross Road Elementary Schools. The purpose of this study is to identify current transportation issues and opportunities around each school; to develop recommendations to improve the safety and access to schools; and to promote healthy and active modes of transportation to school such as walking and cycling.

In order to understand current travel patterns and identify transportation issues and opportunities, the DNV and NVSD developed an on-line survey for parents to complete. The survey was posted on-line at www.surveymonkey.com/s/SchoolSafetyReview. An overview of the study and invitation to complete the survey was e-mailed by the Principal of each school to parents in early June, 2011. The survey was available on-line between June 10 and June 24, 2011. This memorandum summarizes the results of the on-line survey.

1.0 SURVEY RESPONSE SUMMARY

1.1 Response Rate

As shown in **Table 1**, 160 responses to the survey were received, including 61 responses from Braemar Elementary parents, 63 responses from Cleveland Elementary parents, and 36 surveys from Ross Road Elementary parents. The survey included a question asking respondents to indicate how many students attended the school. Taking the number of students per household into account, the surveys received represented over 250 students at the three schools, or approximately 17% of the student enrolment at the schools.

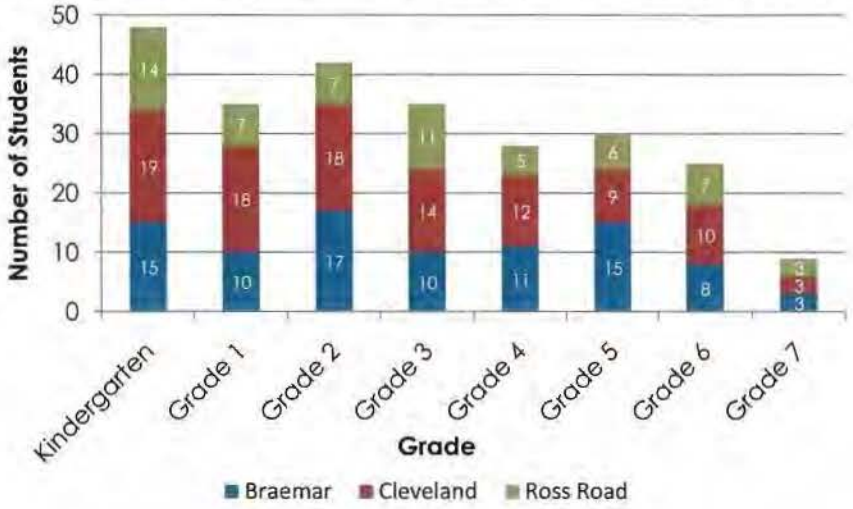
Table 1: Survey Response Summary

	Number of Surveys Received	Number of Students Represented	Number of Students Enrolled (2010/11)	Survey Participation Rate
Braemar Elementary	61	89	503	17.7%
Cleveland Elementary	63	103	486	21.2%
Ross Road Elementary	36	60	529	11.3%
Total	**160**	**252**	**1,518**	**16.6%**

1.2 Grade Level

As shown in **Figure 1,** the majority of the students represented in the survey were primary students, with nearly two thirds (64%) of responses representing students between Kindergarten and Grade 3. The lowest response was among students in Grade 7, which is not surprising given that those students will no longer attend their respective elementary school in the coming school year.

Figure 1: Grade Level of Students Represented in Survey, by School

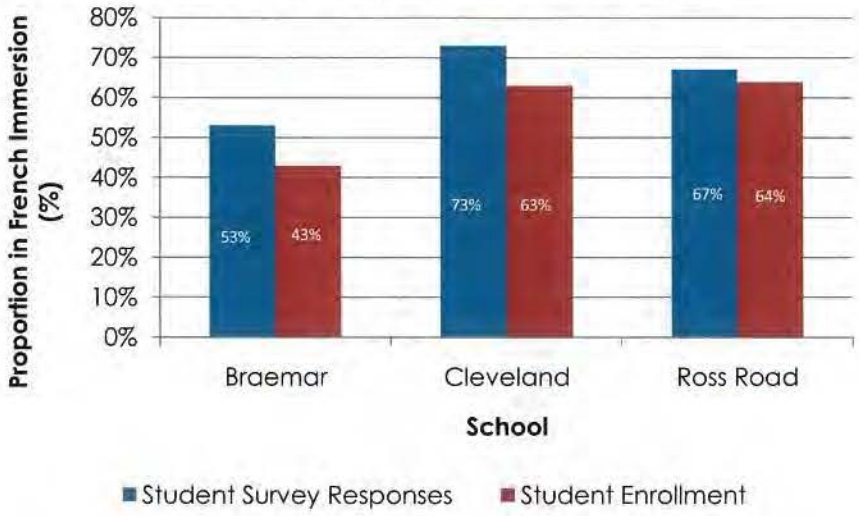


1.3 French Immersion

The NVSD has established catchment areas for all English schools in North Vancouver. However, Braemar, Cleveland and Ross Road Elementary schools also offer French Immersion programs, with a significant amount of the student population enrolled in those programs. As shown in **Figure 2**, 43% of Braemar Elementary students, 63% of Cleveland Elementary Students, and 64% of Ross Road Elementary students are enrolled in French Immersion programs, respectively. This has significant implications for travel patterns to and from these schools, as the NVSD does not have specific catchment areas for French Immersion, and students tend to travel further distances for French immersion and therefore are more likely to drive. As a result, the survey asked respondents to indicate whether students are enrolled in French Immersion, and the survey summary examines the differences in travel patterns between students enrolled in French Immersion and the English programs.

As shown in **Figure 2**, the survey responses reflected a high proportion of French immersion students, as approximately 65% of students represented in the survey are in French Immersion. It should be noted that French immersion students were slightly overrepresented in the survey results compared to the enrolment levels.

Figure 2: Proportion of French Immersion Students

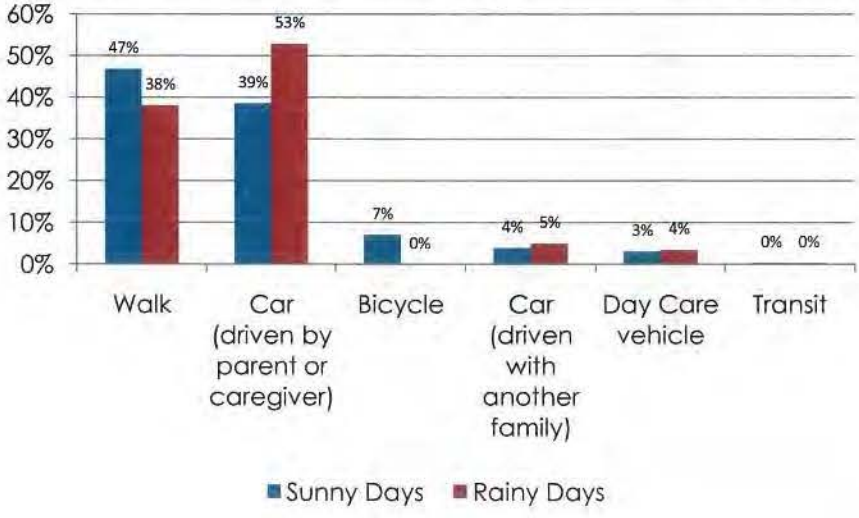


2.0 TRAVEL PATTERNS

2.1 Mode Share

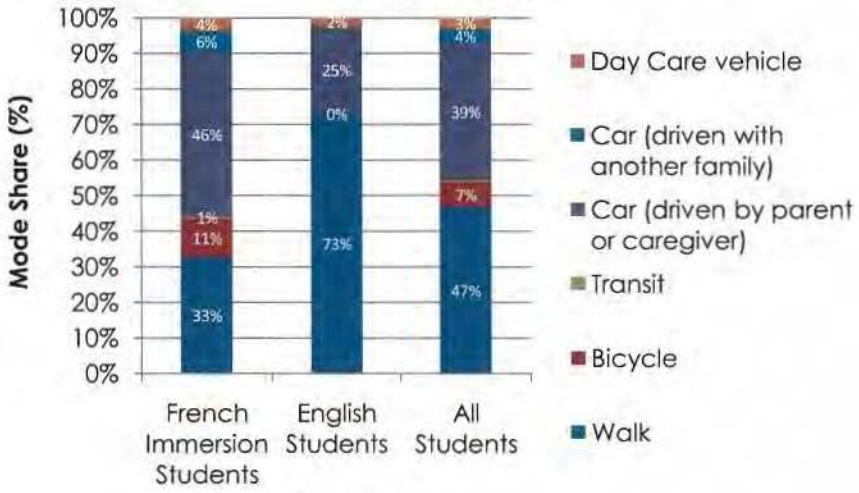
The survey asked respondents to indicate how their children typically travel to and from school. In recognition of the fact that travel patterns can vary considerably based on weather, the survey asked respondents to indicate their typical mode of transportation on both dry or sunny days, and on rainy days. As shown in **Figure 3**, on dry or sunny days walking is the primary form of transportation, accounting for 47% of all trips to school, followed by car travel with a parent or caregiver (39%). On rainy days, car travel with a parent or caregiver was the most common form of transportation (53%), although walking still accounts for 38% of all trips.

Figure 3: Mode Share To School on Sunny and Rainy Days (All Schools)



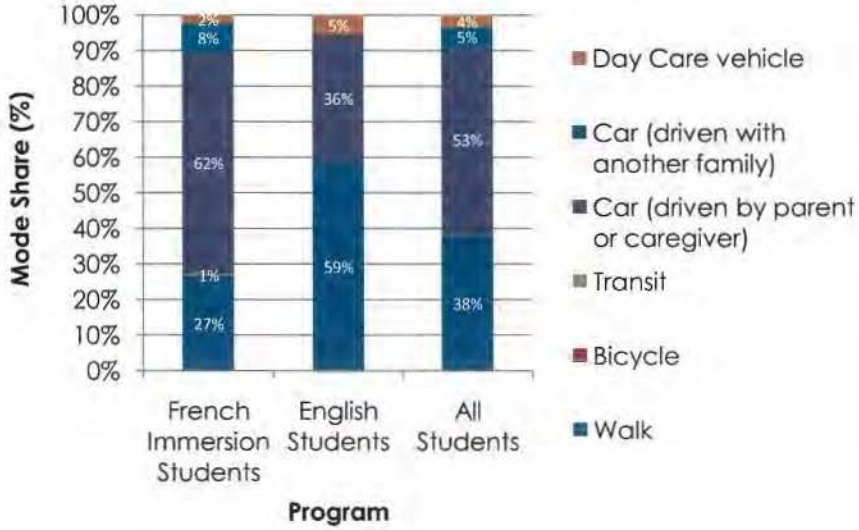
In recognition of the significant proportion of students enrolled in French Immersion, mode shares were also calculated for French Immersion students as compared to English students. As shown in **Figure 4**, on sunny days, although nearly half of all students (47%) walked to school, nearly three quarters (73%) of English program students walked to school, compared to one third (33%) of French Immersion students.

Figure 4: Mode Share to School for English and French Immersion Students on Dry or Sunny Days (All Schools)



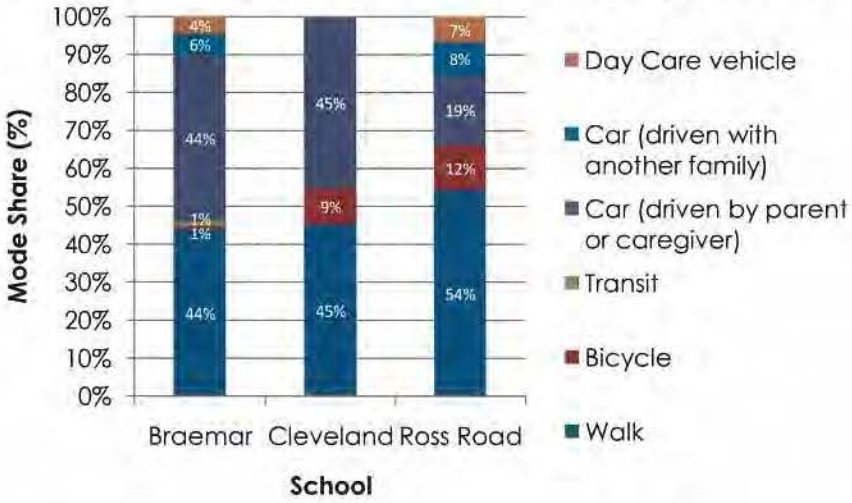
As shown in **Figure 5**, on rainy days, more than half of all English students (59%) walked to school, while over a quarter of all French Immersion students (27%) walked to school.

Figure 5: Mode Share to School for English and French Immersion Students on Rainy Days (All Schools)



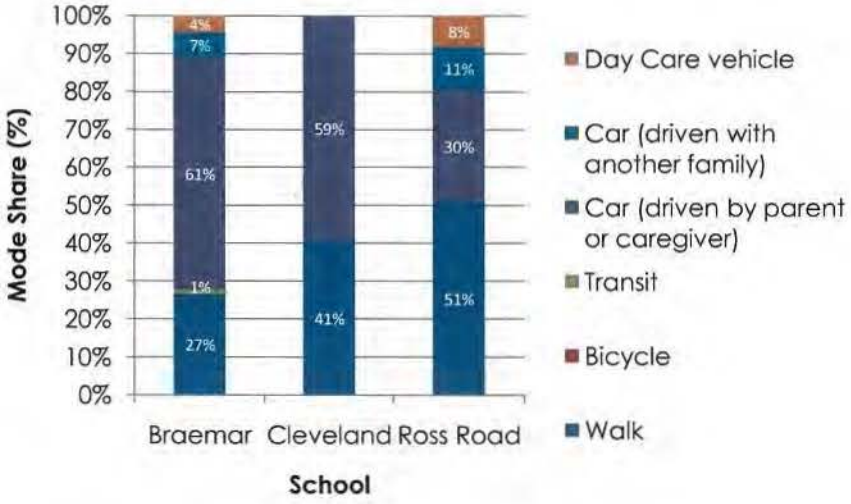
There are also significant variations in travel patterns among each of the three schools. As shown in **Figure 6**, on sunny days walking accounted for 44% and 45% of trips to school at Braemar and Cleveland Elementary schools, respectively; and accounted for 54% of trips to school at Ross Road Elementary. A significant number of students were also driven by parent or caregiver at Braemar (44%) and Cleveland (45%), but accounted for significantly less trips at Ross Road Elementary (19%). While bicycle trips only accounted for 1% of trips to Braemar Elementary, they accounted for 9% and 12% of trips to Cleveland and Ross Elementary schools, respectively.

Figure 6: Mode Share to School on Dry or Sunny Days, by School



On rainy days, the number of walking trips dropped most significantly at Braemar Elementary, from 44% of trips on sunny days to 27% of trips on rainy days. There was less change at Cleveland Elementary (45% of trips on sunny days compared to 41% of trips on rainy days) and Ross Road Elementary (54% of trips on sunny days compared to 51% of trips on rainy days). Car trips with a parent or caregiver were the most common form of transportation on rainy days at both Braemar and Cleveland, with 61% and 59% of trips respectively, but accounted for only 30% of trips at Ross Road Elementary. Bicycles were not used at all on rainy days.

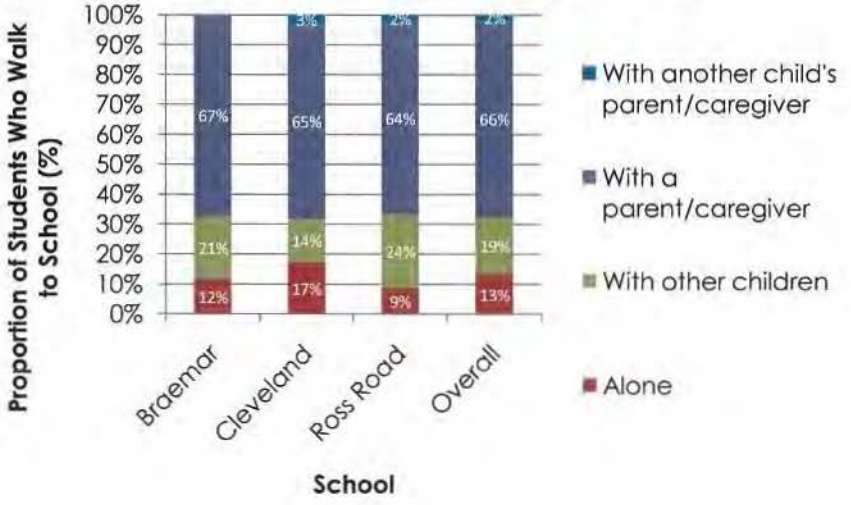
Figure 7: Mode Share to School on Rainy Days, by School



2.2 Walking Companions

Respondents were asked to indicate who their children walked to school with, if they typically walked to school. As shown in **Figure 8,** over two-thirds of students who walk to school do so with a parent or caregiver (68%), while 19% of students walk with other children, and only 13% walk alone.

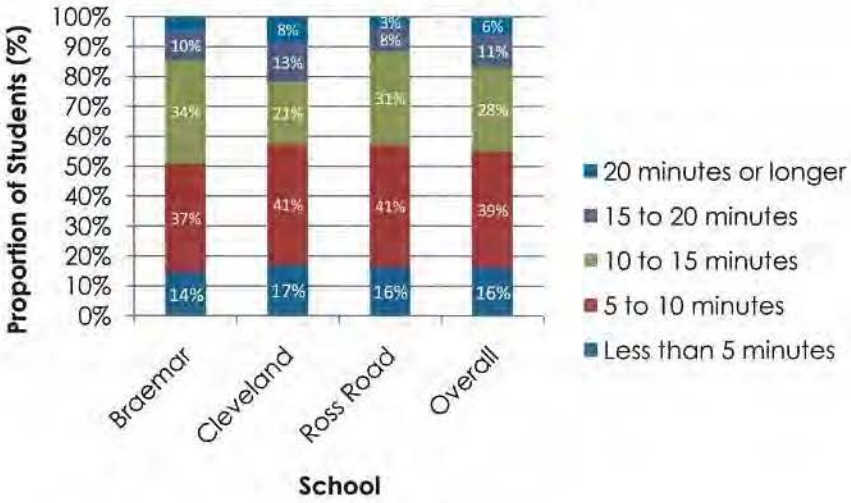
Figure 8: Who Students Walk to School With



2.3 Travel Time

Respondents were asked to indicate how long their trip to and from school typically takes. As shown in **Figure 9**, over half of all trips (55%) are less than 10 minutes long, with a further 28% between 10 and 15 minutes long. Only 17% of trips are 15 minutes or longer.

Figure 9: Travel Time to School



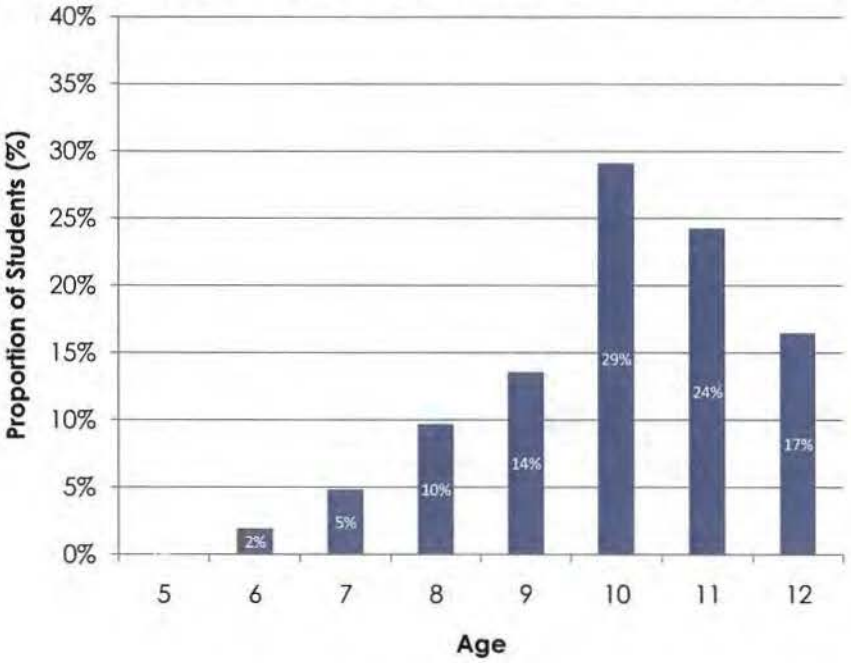
2.4 Permission to Walk or Bicycle to School

Overall, approximately 55% of students have asked their parents for permission to walk or bicycle to school in the past year. This ranged from 39% at Braemar Elementary to 63% at Cleveland Elementary and 69% at Ross Road Elementary.

2.5 Age to Walk Alone

Respondents were asked to indicate at what age they would allow their children to or from school walk alone. Over a third (35%) of respondents indicated that they didn't know. As shown in **Figure 10**, among those respondents who did provide a response, over two thirds (70%) said they would not allow their children to walk alone until they were at least 10 years old.

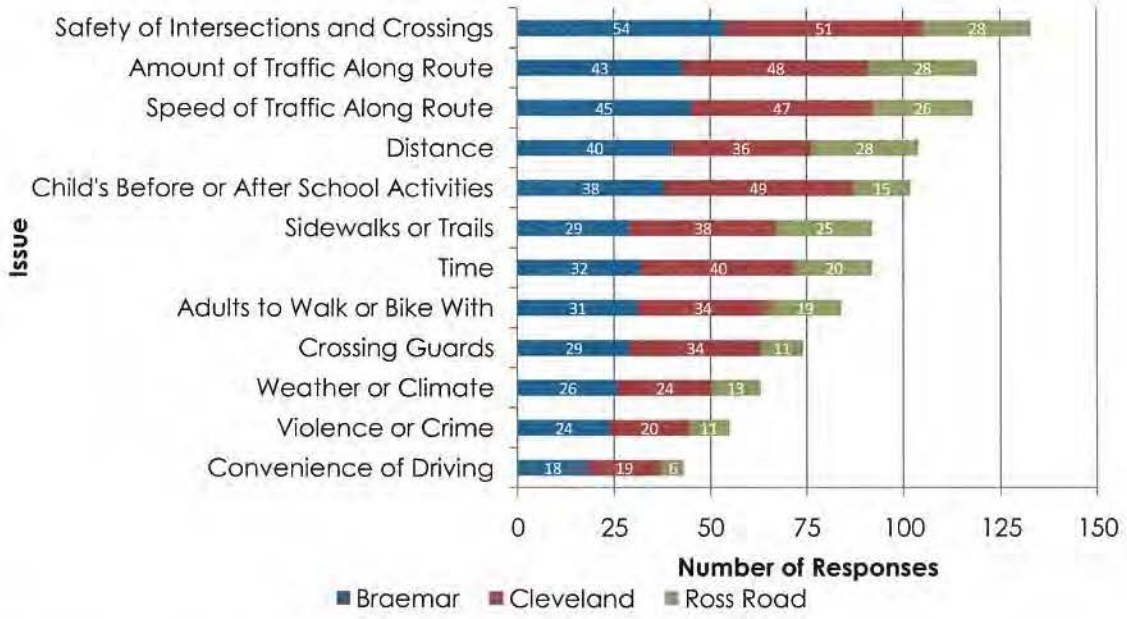
Figure 10: Age Parents Will Allow Children to Walk to School Alone



3.0 TRANSPORTATION ISSUES

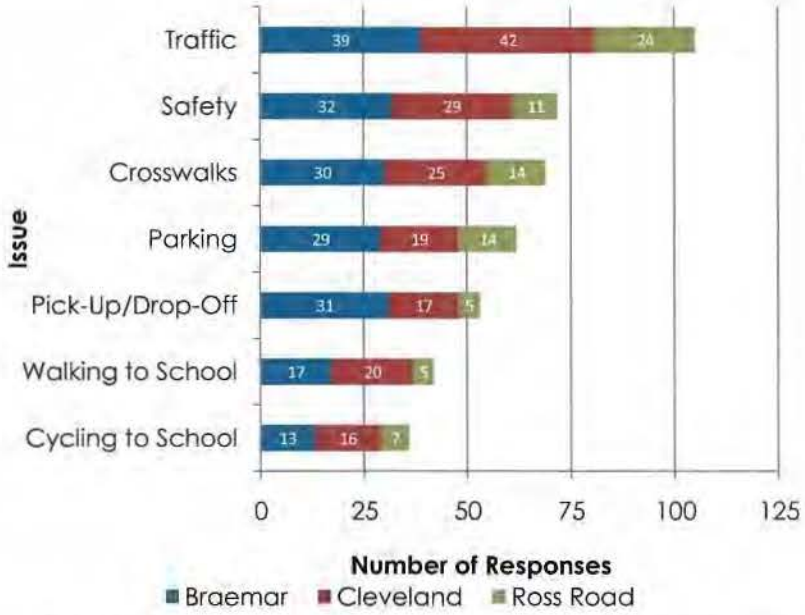
Respondents were asked to indicate which issues affect their decision to allow their children to walk or bicycle to school and to check all the issues that applied. As shown in **Figure 11,** the three top rated issues were factors that can be addressed through this study, including safety of intersections and crossings, traffic volumes and traffic speeds. The least reported issues were convenience of driving, violence or crime, and weather or climate.

Figure 11: Transportation Issues



Respondents were asked to identify which issues present safety concerns getting their children to and from school. As shown in **Figure 12**, traffic was overwhelmingly identified as the most significant safety concern, followed by safety and crosswalks.

Figure 12: Safety Concerns



Respondents were also asked to describe their safety concerns. The following sections summarize the comments received from parents at each school and, for the most part, are shown verbatim.

3.1 Braemar Elementary

a. Speeding

- People driving way too fast on Mahon Avenue.
- Parents aren't paying attention, they speed, they drop their kids in the middle of the road so that dashing kids into and out of roads is a constant hazard.
- Parents race up St. James Road to drop off kids.
- Cars have trouble stopping.
- Many people speed on Evergreen Place, but primarily the morning drop-off is coordinated with my departure for work.
- Cars driving at excessive speed on Delbrook Avenue at Saville Crescent.
- People still drive too fast near the school.

b. Sidewalks / Crosswalks

- No sidewalks.
- St. James Road does not have sidewalks.
- There is no sidewalk on east side of school.
- Crosswalk or 4 way stop needed at Osborne Road and Calder Avenue, and Evergreen Place and Calder Avenue.
- Delbrook Avenue crosswalk is very dangerous.
- Crossing at Saville Crescent and Delbrook Avenue. Corner is blind and traffic goes quickly. A light would help, with warning flashers before the corner.
- Delbrook Avenue at Saville Crescent: a pedestrian controlled intersection is needed there; the cars do not see/pay attention to the crosswalk.

- Delbrook Avenue and Saville Crescent crosswalk is not visible to traffic coming down Delbrook Avenue until the last second.
- I am concerned about the speed & volume of traffic on Delbrook Avenue. I feel there should be a crosswalk with a stop light, or flashing light at Delbrook Avenue and Saville Crescent / Silverdale Place.
- Would like to see crossing guard at Queens Road and Mahon Avenue. If they had this they almost always would walk to school. Sadly they don't and I have seen too many close calls.
- There are no sidewalks on Calder Avenue cul-de-sac, or on Evergreen Place where we are now parking.
- No sidewalk or crosswalk.
- Calder Avenue has no sidewalks and is extremely busy with cars.
- Queens Road crosswalk is very dangerous, as are drop off/pick up areas.
- The overwhelming issue is the safety of crossing Lonsdale Avenue without a crosswalk. We have written to the District many times to install a crosswalk, but they will not.

c. General Safety

- Traffic & safety.
- Streets are narrow, parents ignore traffic rules.
- Safety is the primary concern.
- Looking for a safe environment.
- Traffic speed endangers pedestrians.

d. Cul-de-sacs

- Calder Avenue cul-de-sac traffic.
- Block off all of Calder Avenue from Evergreen Place to the stairs.
- Parents continue to drive in the cul-de-sac(s) where children are walking to get to school.
- No parking permit on west side of school on cul-de-sac.
- Recently Mahon Avenue and Everglade Place Cul-de-sac were closed off and it made traffic worse than before.
- The traffic is terrible at the Calder Avenue cul-de-sac now.
- People often do not obey stop signs. The same parents use the cul-de-sac, even with new regulations. The new trick is to park in residents' driveways to wait for children.

e. Bus

- Bus service takes too long.

f. Parking

- Not enough parking spots.
- No area near a school entrance to drop off when large projects are being transported to school, for child's school project.
- Not enough parking so I can drop off/pick up my children as we live too far away to walk/bike to school - 5K.
- Parking can be difficult.
- The biggest problem is people parking their cars where they shouldn't and blocking traffic at drop-off and/or pick-up time.

g. Traffic

- Busy area where we drop off and pick up.
- It's crazy near Balmoral School, cars pulling out without signaling and parking/stopping right near the intersection.

- Traffic and older children from surrounding schools.
- Too many cars try to get too close to the school for drop off.

h. Other

- Crossing Lonsdale Avenue is a nightmare, crossing Windsor Road at Andre Piolat School can be very tricky too.
- Cars stopping in the middle of street / more bike safety training would be good).

3.2 Cleveland Elementary

a. Sidewalks/Crosswalks

- Very dangerous crosswalk at Mount Crown Road and Capilano Road.
- Crosswalk on Capilano Road and Eldon Road – needs sensor so that light will change when cars are trying to turn left onto Capilano Road.
- I just worry about my 9 year old walking in the middle of the street.
- Crosswalks: Montroyal Boulevard/Handsworth Road/Edgemont Boulevard -kids must wait or walk behind. Capilano Road bike lane! may also slow cars, buffer walkers above Eldon Road.
- Crossing Capilano Road is dangerous.
- At least 3 incidents of cars running red lights/year. Cars drive into the cross walk Capilano Road and Eldon Road while the kids are crossing which is intimidating for young kids.
- My son must cross two busy intersections: Ridgewood Avenue at Paisley Road/Sunset Boulevard and Sunset Boulevard at Edgemont Boulevard. Both intersections are marked with crosswalks, but cars regularly drive through when we are waiting, especially at Ridgewood Avenue and Paisley Road. The speed of traffic on Ridgewood Avenue is also a concern.
- There are not always sidewalks on every street; we are concerned with their safety with strangers when walking/cycling without an adult.
- Crosswalks between Sunset Boulevard and Edgemont Boulevard is very dangerous.
- Heavy traffic on Eldon Road for when crossing from the stairs to the school side of the street.

b. Parking

- Hard to find parking, lots of traffic getting onto both Capilano Road and onto Sunset Boulevard, often very few pick up and drop off slots and parents get out of cars at these stops.
- If we allow cars to park on Eldon Road, we should only allow them in the school side of the road, this way children will not run out behind parked cars across the road.
- Parking near school is an issue.

c. Traffic/Safety

- Not comfortable with kids crossing street (Virginia Crescent and Sunset Boulevard) on their own yet, Handsworth Avenue traffic is pretty busy.
- Busy streets.
- Traffic and lack of a proper light at our intersection is a constant worry for us.
- I believe I have clarified that the Montroyal and Capilano Road area requires better traffic safety.
- Congestion in front and at nearby intersections.
- Too many cars backing up in driveways and turning around on the road.
- Traffic on Eldon Road presents a safety hazard for other children arriving at the school on that route.
- Major roads/intersections and traffic.

d. Speed

- The condition of Capilano Road where we walk the kids to school is extremely hazardous, particularly the section north of Eldon Road on the West side. There is no sidewalk, cars regularly speed and accelerate to pass left turning traffic at the Eldon Road intersection, and cars regularly crash into concrete barriers placed along this section of road because of excessive speed.
- Many cars still speed along Ruby Avenue and Eldon Road and many parked cars are not in proper spots and block sight lines for corner street crossings.
- Drivers going too fast once they are not directly in front of the school.
- Speed: Capilano Road/Montroyal Boulevard, above Eldon Road (cut corner, bad if kids trip/fall).
- People focusing on trying to get good parking forget to slow down and watch for kids.
- Vehicle traffic travels TOO FAST along Capilano Road and cars frequently do not stop at crosswalks for pedestrians. It is appalling.
- People drive way to fast on Sunset Boulevard and we have to cross it to get on to Ruby Avenue.

e. Driving Behaviours

- Too many parents irresponsible/inconsiderate especially for drop off.
- Parents are in a HURRY near the school, can't find parking, and do drastic things to get a spot (e.g. U-turns, 3 point turns into driveways/parking lots, park in teacher's lot, etc.).
- I would not let my kids walk alone because I don't trust the drivers who are late, inconsiderate or not paying attention.
- Parents who drive rushing in their vehicles to drop their own kids off when they are late. They are not taking into consideration that lots of kids are walking/cycling on the same streets.
- Few Parents do not obey traffic signs and often park where they are prohibited to park.
- Too many parents in cars rushing in late and too fast to drop their own children.
- Drivers in a hurry, not paying adequate attention.
- Parents ignore crosswalks, speed, park illegally, unload kids in the middle of the road, make U turns, pull into private driveways and block the sidewalks, run over traffic safety cones, etc.

f. Other

- The school should set up a drive thru/drop off mechanism (no parking).
- I'm not quite comfortable with them walking so far by themselves. Maybe next year.
- Due to 20 minutes walk to school the safety is the most important part.
- I have a 2nd child entering into Kindergarten and is too young to do "drop off" so we have no options but to walk.
- One parent always accompanies primary schoolers to class. Driving is our only option given distance.
- Cycling is a non-starter given lack of bike lanes.
- The sharp corner on Capilano Road above Eldon Road has no barricade between the road and the sidewalk, and cars drive very close to the sidewalk on that corner. There should be a barricade there.
- People don't respect the drive thru / drop of zones.

3.3 Ross Road Elementary

a. Sidewalks/Crosswalks

- Need painted crosswalks on all collector streets within 1 km of school.
- Very congested and busy/crossing Ross Road is hazardous and could use a crosswalk or stop sign.

- A crossing guard at Hoskins Road and Kilkenny Road would help younger students cross the road by themselves.
- We have no sidewalk.
- Not all the roads have sidewalks.
- Crossing guard at Ross Road and Bushnell Place would be great.

b. Trails

- Walking through the trail (creek).
- Distance and shortcuts through trails present a concern.
- The ravine can be a bit worrisome for the kids to get through.

c. Parking

- People parking where it is not legal and that prevents other drivers from seeing people in a crosswalk.
- Parked cars in a drop off zone (before it was monitored), double parked cars are an accident waiting to happen.
- Parked cars pulling out.
- When people are so focused on parking and squeezing through traffic.

d. Speed

- No 30 km/h speed limit posted on Ross Road (school zone), so people drive 50 km/h or more during school hours.
- Traffic at 50km/h and higher is too fast.
- Rushed parent drivers dropping their children off are very dangerous, even though you'd think this group would drive safely.
- Mostly concerned with Lynn Valley Road and Ross Road intersections and speed of vehicles.
- Cars drive very fast along Ross Road and many don't stop at the crosswalk.
- Cars travelling too fast and not stopping at crosswalks, drivers talking on cell phones.

e. Distance/Topography

- Distance from school.
- Unfortunately, I live at the bottom of a sign. hill in which my 6 year old son is not willing to walk.
- Distance is too great, just over 4 km for their age.

f. Traffic

- Too much traffic for them to ride along Kilkenny Road, I'd rather they walk.
- Extra traffic from parents parking on Allen to drop off even though it is not allowed.
- Huge amount of traffic on Ross Road.

g. Other

- I don't like to drive because there are too many children on the road. It is better if everyone walks or rides.

4.0 ADDITIONAL COMMENTS

Respondents were invited to provide any additional comments. Additional comments are shown below and, for the most part, are shown verbatim. However, the comments have been grouped by theme.

4.1 Braemar Elementary

a. Bus

- Bus service please.
- I have attempted to get a group interested in having a yellow bus service instituted to bring down the amount of traffic but the cost is too prohibitive.
- For students out of catchment and attending for French Immersion we need to have affordable options for a bus service.

b. Sidewalk / Crosswalks

- There needs to be a sidewalk along Calder Avenue. Traffic calmed along Norwood Avenue and St. James Road.
- Should put in a light at intersection Delbrook Avenue and Saville Crescent with flashers around corner to warn motorists as they come around the bend.
- We need to add a crossing guard at Delbrook Avenue and Silverdale Place.

c. Cul-de-sacs

- All cul-de-sacs should be closed to cars at drop off and pick up times.
- The whole part of Calder Avenue that leads to the turning circle at Braemar Elementary should be a no stopping zone. Parents are doing 3 point turns in the tiny turning circle and kids are having to skip out of the way of reversing cars.
- Not sure how effective the closing of the circle is. The congestion is just now on Evergreen Place where cars drive faster and there are too many people who seem to not be sure where to turn around, etc.
- The recent no parking signs in the Calder Avenue cul-de-sac seem to have made it more safe, but there are still concerns with no sidewalks.
- People now drop kids off at end of Calder Avenue and are backing up which endangers children more. Calder Avenue to Evergreen Place should be resident parking only.
- Even though new rules have been applied, people still drive in to the cul-de-sac. It's quite frustrating to see this.

d. Traffic

- There is already so much traffic, I worry what will happen when Balmoral School closes. To make that the location of the Community Learning Program would be a huge mistake!!!
- Increased vehicle traffic/decreased safety is partly due to District decisions (school closures, French Immersion).
- Yes, Traffic bylaw enforcement must be present.

e. Other

- We prefer walking to school, although sometimes drive due to work or other commitments.
- I am sure selling the Braemar Elementary lands and more residents will affect the traffic with more concern for children's safety.
- Make some short stay/ drop off areas available.
- Quit trying to solve a problem by pretending that people will magically decide to walk or bike to school.
- Way too difficult to access school. Especially as stairs make stroller use very difficult!
- We would LOVE to have alternative to driving our kids to school!
- The kids at Balmoral School are inconsiderate when we walk home - we have to walk off the sidewalk and onto the road to get past them.

4.2 Cleveland Elementary

a. Sidewalks/Crosswalks

- There are ten children under the age of 12 that live in houses along the West side of Capilano Road north of Eldon Road, a section that is without a sidewalk and is extremely hazardous. I believe it is inevitable that there will be a serious accident to a child if the safety of Capilano Road and the intersection at Eldon Road is not adequately addressed.
- Each of the sidewalks that cross Eldon Road in front of Cleveland Elementary should be raised up so as to form a large speed bump - this is effectively used in Whistler Village to calm traffic.
- Safety attendant at crosswalk would be big improvement.
- A crossing guard at Capilano Road and Eldon Road would be a fantastic addition to the community.
- I think that the crossing guards in front of the school do a great job.

b. Valet

- Many families come from out of catchment to our school and have to drive as a result. I think our school has done a good job of setting up and enforcing drop-off areas in the morning. This helps keep traffic moving and avoid congestion.

c. Driving Behaviours

- Drivers park or turn around in driveways, drive on sidewalks, double park, stop in the middle of the road to drop-off or pick up, u-turns in front of the school, etc.
- Inattentive or inconsiderate parent drivers are the problem. How do you enforce rules on people who won't follow clearly marked traffic signs? DNV Bylaw Officer is a huge help but can't be everywhere.
- Crazy people and their u-turns.

d. Parking

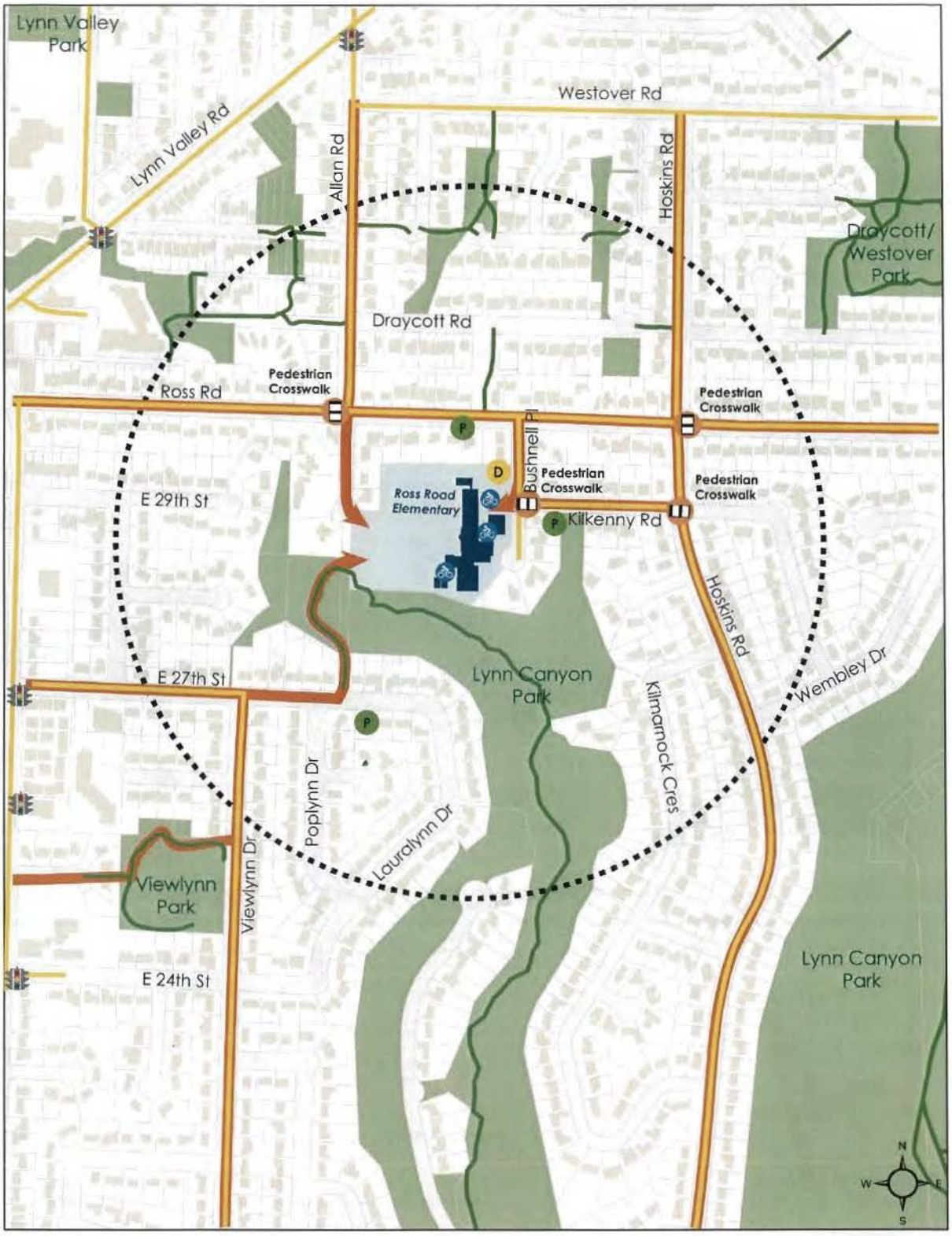
- Why are we allowing parents to park on both sides of Eldon Road for pickup after school and then sit in the cars until the children arrive. I thought there is supposed to be no parking during school hours.
- We don't have any safety concerns. The temporary parking enforcement at Cleveland Elementary is quite strict. However, we have no illusions about how safety would degrade if the enforcement stopped!
- The Kindergarten valet by Grade 7's was a GREAT idea this year. The day the traffic survey was done at Cleveland Elementary was not typical since there was a parent appreciation tea at 8am that changed my get-to-school pattern that day as well as many others (June 9).
- Designated drop-off areas would be good - no stopping or getting out of car-these are currently abused constantly by drivers. Having kids from out of catchment (french immersion,etc) feeds this problem.
- P-up/D-off : with a K child and baby, wish I'd 'parked' 1 min, deliver K to door, let baby sleep in sight. But NO! yet across road, others park and wait. Not fair.

e. Traffic

- Main causes of traffic are getting on to Capilano Road from Eldon Road and onto Edgemont Boulevard from Sunset Boulevard.

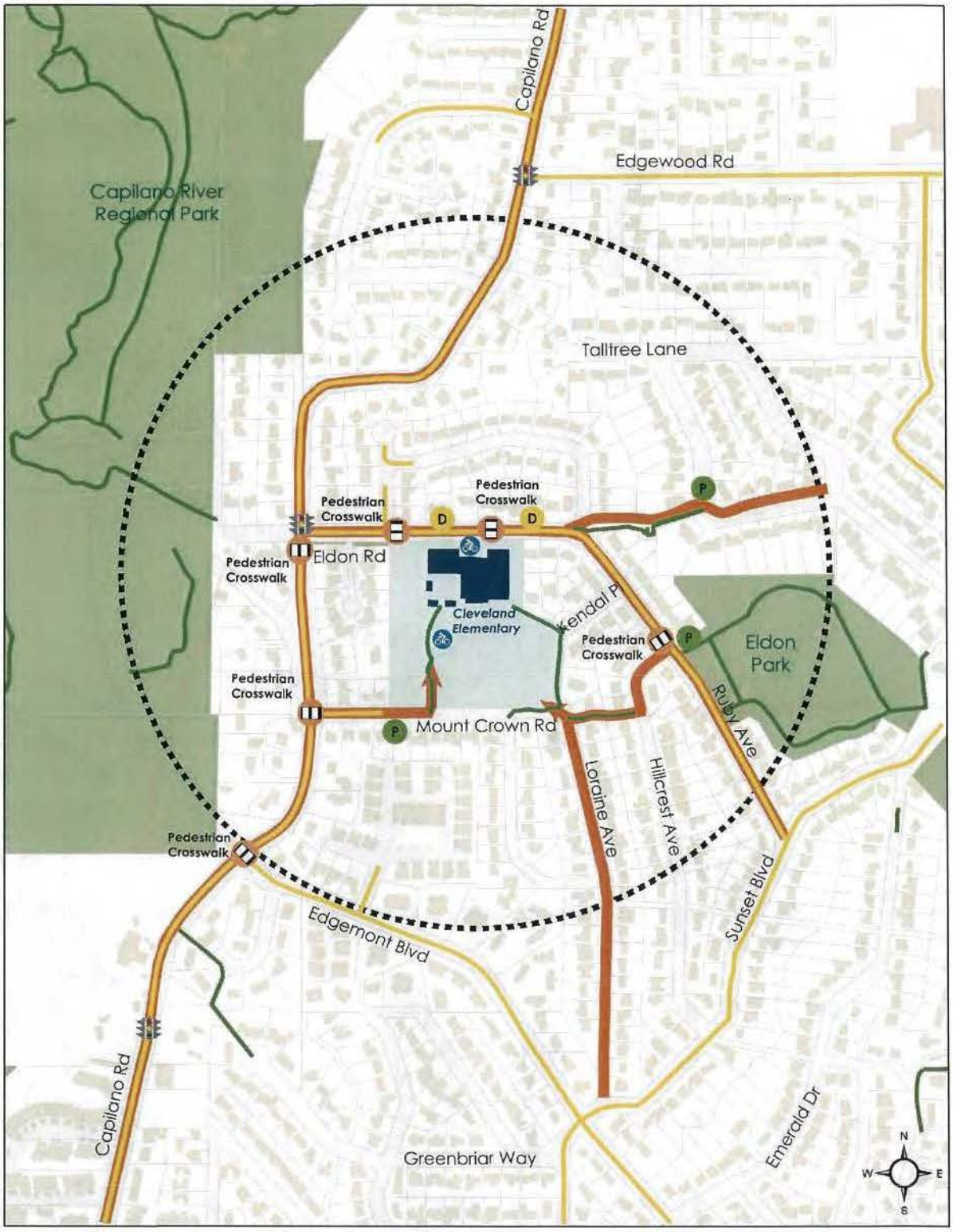
f. Traffic Calming

- I think some speed bumps along Ruby Avenue and Eldon Road are warranted.



Legend

- School
- Park
- Pedestrian Crossing
- Traffic Signal
- Park and Walk
- Drop-Off Area
- Bicycle Parking
- Sidewalk
- Best Walking Routes
- 5 Minute Walk Radius
- Trail



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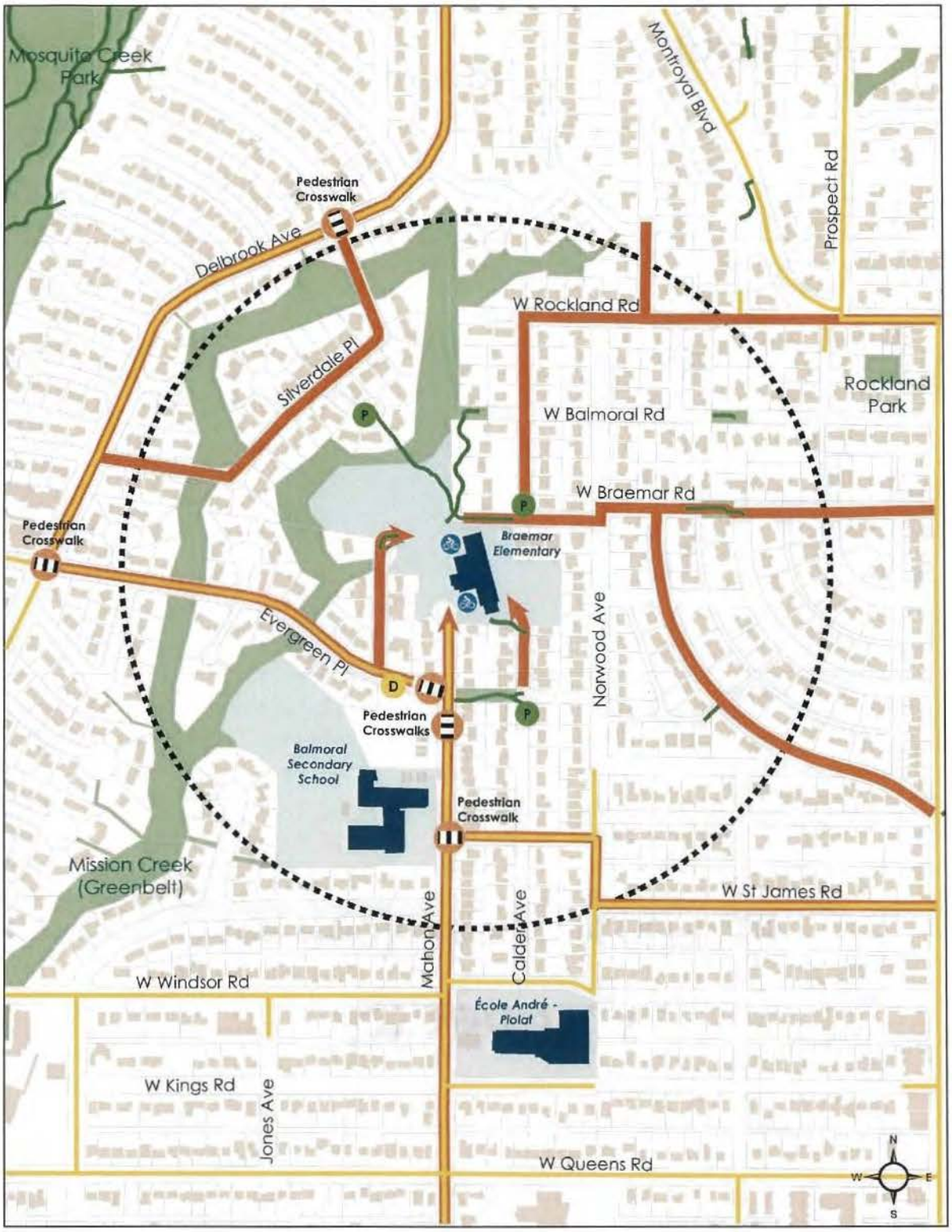


Legend

- School
- Park
- Pedestrian Crossing
- Traffic Signal
- Park and Walk
- Drop-Off Area
- Bicycle Parking
- Sidewalk
- Best Walking Routes
- 5 Minute Walk Radius
- Trail

Appendix B

Safe Routes to School Maps

4.3 Ross Road Elementary

a. Trails

- New valet/drop-off service at Ross Road this year will help greatly but more people should walk - walking school buses would be helpful. Many people walk/could walk from the Viewlynn area taking the trail through Hastings Creek/over the bridge behind the school. This would also make a great alternate drop-off point (27th street at trail head) for people who drive but most are unaware of it!!

b. Traffic/Safety

- Car congestion around the immediate school area is my biggest safety concern.
- Ross rd is a hwy from Mountain Highway to Dempsey Road. My kids are not safe crossing in front of my house.

c. Speed

- It is very dangerous crossing Hoskins Road at Kilkenny Road due to speeding vehicles and a large/tall hedge that blocks sight of pedestrians and vehicles.
- Need to reduce speed on Ross Road. Lots of big trucks and construction vans etc. use this route and speed DAILY! Very dangerous.

d. Parking

- Cars park along Allan Road and Ross Road and doors get thrown open without any regard for people already walking on the sidewalk.

e. Crosswalk/Sidewalk

- Ross Road and Allen Road crosswalk is very difficult to see cars and cars frequently do not stop.
- There is no side walk on Ross Road.

f. Traffic Calming

- Should love to see more speed bumps or roundabouts on some of these semi-busy streets - Ross Road, Frederick Road etc...
- Trees / shrubs from yards are encroaching onto sidewalks and blocking a drivers view. Is there no bylaw that prevents this? If so, why is it not enforced? (ex. corner or Ross Road & Hoskins Road).
- We chose to go to our local school in large part so kids could walk to school and have local neighborhood friends. We love that we are close enough to the school to walk.
- Ross Road is a cul-de-sac so people have to turn around in someone else's driveway all the time. Backing up sometimes cause danger to children.

- We are never quite sure whether we should ride on road or sidewalk when we get closer to the school (more drop-off/pick up traffic & more pedestrian traffic).
- Speed humps and permanent cones on side of road would help greatly. Thank you for looking at this important issue!!

g. Speed

- Several times cars have raced through without seeing kids.

h. Distance to Home/work

- We would encourage walking or biking if possible but we live too far away. Not possible to walk/bike to school regardless of age.
- Driving is linked to after school activities, walking just won't work on those days.
- If I didn't have to work downtown I would love to cycle in with the kids or walk, but my youngest is too young and I can't leave him with my eldest!

i. Other

- We should have a "walking school bus".
- I feel that this issue is extremely important. Thank you.
- What about a 'bike pool'. Kids that live near each other could ride together accompanied by one adult on a rotation basis. The social aspect is a great motivator for young kids.
- I feel quite strongly that my children should be walking or cycling as often as possible, as I believe it is good for their health (short and long term, physical and mental), but I am constantly concerned for their safety, and have sent numerous letters to DNV to request safety improvements for all who travel along the upper Capilano corridor. Some of my concerns have been addressed, but others still remain, as follows: Speed - especially at Montroyal Boulevard (where numerous vehicles have lost control just above the corner, and mounted the sidewalk) and at the curve just above Eldon Road (where kids racing downhill risk tripping/falling into traffic, and cars routinely cut the corner very tight). Stop signs at Montroyal Boulevard and Capilano Road would force traffic to slow down here, and make crossing much easier. Extending the solid barrier (on the hill above Eldon Road) down along the curve would reduce the risk of cars and children colliding. Also, I think there should be crosswalks at Montroyal Boulevard, Handsworth Avenue, and Edgewood Road, as cars routinely ignore pedestrians and pull right up (to better see opportunities for turning) but in doing so, block children from crossing safely, forcing them to either wait (often several minutes) for the intersection to clear, or to cross behind/between vehicles (dangerous - reduces visibility of kids for cars turning from Capilano Road), or to cross in front of cars, into the traffic flow on Capilano Road. A bike lane along upper Capilano Road would provide a safer route for cyclists (including numerous commuters) plus the narrowed car lane may encourage drivers to slow down, and could also provide a small buffer for kids at that dangerous curve just above Eldon Road. I look forward to seeing more children walking & cycling to school in the years to come, not only along the route my children use, but all across the North Shore. I believe the benefits of children walking/cycling to school are far-reaching, and I am grateful to you for having the foresight to do something about this.
- I have worked to promote walking to school at Cleveland Elementary. The safety of walking routes (sidewalks, crosswalks, etc.) to and from the school is a key deterrent/ concern for parents wanting to increase the frequency of walks to school. I also act as a supervisor for safety patrol. I am astonished at the poor driving/ parking habits of parents and neighbours driving past the school or dropping children off. I am concerned both for the safety of children arriving at school as well as the students serving as safety patrol guards.

ACL
arbortech consulting ltd

February 22, 2011

Attn.: **James Fox**
Wedgewood Ventures
450 East 21st Street
Vancouver BC V7L 3C2

cc:

ACL File: **11114**

Project Ref: **Braemar School Project, North Vancouver BC**

Re: **Tree Retention Assessment Report**

Dear James,

Arbortech Consulting Ltd has been retained to undertake a detailed study of the existing trees located on or within close proximity to the above noted site to determine their current condition and to make preservation and protection recommendations in context to the proposed land use changes. Staff from this office visited the site on January 19, 2011 to inspect the trees. The tree location and topographic plan as well as the preliminary design plans for the proposed development project have been provided for our use in completing this report. The tree condition data and tree retention recommendation are compiled herein and on the enclosures.

TREE ASSESSMENT AND RETENTION REVIEW

Existing trees located on or within close proximity to the development site have been assessed using Visual Tree Assessment (VTA) procedures. Certain dominant trees have also been tagged with a serial number as referenced in this report, on the attached tree retention plan, and for future reference within the design, approval and construction phases of the project. Please note visual inspection was hampered due to the dumping of garden waste within the rooting areas in some parts, as well as the dense ground vegetation and ivy vines concealing the trunks. For the proposed retained trees, it is recommended the vegetation be carefully cleared by hand within the root zones and the ivy stripped from the trees prior to a re-inspection.

In general terms, the existing trees located on this site consist of occasional mature Hemlock, Western redcedar and Red alder in the south east quadrant, with young pioneer species regeneration, predominantly of Red alder (70%), Cottonwood (20%) and Bitter Cherry (5%) colonising the previously cleared areas. The under-storey trees consist of Vine maple, Holly with occasional immature Western redcedar and Hemlock. Bramble, Salmon berry, ferns and ivy form the ground cover.

The approximate species count not including the tagged trees is:

Red alder (Dbh > 15 cm)	**= 73**
Cottonwood (Dbh > 15cm)	**= 7**
Bitter Cherry (Dbh > 15cm)	**= 5 + 1 tree dead**
Western redcedar (Dbh < 20cm)	**= 10**
Hemlock (Dbh < 20 cm)	**= 6**

There are two distinct areas of tree cover separated by a central clearing area within the site and are referenced as Stand A and Stand B on the tree retention plan. The individual Stand description is as follows:

Stand A: Consisting of 7 individually tagged mature class Hemlock and Western redcedar trees located to the south east corner, 4 mature Red alder trees to the southern boundary, a group of 7 Cottonwood to the south west corner, 2 mature Cherry trees to the north boundary and semi-mature mixed forest trees with Red alder dominant forming the remaining stand areas. To the far south eastern corner there is a Hemlock tree # 493 that is assessed as high risk based on Certified Tree Risk Assessor (CTRA) methods. The Western redcedar tree # 494 located on the eastern boundary may be a shared asset with the neighbour or an off-site tree. It was not shown on the survey drawing.

Stand B: Consisting of a dense group of semi-mature Red alders with 3 immature Western redcedar trees located to the south western corner. To the north western corner there is a tagged Red alder tree # 498 that is assessed as high risk based on CTRA methods.

The central clear area consists of dense bramble with immature regenerating pioneer deciduous species where it transitions into the wooded area to the south.

Due to the site topography, the tagged Hemlock and Western redcedar trees are growing within an exposed position on the leading edge of the west facing slope. Further, these trees, due to their size, species and location, are considered to have visual prominence especially when viewed from the surrounding streets to the north and east of the site.

A photographic record of the trees is on file and they are detailed as follows.

Within the tree inventory (see Table 1 below), we present the tree specific data and observations. In addition, we have rated the condition of the trees based on both health and structure factors that guide us in determining the value and viability of retaining the trees. Condition ratings used in our assessment are:

High Risk	deemed hazardous by CTRA methods.
Very Poor	dead, severe structural defects, advanced decline.
Poor	low vigour, restorable defects, decline.
Normal	fair to good condition.

On this site, the proposed development and construction consists of 7 single family homes with associated driveways and amenity space. The designation of ***Retain*** or ***Remove*** in the **ACTION** column below is based on the condition and retention value ratings that we have determined, with consideration for the proposed design for the project.

Table 1. TREE INVENTORY

TAG #	DBH[1]	SPECIES	CONDITION	RETENTION VALUE	ACTION
491	62	Hemlock	Very Poor	Nil	Remove

- Tall 20+m high regenerated tree on old decayed nurse tree stump resulting in elevated stilt like buttress rooting.
- Minor surface damage to buttress roots on the north side.
- No buttress taper south side.
- Ivy clad lower stem and root-plate.
- Old vertical wound with 'rams horn' wound wood formation and slight stem bulge at 10m height west side.
- Not a suitable candidate for individual retention

492	70	Hemlock	Very Poor	Nil	Remove

- Tall 20+m high regenerated tree on old decayed nurse tree stump resulting in elevated stilt like buttress rooting.
- Minor surface damage to buttress roots on the south side.
- Main stem was either vandalised by an attempted ring barking or ropes/wires tied around and has since been embedded into the trunk. Staining and bulging on the east side indicate likely internal decay pocket and therefore a potential weak point in the main stem.

493	98	Hemlock	High Risk	Nil	Remove

- Tall 24+m high regenerated tree on old decayed nurse tree stump resulting in elevated stilt like buttress rooting.
- Basal seam/crack passing north to south through the buttress.
- Ivy clad lower stem and root-plate.
- Old and new washing lines fixed to main stem at 5m height east side. Older lines embedded into stem causing a weakness.
- Vertical crack approximately 3m long in main stem at 6m height on east side with visual evidence of similar cracking on west side. Indicator of internal crack possibly related to a failure in progress from a main stem failure.
- Previously topped at 16m height with large (10+m high) marms developed at the cutting point. The topping wound likely to be a minimum of 20cm in diameter and therefore highly likely to be decayed at the marm attachment points creating strong likelihood of leader failure from above.

494	110	Western redcedar	Normal	Full	Sever and strip ivy

- Heavily ivy clad tree becoming invasive within crown.
- Located within boundary fence line, likely a shared or off-site tree.
- Large compost pile to base west side and metal box container on a concrete pad north side.

[1] Dbh denotes the diameter of the trunk measured in cm at a height of 1.4m above grade, or as per arboricultural standards.

495	93	Hemlock	Poor	Marginal	Conditionally retained - Sever and strip ivy. Reassess trunk and roots for defects.

- Heavily ivy clad tree becoming invasive within crown.
- Dead and broken branches south side of crown.
- Small canopy to stem ratio, and there is minimal value in the landscape.

496	74	Western redcedar	Very Poor	Nil	Remove

- 20+m high tree with "pistol" swept stem with no buttress flare west side.
- Old internal seam/crack east side with decay pocket at base forming basal weak point.

497	100	Hemlock	Very Poor	Nil	Remove

- Large 25+m tree with "pistol" swept stem with no buttress flare north side.
- Large surface stabilising root west side
- Vertical bark crack north side. Indicator of internal torsion crack.

498	44, 32, 29	Red alder	High Risk	Nil	Remove

- Triple-stemmed tree with two sub-dominant stems at base with narrow and weak unions east and west sides of the dominant stem. These stems are very weakly attached and prone to failure.
- Eastern stem has either died off or has historically snapped due to canker at approximately an 8m height.
- Remaining stems lean to the north west towards the pathway linking the school with Braemar Road.

CERTIFIED TREE RISK ASSESSMENT

Based on Certified Tree Risk Assessor (CTRA) methods, the high risk trees noted as being hazardous to current site targets are detailed as follows:

Table 2. CTRA RESULTS.

Tree #	Probability of Failure (1 to 5 pts):	Size of Defective Part (1 to 3 pts[2]):	Target Rating (1 to 4 pts):	Total Rating (3 to 12 pts):	Risk Rating[3]:
493	3	3	3	**9**	**High Risk**
498	3	2	4	**9**	**High Risk**

RECOMMENDATIONS

In context to the proposed land use changes, the existing trees are recommended to be treated as follows:

- **Provisionally Retain and Protect 1 tree**
  Tag #'s: 495
  Pursuant to the tree protection guidelines noted below and on the attached drawing, this tree could be preserved within the project. However, it is strongly recommended that the ivy be stripped from the tree and the dense ground cover carefully removed and the tree re-inspected prior to full retention.

- **Protect Off-Site Neighbouring Tree**
  Tree #: 494
  Note that tree # 494 appears to be a shared asset or a neighbour owned tree, and it is recommended that ownership be clarified by survey. In order to prevent this tree from being mortally damaged or destabilized, tree protection measures should be implemented as shown on the attached tree retention plan and in compliance with the restrictions noted herein.

- **Remove 2 High Risk trees**
  Tag #'s: 493 and 498
  The client should note that regardless of whether this project proceeds or not, the high risk trees should be treated for risk mitigation. The owner should make application for the removal of those high risk trees pursuant to applicable city regulation, policy or bylaw and undertake the removals at their earliest convenience.

- **Remove 4 Nil Retention Value Trees**
  Tag #'s: 491, 492, 496 and 497
  All trees with Nil retention value should be removed due to their pre-existing defects and other condition factors that make them very low value and/or otherwise not worthy for protection in this project.

- **Remove the remaining regenerated pioneer trees:**

  These stands are of very low value and viability with any residential land use. The Red alder are regenerated trees with average diameters of approximately 30cm with occasional older tree reaching 82cm. These alder tree species are not well suited for residential retention due to inherent weaknesses related to their short life span, high incidence of disease and weak nature of the wood. Similarly Cottonwood trees have a weak wood structure and the propensity to fail during storm events and considered not suitable trees for retention. The remaining trees form the under-storey and ground cover where retention would not practical given the topographical constraints and construction activities proposed.

  While the far northern sector of the site is detailed to be retained as an amenity area and lies outside the proposed development footprint, it is recommended that the existing tree cover of predominantly Red alder be re-inspected for health and safety if retained. However, in our opinion, consideration should be given to removal of the existing vegetation to provide an area of formal landscaping including tree planting with more suitable native species that characterise the local area, and that will grow to form a dominant long term

amenity to the community. Douglas fir and Western redcedar are well suited for this purpose.

- **Tree Protection Fencing.**
  Tree protection fences must be erected as shown on the tree retention plan and restriction implemented as per the guidelines below. It is recognized that certain unpredictable construction conflicts may arise that could interfere with the safe retention of the selected trees. Examples include but are not limited to; unknown geo-technical conditions, unknown underground servicing locations, etc. Note that if any changes to the tree retention scheme, or if any encroachments into the protection areas are deemed to be necessary for construction purposes, that they are subject to approvals in advance by the city and/or the project arborist.

- **Tree Replacement.**
  City requirements will dictate the required quantity of replacement trees for this project. Among other factors, the size and land use of the property as well as the presence of retained trees must be considered in determining the available space for planting. Those determinations will be subject to direction and/or approval by the city. Specifications for replacement trees will be provided by the project landscape consultant.

- **Permitting.**
  The removal of any trees may require that a permit or authorization is issued by the District of North Vancouver. Application can be made concurrently with the re-zoning and/or building permit application.

TREE PROTECTION GUIDELINES

1. **Tree Protection:**
   a) All retained trees must be protected to meet Municipal and/or Arbortech specifications. The minimum standard for fence type that is required is detailed above.
   b) The tree protection fencing should be inspected and approved by the municipality and/or the project arborist prior to any demolition, site preparation or construction work commencing.
   c) Activities within and access to the tree protection zones are restricted so that no soil, spoil, aggregate, construction supplies/materials and/or waste materials etc. are placed within the protection areas, and no vehicles and equipment may pass within these zones.
   d) The trunks or limbs of retained trees may not be used to affix signs, lights, cables or any other device.
   e) Signs stating "TREE PROTECTION AREA – NO ENTRY" should be placed on the tree protection fence at a suitable frequency.
   e) If encroachment into the tree protection zone is required for any other reason, it should be authorized in advance by the project arborist. Special measures may need to be implemented to allow access, and some activities will not be allowed.
   f) Removal of the tree protection fence and/or encroachment into the tree

protection areas may constitute an offence under city bylaw provisions, and also may be subject to fines, penalties and/or delays in the project.

2. **Design: New Buildings and Infrastructure:**
The location of building foundations or underground pipes etc must consider whatever over-excavation needs are required to construct/install those items. The design consultant should make sure that the siting of those features will not result in an over-excavation encroaching into the tree protection areas.
a) Where necessary, a geo-technical consultant may be required to make provision for the use of shoring systems/devices.
b) Underground servicing and utilities, overland drainage, and finished grading should not cause any grade changes (any excavation or fill) within the tree protection zones, or grade changes of surrounding lands that would result in storm water accumulation or significant depletion of soil water within the tree protection areas.

3. **Design: New Landscape and Finished Grading:**
The developed portions of the site that abut tree protection areas should have new/final grades designed to 'meet' the existing grades within the tree protection areas.
a) If the new or final grades are not able to match the existing grades at those locations, grade transitions such as retaining walls may be required. Those retaining walls should be designed and constructed to avoid any over-excavation or fill deposits that would result in encroachment into the tree protection areas.
b) The site grading should not cause overland storm water flow to accumulate excessively in the tree protection areas. Some drainage devices or measures may be required to mitigate pooling or slow drainage, but those devices or measures will be subject to project arborist approval if they require any encroachment into the tree protection areas.
c) Where the installation of the hard surface or grade transitions cannot avoid encroachment into the tree protection areas, there may be methods and materials that could accommodate their construction while minimizing impacts to the trees/roots. Those special measures can be considered and specified by the project arborist in consultation with the design consultant.

4. **Construction – Tree Management Treatments:**
a) **Mulch:** If recommended by the project arborist, mulch may be required to be imported and applied to portions of the tree protection areas. The purpose is to protect the soil from desiccation and to enhance the soil fertility properties. This mulch should consist of ½ inch-minus and should be well composted for best efficacy. The mulch product should be approved by the project arborist before installation.
b) **Pruning:** Pruning may be required for certain trees in order to improve the form and structure, to crown clean the tree (i.e. remove deadwood and to remove diseased and weakly structured limbs and branches), to resolve aerial spatial conflicts with structures, roads, driveways or sidewalks, and/or to improve aesthetics. The owner should retain the services of a qualified tree service contractor to undertake pruning treatments as per our specifications and our on-site direction.
c) **Watering:** The trees may benefit from occasional watering during the

construction phase. The project arborist may recommend timely supplemental watering by hand or by an automated system. The owner should have a local water source available for this purpose, otherwise truck delivery may be required. Such supplemental watering is only a temporary measure. It is expected that the trees will adapt to the changes in the growing environment, and that they will not likely require long term supplemental watering.
d) **Fertilizer:** In some cases, soil enhancement may be recommended. An application of fertilizer to suit the needs may be required. The specifications for fertilizer will be prepared by the project arborist on an as-needed basis.
e) **Soil Remediation:** Where soil within a tree protection area has suffered from previous or current impacts, treatments to reduce compaction and improve percolation and aeration may be required. The specifications for such treatments will be prepared by the project arborist on an as-needed basis.

CONCLUSIONS

A total of seven tagged trees and one off-site or shared asset tree that form part of two distinct tree stands located to the north and south of the site were collectively considered in this assessment. Two trees were assessed as high risk and should be treated for hazard mitigation regardless of future development. Four trees and the remaining regenerated pioneer trees have been determined to be unsuitable for retention in context with the proposed land use and are recommended to be removed. One of the on-site trees and one (possible) shared asset tree were deemed to be viable for retention subject to further assessment after clearing the ground vegetation/debris and stripping off the ivy. Tree replacement will be determined by the city.

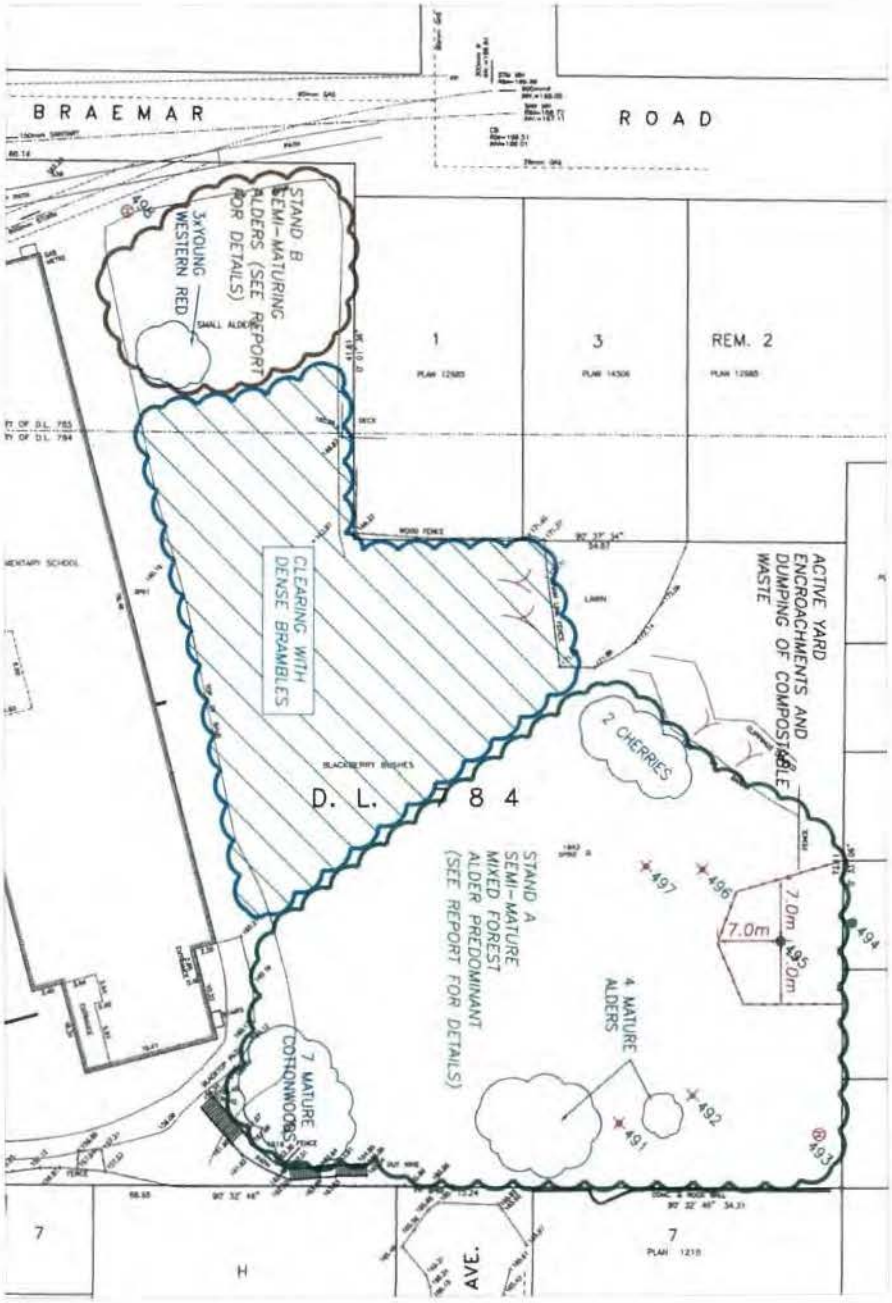
Thank you for choosing Arbortech for your tree assessment needs. If you require any further information, please call me directly at 604 275 3484 to discuss.

Regards,

Norman Hol,
Consulting Arborist
ISA Certified Arborist #PN-0730, Certified Tree Risk Assessor #0076, Wildlife and Danger Tree Assessor (Parks and Recreation Module)

Enclosures;

Tree Retention Drawing



LEGEND – TREE RETENTION

- denotes TREE NUMBER. Refer to tree inventory for type, size and condition data.
- denotes BYLAW tree to be RETAINED.
- denotes BYLAW tree to be REMOVED.
- denotes BYLAW tree to be REMOVED for mitigation of HIGH RISK (CTRA).
- TREE PROTECTION FENCE, to be installed to Tree Retention Area (TRA) limits.

TREE RETENTION DRAWING

Client:	WEDGEWOOD VENTURES
Project:	PROPOSED DEVELOPMENT
Address:	LAND EAST OF BRAEMER SCHOOL
Date:	22 FEBRUARY 2011
Our File:	11114
Muni File:	XXX

Scale 1: 500

ACL
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email: trees@arbortech.bc.ca

June 17, 2014
4477.04

James Fox
Wedgewood Ventures Ltd.
By email

Dear James:

Re: Braemar School Surplus Lands
Traffic Generation & Traffic Impact Review - DRAFT

As requested, Bunt & Associates has reviewed the potential traffic generation associated with the proposed redevelopment of the surplus lands immediately east of Braemar School in the District of North Vancouver, BC, as well as the possible traffic impacts of this development on the adjacent street system. This letter report summarizes our findings.

1. SINGLE FAMILY DEVELOPMENT

Wedgewood Ventures is proposing the redevelopment of the Braemar School surplus lands as 7 single family strata homes as illustrated on the site plan provided to us dated March 4, 2014.

Single Family development, over a 24 hour period, typically generate about 10 vehicle trips per day, per unit, based on average North American trip rates for similar types of uses as reported in the Institute of Transportation Engineers "Trip Generation Manual" (9th Edition). About 7.5% of that traffic, or 0.75 trips/unit is generated during the AM Peak Hour of weekday commuter traffic (an hour between 7-9 AM) while about 10%, or 1 trip/unit occurs during the PM Peak Hour (an hour between 4-6 PM). **Table 1** below provides a summary of estimated trip generation for the proposed 7 single family homes during the AM Peak Hour on a typical weekday, and **Table 2** provides the same information for the PM Peak Hour.

Table 1: Single Family Development AM Peak Hour Trip Generation

Land Use	Type	Amount	Rates (per Unit)			Volumes		
			In	Out	Total	In	Out	Total
Residential	Single Family	7	0.19	0.56	0.75	1	4	5

Table 2: Single Family PM Peak Hour Trip Generation Estimate

Land Use	Type	Amount	Rates (per Unit)			Volumes		
			In	Out	Total	In	Out	Total
Residential	Single Family	7	0.63	0.37	1.00	4	3	7

The Braemar School surplus lands are proposed to be accessed via a northwards extension of Calder Avenue as a private strata road. Calder is an existing north-south Local Road located between the north-south Collector Roads of Mahon Avenue and Norwood Avenue. Residents currently fronting on Calder (and future residents of the Westwood Ventures development) would therefore access the major road network by travelling southbound on Calder to turn eastbound onto Evergreen Place (which would allow access to Norwood Avenue) or would continue southbound to West Osborne Street to turn eastbound or westbound to connect with Norwood or Mahon Avenues, respectively.

Consequently, the most significant off-site impact associated with the proposed redevelopment would be on the single block of Calder north of Evergreen Place; however this impact would be very modest at 5 to 7 vehicles per hour during the AM or PM Peak Hour of commuter traffic, or one vehicle every 9 to 12 minutes. During other hours of the day, additional traffic volumes would be less than this.

2. EXISTING BRAEMAR SCHOOL TRAFFIC ISSUES

We understand that some of the traffic generated by Braemar School uses Calder Avenue, and that this has been an ongoing issue for residents. School pick-up/drop-off traffic generally peaks in the 30 minutes before school programs begin, and 30-60 minutes after school ends. Outside of these times, school pick-up/drop-off traffic is very limited.

In 2011, Braemar School was one of the schools reviewed in the joint District of North Vancouver (DNV) and North Vancouver School District (NVSD) study entitled "2011 School Transportation and Safety Review" by Urban Systems, dated February 29, 2012. This study indicated that Braemar has a relatively high mode split to auto, in part due to the large student catchment created by its French Immersion programs. Based on a survey of parents, it was estimated that the mode split to auto for the 500 student population was 54% on sunny days and 72% on rainy days.

Assuming an average student auto occupancy of 1.4 (as recorded in other Bunt school studies) this results in total pick up/drop-off demand of approximately 200 to 260 vehicles during the morning school peak period. We note that during the afternoon peak period for the school (which is generally longer and less intense than the AM Peak period) the mode split to auto may be lower as more children tend to walk home in the afternoon - but parents who do pick up children spend longer waiting for students to exit the school, so peak space demands for pick up are generally higher than for drop off and overflow onto adjacent streets therefore can be most acute during the afternoon peak.

We understand that NVSD, prior to the USL study, implemented a traffic management plan that results in the closure of Mahon north of Evergreen Place during peak school traffic periods, so that no pick-up/drop-off traffic is permitted to enter the Mahon cul-de-sac. This management plan results in all school pick-up/drop-off activity occurring on streets surrounding the school site.

The USL study indicated that in addition to Everglade Place and other locations, Calder north of Evergreen Place was being used for pick-up/drop-off activity by school parents in 2011. There is an existing trail with stairs providing direct access to school property which is likely the reason why parents would find this location attractive. However, without a proper cul-de-sac turnaround or sidewalks on this block of Calder, USL noted that this behavior resulted in safety issues as well as annoyance to adjacent neighbours. To discourage use of Calder by pick-up/drop-off traffic, USL recommended that "Local Traffic Only 8:30 AM to 9:30 AM, 2:30 PM to 3:30 PM School Days " signage be placed on Calder just north of Evergreen Place and that a designated pick-up/drop-off zone be developed on the south side of Evergreen Place just west of Mahon. Refer to attached diagram of improvements at Braemar School as recommended by USL.

At present, "No Stopping" signage is present at the northern end of Calder, which in our view would not legally prevent the use of Calder south of these signs by pick-up/drop-off vehicles – that is, parents could park on Calder south of these signs and walk their children into Braemar School, then use available driveways to turn around and exit Calder when leaving. Therefore, despite this "No Stopping" signage, we expect that Calder may still be used fairly regularly by some parents who would not be dissuaded by this signage. It also does not appear that a designated pick-up/drop-off zone on Evergreen Place west of Mahon has been developed.

Consequently, it is our recommendation that DNV continue to monitor this issue and modify signage and parking restrictions as appropriate to discourage, as far as possible, pick-up/drop-off activity on Calder and instead develop a designated location for such activity which reduces negative impact on residents adjacent to the school. It is also recommended that the other USL recommendations supporting pick-up/drop-off on the south side of Evergreen Place be implemented.

3. TRIP GENERATION UNDER OTHER DEVELOPMENT SCENARIOS

Currently, the Braemar School surplus lands are zoned "Public Assembly". Under this zoning, various types of developments could occur without the need for rezoning. For comparison purposes to the single family development proposed, Bunt has estimated various trip generation scenarios assuming possible "Public Assembly" uses. **Table 3** below provides a summary of estimated trip generation the AM Peak Hour on a typical weekday, and **Table 4** provides the same information for the PM Peak Hour.

Figure 2.9: Preliminary Improvement Options – Braemar Elementary

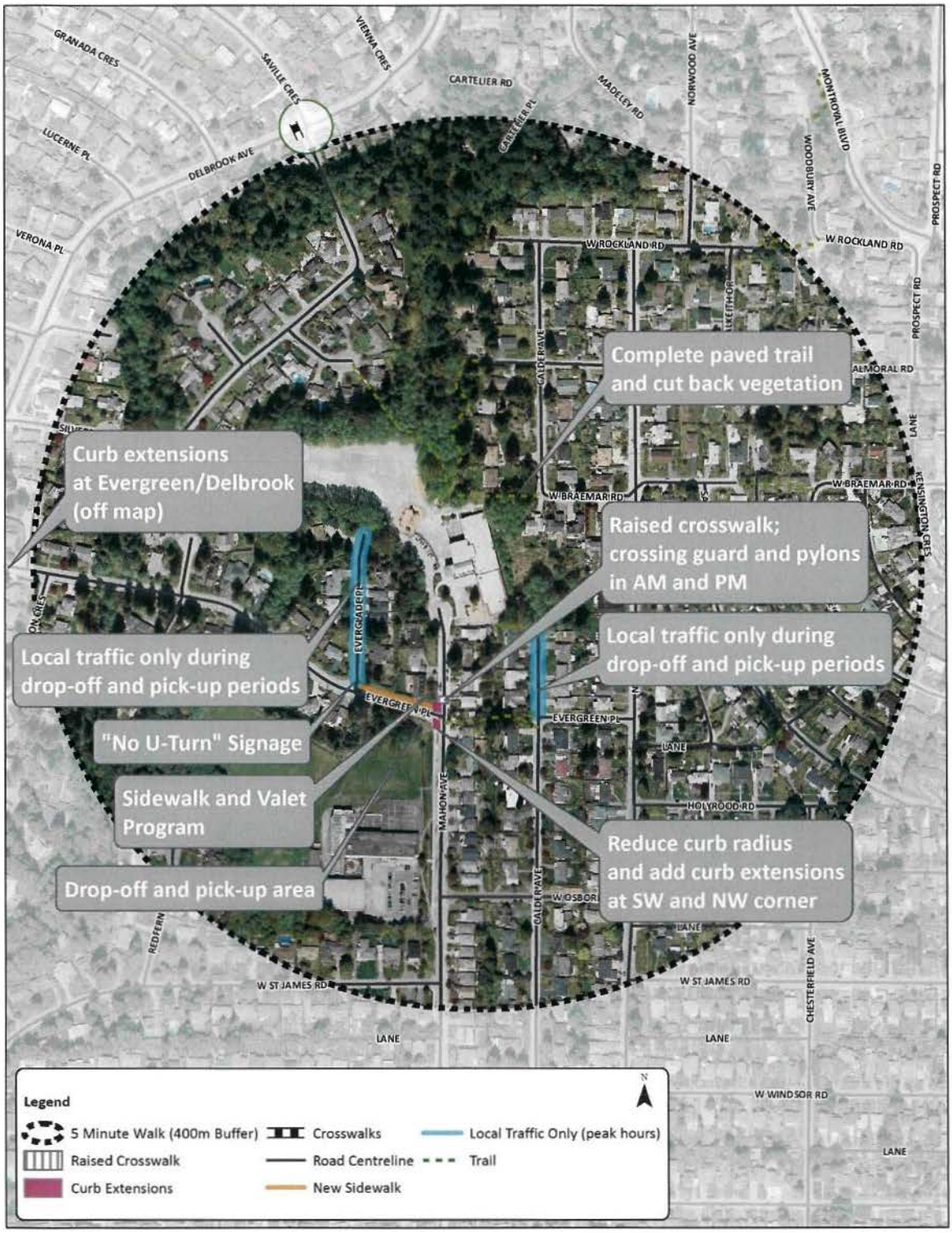

Table 1: AM Peak Hour Trip Generation Estimate

Land Use	Type	Amount	Rates per 1,000 sq.ft.			Volumes		
			In	Out	Total	In	Out	Total
Public Assembly	Place of Worship (Church)	35,000	0.35	0.21	0.56	12	7	20
	Nursing Home	35,000	0.39	0.16	0.55	14	6	19
	Government Office	35,000	1.37	0.19	1.56	48	7	55

Table 2: PM Peak Hour Trip Generation Estimate

Land Use	Type	Amount	Rates per 1,000 sq.ft.			Volumes		
			In	Out	Total	In	Out	Total
Public Assembly	Place of Worship (Church)	35,000	0.39	0.16	0.55	14	6	19
	Nursing Home	35,000	0.31	0.43	0.74	11	15	26
	Government Office	35,000	0.25	1.24	1.49	9	43	52

It can be seen that if the site was to be developed as a Public Assembly use as permitted under the current zone, these lands could generate approximately three to ten times the amount of peak hour traffic when compared to single family development.

We trust the foregoing addresses your questions; please feel free to contact me at any time should further information be required by Wedgewood Ventures in relation to this application.

Yours truly,
Bunt & Associates

Jane Farquharson, P.Eng, PTOE.
Principal & Senior Transportation Engineer