



July 25, 2018
04-18-0259

Wendy LeBreton
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Larco Investments Ltd.
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West Vancouver, BC
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VIA E-MAIL: wlebreton@larco.ca

Dear Wendy:

**Re: Arbutus Redevelopment, Vancouver, BC
Block A DP Minor Amendment – Parking Supply Strategy (DE418990)**

Larco Investments Ltd. (Larco) has applied to the City of Vancouver for a Development Permit Minor Amendment for the Block A component of the Arbutus Redevelopment to enable the development of an additional 25 non-market rental housing units adding to the 100 units already approved (50 non-market rental units and 50 non-market seniors' rental units), plus an inclusion of 14 moderate-income rental housings within the 111 units of rental housings. Other aspects of the Block A development remain unchanged.

The letter report provides a summary of the proposed vehicle/bicycle parking supply strategy for the added social housing component to the Block A development. Please contact us should you have any questions or comments.

Yours truly,
Bunt & Associates

A handwritten signature in black ink, appearing to read "Yulia Liem".

Yulia Liem, P.Eng., PTOE
Associate

cc. Alireza Danesh, Dialog

1. BACKGROUND

A detailed analysis of the parking and loading supply strategy for the Block A component of the Arbutus development was prepared by Bunt & Associates in a document dated May 18, 2017 as part of the approved **DE418990**. The report is attached in **Appendix A** for reference.

This analysis has now been updated to account for the additional 25 units of non-market rental housing proposed for Block A and the inclusion of 14 moderate-income rental housings, and is summarized in the following report.

The changes in floor areas and unit counts are summarized in **Table 1.1** below.

Table 1.1: Block A Floor Areas and Unit Counts Changes

USE	MAY 18, 2017		JULY 18, 2018		DIFFERENCE	
	GFA (sq m)	# Units	GFA (sq m)	# Units	GFA (sq m)	# Units
Market Rental	9,139.70	115	7,716.90	97	-1,422.90	-18
Moderate-Income Rental	-	-	971.90	14	+971.90	+14
Sub-Total Market	9,139.70	115	8,688.80	111	-450.90	-4
Non-Market Rental	2,841.90	50	4,310.09	75	+7,151.99	+25
Non-Market Rental Seniors	2,399.80	50	2,395.34	50	-4.46	0
Sub-Total Non-Market		100	6,705.43	125	+7,147.53	+25
TOTAL	5,241.70	215	15,394	236	+6,696.63	+21

In terms of site traffic, the addition 25 housing units would likely generate fewer than 5 additional vehicle trips during the weekday morning and afternoon peak hour traffic periods with marginal impact to area traffic operations. As such, this report is focused on the parking and loading considerations of the revised Block A development.

2. BYLAW PARKING SUPPLY REQUIREMENT

2.1 Vehicles

The revised vehicle parking analysis for Block A with the additional 25 non-market rental housing units is summarized in **Table 2.1**. For reference, the same table for without the 20 additional units is provided for reference in **Appendix B**.

Table 2.1: Block A Vehicle and Bicycle Parking Summary

Parking						Estimated Demand (Shared Parking Calculation)					Proposed Parking Supply (Actual)	Proposed Parking Supply (Adjusted)
						Weekday				Saturday Mid-day		
						AM	Noon	PM	Evening			
Land Use	GFA (m2)	Dwelling Units	Parking Bylaw	Bylaw Required Parking	AM	Noon	PM	Evening	Saturday Mid-day	Proposed Parking Supply (Actual)	Proposed Parking Supply (Adjusted)	
Residential	Market Rental	7,716.90	97	4.2.1.13	97	92	92	92	97	94	102	102
	Moderate-Income Rental	971.90	14	MIR CoV doc ⁽¹⁾	5	5	5	5	5	5	5	5
	Social Housing (Non-Market Rental)	4,310.09	75	4.5B	28	28	28	28	28	28	28	28
	Non-Market Rental Seniors	2,395.34	50	4.5B	15	7	7	7	5	7	15	15
	Non Market Residential Visitor Disability			4.5B	9	5	5	5	9	7	8	9
				4.8.4(a)	9						11	22
	Residential Totals	15,394	236		154	136	136	136	144	141	169	181
Non Residential	New Retail (Safeway)	4,341		4.2.5.3	171	86	111	137	111	171	249	249
	New Retail (Other)	150		4.2.5.1	2	0	0	0	0	0		
	New Restaurant	745		4.2.5.11	54	14	54	27	54	14		
	New Office	1,172		4.2.5.1	20	20	16	18	1	1		
	Disability			0	4							
	Commercial Totals	6,408			247	119	181	182	166	186	254	259
Development Totals	21,802			401	255	317	318	310	326	423	440	

(1) Applied 30% reduction from bylaw 4.5B based on the CoV Moderate Income Rental Housing Pilot Program: Application process, project requirements and available incentives bulletin dated December

Notes: Proposed Parking Supply (Adjusted) accounts for the 2 for 1 supply credit for Disability parking spaces
 254 spaces (actual) allocated to Block A Commercial Uses includes 218 spaces in Block A and 36 spaces in Block B

Bicycle

Land Use	GFA (m2)	Dwelling Units	Parking Bylaw	Bylaw Required Parking		Proposed Supply		
				Class A	Class B	Class A	Class B	
Residential	Market Rental	7,716.90	97	6.2.1.2	122	6	140	6
	Moderate-Income Rental	971.90	14	6.2.1.2	18			
	Social Housing (Non-Market Rental)	4,310.09	75	6.2.1.2	94			
	Non-Market Rental Seniors	2,395.34	50	6.2.1.4	13	6	107	6
	Residential Totals	15,394	236		247	12	247	12
Non Residential	New Retail (Safeway)	4,341		6.2.5.1	11	6	21	6
	New Retail (Other)	150		6.2.5.1				
	New Restaurant	745		6.2.5.1				
	New Office	1,172		6.2.4.1				
	Commercial Totals	6,408			14	6	21	6
Development Totals	21,802			261	18	268	18	

From Table 2.1, the City of Vancouver Parking Bylaw minimum supply requirement for the residential component of Block A decreases from 156 stalls previously to now become 154 stalls due to the application of 14 moderate-income rental housings parking requirement. According to the City of Vancouver Moderate-Income Rental Housing Pilot Program document, we can apply up to 30% relaxation from the secured rental housings rate, which we proposed for this site. Within this supply requirement, the accessible stall requirement increases to 9 spaces, up from 8 previously. The commercial parking supply requirement remains unchanged at 247 stalls.

2.2 Bicycles

With the 20 additional non-market rental units, the Class A bicycle parking requirement for the residential component of Block A increases to 247 spaces, up from 220 previously. The Class B bicycle parking requirement for Block A residential remains at 12 spaces. The Class A and Class B spaces for the commercial component of Block A similarly remain unchanged at 14 spaces and 6 spaces respectively.

3. PROPOSED PARKING SUPPLY STRATEGY

3.1 Vehicles

As indicated in Table 2.1, the parking supply proposed for the residential component of Block A was previously set at 169 stalls, which is credited at 181 stalls with the 11 accessible stalls proposed. This 181 stall residential parking supply exceeds the revised minimum supply requirement of the Parking Bylaw (154 stalls) so there is no need to locate additional residential parking supply within Block A.

3.2 Bicycles

The 27 stall (181 less 154) vehicle parking supply surplus for the Block A residential component creates an opportunity to increase the Class A bicycle parking requirement as outlined in Section 2.2, simply by converting 4 – 5 residential spaces on the Block A P2 parking level to Class A secure bicycle parking, i.e., a caged bike storage room).

The 4 stalls located in the northwest corner of the Block A P2 parking level (at the top of the P2 to P3 parking ramp) could potentially be converted to a caged bike storage room and would be closely positioned to the other Class A bike storage and elevator access to street level.

With this proposed conversion of four residential parking spaces to become Class A bicycle parking, the residential vehicle parking supply becomes 165 spaces (177 with the accessible credit), which still well exceeds the Parking Bylaw minimum requirement of 154 stalls.

4. CONCLUSION

The additional 25 non-market rental housings and conversion of 14 traditional market rental housings into moderate-income rental housings in Arbutus Block A site reduce the parking bylaw requirement from 156 stalls to 154 stalls. Therefore, no changes are proposed on the vehicle parking provision.

On the other hand, the bicycle parking requirement increases by 27 Class A spaces due to the increase in the non-market rental housings. To provide the additional Class A bike spaces, Bunt recommends converting the four vehicle stalls located on the northwest corner of Block A P2 parking level. The available vehicle parking supply after this conversion will still exceed the parking bylaw requirement for Block A.

APPENDIX A

Arbutus Block A DP Parking and Loading Strategy

Arbutus Blocks A DP
Parking and Loading Strategy
Final Report

Prepared for
Larco Investments Ltd.

Date
May 18, 2017

Prepared by
Bunt & Associates

Project No.
4111.56

A red circular professional seal for a British Columbia Professional Engineer. The seal contains the text "PROFESSIONAL ENGINEER", "PROVINCE OF BRITISH COLUMBIA", and "Y. P. LIEM # 35685". A handwritten signature in black ink is written over the seal, and the date "May 18, 2017" is written in black ink to the right of the seal.

May 18, 2017

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1. INTRODUCTION

1.1 Arbutus Centre Redevelopment

Arbutus Centre located at Arbutus Street and Nanton Avenue in Vancouver has been operating as a neighbourhood scale shopping mall since the 1970's, anchored by a Safeway grocery store, BC Liquor Store, and BMO bank and also featuring a number of other shops, services and commercial/medical offices. The total existing floor area is approximately 11,240 square metres (121,000 square feet). On-site parking totals 451 spaces including 390 surface stalls and 60 spaces located beneath the building, and vehicle access is provided with a pair of driveways on Arbutus Street.

Larco Investments Ltd. is proposing a full redevelopment of the full seven acre site to become a vibrant mixed-use commercial and residential village core for the surrounding community. The proposed redevelopment of the Arbutus Shopping Centre will ultimately include a new shopping centre, community centre and a mix of residential unit types, including market, non-market rental and non-market seniors' housing.

The proposed site plan for the complete development is shown in **Exhibit 1.1**. An aerial photograph of the existing shopping centre is shown alongside to contrast the two very different development forms.

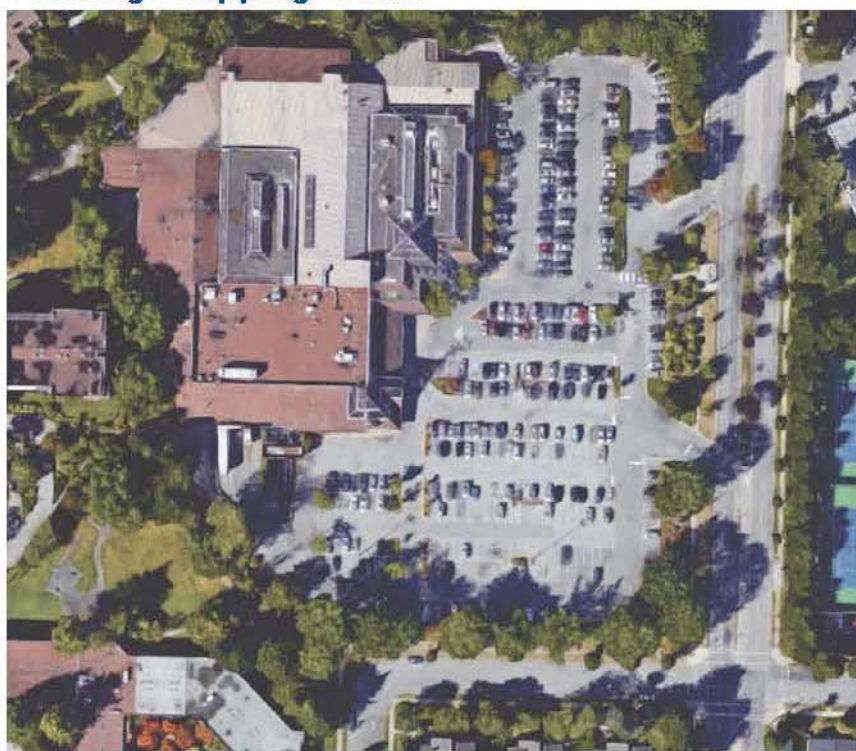
The redevelopment is proposed to take place in two or possibly three separate phases, beginning with the concurrent development of Blocks A and Block B along the east edge of the property bordering Arbutus Street, followed by Block C either together with, or followed by Block D. Policy Statement approval by Vancouver City Council was obtained in 2008 followed by Rezoning approval in 2011. The Development Permit approval process for Blocks A and B is presently underway. As such, Blocks A and B form the focus of this parking and loading review.

1.2 Study Purpose

The intention of this report is to provide an update of the proposed vehicle parking and loading supply strategy upon completion of the construction of Blocks A and B.

A comprehensive transportation impact assessment dated December 2009 was prepared by Bunt & Associates for the entire Arbutus Centre (Blocks A, B and later phase Blocks C and D), based on a total of 508 residential units and approximately 26,900 square metres of non-residential floor area including commercial retail, restaurant and office uses, and community/amenity space. This earlier report was used as the basis for the City of Vancouver's transportation review of the project leading to the rezoning approval granted in 2011.

Existing Shopping Centre



Proposed Development

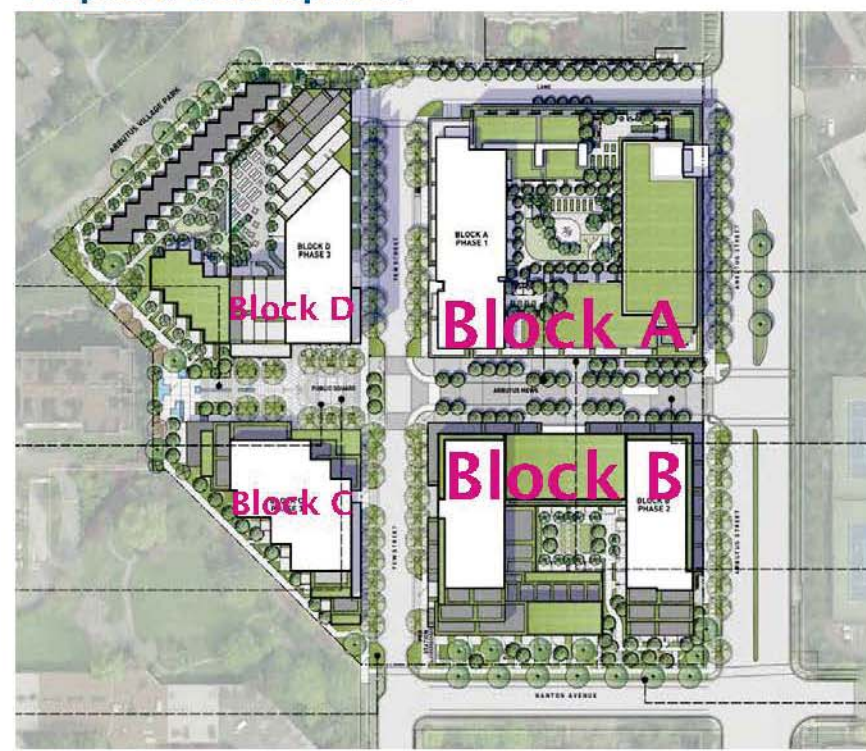


Exhibit 3.1
Proposed Site Plan

2. PHASE 1 DEVELOPMENT – BLOCKS A AND B

2.1 Block A

The Block A development at Arbutus will feature a total of 215 residential dwelling units (115 market rental units, 50 non-market rental units, and 50 non-market seniors' housing units), together with a new Safeway grocery store, restaurant, and commercial office space with component floor areas as set out below:

<i>Grocery store (Safeway):</i>	<i>4,341 m2 GFA</i>
<i>Restaurant:</i>	<i>745 m2 GFA</i>
<i>Commercial Offices:</i>	<i>1,319 m2 GFA</i>

Block A will provide 462 parking spaces on three levels of underground parking including 387 spaces for development on the Block A parcel, and another 75 spaces for Block B residential development but located on the Block A parcel.

The 387 parking spaces planned for the Block A development includes 169 spaces for the Block A residential development and 218 spaces for the Block A commercial uses. Additional curbside parking spaces are planned along the planned new Yew Street extension north of Nanton Avenue, and the new Arbutus Mews Street.

Driveway access to the Block A underground parking will be on the Yew Street extension plus an internal below grade connection to the Block B underground parking (P1 commercial parking level) which will also have its own driveway connection to the Yew Street extension.

2.2 Block B

The adjacent Block B development at Arbutus will feature a total of 170 market rental residential units, 1,792 square metres of commercial retail uses including a new liquor store to replace the existing store at Arbutus, a 943 square metre dance school (Danceco) to replace the existing Danceco on the site.

Block B will provide 185 parking spaces on two levels of underground parking including 149 spaces for development on the Block B parcel, and another 36 spaces for Block A commercial development but located on the Block B parcel.

The 149 parking spaces planned for the Block B development includes 91 spaces for the Block B residential development and 58 spaces for the Block B commercial uses. The added 75 stalls of residential parking for Block B to be located on the Block A site results in a combined parking supply of 166 residential parking spaces for the 170 Block B residential units.

As mentioned above, driveway access to the Block B underground parking will be on the Yew Street extension plus an internal below grade connection to the Block A underground parking on the P1 commercial parking level.

2.3 Blocks A and B Loading

A total of 4 Class A, 6 Class B and 2 Class C loading spaces will be constructed for the Blocks A and B development. Two Class A spaces will be provided in the extreme northeast corner of both the P1 and P2 parking levels (near the Elevator 2 lobby), and two additional Class A spaces will be provided on P2 level near the southwest elevator lobby of Block B.

The six Class B spaces will be located in an underground internal loading court with driveway access from the north lane and available for shared use among the commercial and residential uses in both Block A and Block B.

The two Class C loading spaces will be located directly off the north lane and designated for the exclusive use of the Safeway Store.

3. BLOCK A & B CONSTRUCTION PERIOD

During construction of Blocks A and B, it is anticipated that only about 26% of the existing shopping centre and businesses will remain open, or approximately 2,970 square metres (32,000 square feet) including reduced areas for the Safeway store, liquor store, Bank of Montreal.

Appendix A provides the driveway access, parking supply and configuration, and loading arrangement for the shopping centre during each construction stage as per the Site Safety Plan Revision 20170329-03.3 prepared by Urban One.

The Appendix A material also includes an analysis of the anticipated weekday PM peak hour traffic volumes and traffic operation during the Blocks A and B construction period for the intersections of Nanton Avenue and Arbutus Street, and Nanton Avenue and Yew Street.

Exhibit A.1 provides a summary of the observed weekday peak hour traffic volumes observed by Bunt & Associates in 2009 with the shopping centre in full operation, while **Exhibit A.2** summarizes an estimate of the reduced commercial traffic and construction traffic during the Stages 4-6 period of construction when the interim Nanton/Yew driveway connection will be used by both streams of traffic.

The weekday PM peak hour traffic volume estimate of 210 vehicles per hour for the commercial component (105 vph inbound and 105 vph outbound) is 26% of the observed 2009 weekday PM peak hour Arbutus Centre site traffic, where the 26% figure represents the reduced 32,000 square foot commercial floor area compared to the former 121,300 square foot area when the shopping centre was operating at full capacity.

The construction traffic estimate of 20 construction vehicles per hour (weekday PM peak hour) during the construction Stages 4-6 is based on volume estimates provided by Urban One (up to approximately 100 construction vehicles per day not including construction trades parking which is being accommodated off site). Note that there will be no heavy vehicles (semi-trailers) construction trucks using Nanton Avenue to access to/from the construction site.

Intersection capacity analysis results for the Arbutus/Nanton and Nanton/Yew intersections are also provided in Appendix A. For the weekday PM peak hour and the Stages 4-6 construction period, the Arbutus/Nanton intersection operates satisfactorily at Level of Service (LOS) A to B conditions provided the pedestrian activated traffic signal at this intersection is activated on a fairly regular basis which brings the Arbutus Street traffic to a stop condition. The Nanton/Yew intersection is assumed to operate with northbound and southbound stop sign control through the interim construction period and for the weekday PM peak period the intersection traffic capacity analysis indicates satisfactory LOS A to B traffic operation.

4. PARKING SUPPLY

A summary of vehicle, loading, and bicycle parking spaces for Blocks A and B based on May 18, 2017 site plans is included in **Appendix B**.

4.1 Block A

Table 4.1 below provides a summary of the City of Vancouver Parking Bylaw minimum parking supply requirements for the Block A component of the Arbutus Centre development, as well as the proposed parking supply. It is noted that this tabulation does not account for the 75 residential parking spaces planned for Block B but located in Block A; these spaces are accounted for in Section 4.2 that follows. The analysis does however factor in the 36 commercial parking spaces planned in Block B but allocated to the Block A commercial development.

Table 4.1: Proposed Parking Supply – Block A

Use	Parking Bylaw Requirements	Proposed
Residential		
Res. Disability Parking Spaces	8	11 (22*)
Visitor Parking	8	8 (9*)
Resident Parking	140	150
Residential Totals	156	169 (181*)
Commercial		
Comm. Disability Parking Spaces	4	5 (10*)
Commercial Parking	243	249
Commercial Totals	247	254 (259*)
Total Parking	403	423 (440*)

Note: * Disability parking spaces count 2 for 1 towards supply total
2 car share stalls are provided outside, on the ground level, at the northwest corner of Block A

As shown in Table 4.1, the Parking Bylaw minimum parking supply requirement for the Block A component of the Arbutus Centre development totals 403 spaces, including 156 spaces for the residential component and 247 spaces for the commercial component.

The proposed on-site parking supply for the Block A development totals 423 spaces (440 spaces with the ‘two for one’ accessible parking factor). In consultation with the City of Vancouver Engineering Department, a shared parking assessment of the differing ‘time of day’ and ‘day of week’ peak parking demand characteristics of the different land use types at Arbutus Centre is reasonable. This shared parking assessment for Block A is provided in **Appendix B**.

The shared parking analysis considers the weekday morning (AM), noon period, afternoon (PM) and evening periods, as well as the Saturday mid-day parking period. The analysis identifies the Parking Bylaw minimum parking supply requirement for each component use and from this base figure the estimated parking demand levels at the different time periods based on Bunt & Associates' database information on parking demand 'time of day' and 'day of week' adjustment factors.

For the residential component of the Block A development, the Bylaw required parking totals 156 stalls which is accommodated by the proposed 169 residential parking spaces on the P2 and P3 underground parking levels (181 spaces accounting for the 'two for one' supply adjustment for the 12 accessible parking spaces provided for resident (11) and residential visitor (1) use. From the shared parking calculation, the anticipated peak parking demand condition for the residential component of the Block A development will be during the weekday evening period with an estimated 147 vehicle peak parking demand condition.

For the commercial component of the Block A development, the Bylaw required parking totals 247 stalls which is achieved with the 254 (259 with the accessible parking adjustment) proposed parking supply, which includes 36 spaces located in the Block B development but allocated to Block A. The shared parking calculation presented in Appendix B indicates an anticipated peak parking demand condition for the commercial uses in Block A of 186 parked vehicles during the Saturday mid-day period, which falls comfortably within the available parking supply.

With both the residential and commercial components considered together, the shared parking analysis identifies an overall peak parking demand for Block A of 329 parked vehicles for the Saturday mid-day period, which is well within the 423 on-site parking spaces available for Block A use, not including the street parking available along the Yew Street extension and the Arbutus Mews street.

4.2 Block B

Table 4.2 on the following page provides a summary of the City of Vancouver Parking Bylaw minimum parking supply requirements for the Block B component of the Arbutus Centre development, as well as the proposed parking supply.

As shown in Table 4.2, the Parking Bylaw minimum parking supply requirement for the Block B component of the Arbutus Centre development totals 272 spaces, including 171 spaces for the residential component and 101 spaces for the commercial component. It is noted that this is a conservative assessment as the Danceco dance school has been assessed using Parking Bylaw Section 4.2.4.4 (as advised by City staff) yielding a Bylaw parking requirement for the dance school of 51 spaces which is likely about double the peak demand anticipated based on previous parking study work completed by Bunt & Associates in Metro Vancouver for dance school land use.

The proposed on-site parking supply for Block B totals 224 spaces (232 spaces with the ‘two for one’ accessible parking factor); 149 spaces of this Block B parking supply are provided in two levels of underground parking beneath the Block B building together with 75 residential parking spaces for Block B provided in the adjacent Block A underground parking area. Similar to the shared parking analysis described above for the Block A component of the project, the shared parking analysis for Block B is provided in **Appendix B**.

Table 4.2: Proposed Parking Supply – Block B

Use	Parking Bylaw Requirements	Proposed
Residential		
Res. Disability Parking Spaces	7	5 (10*)
Visitor Parking	0	0
Resident Parking	164	161
Residential Totals	171	166 (171*)
Commercial		
Comm. Disability Parking Spaces	2	3 (6*)
Commercial Parking	99	55
Commercial Totals	101	58 (61*)
Total Parking	272	224 (232*)

Note: * Disability parking spaces count 2 for 1 towards supply total

For the residential component of the Block B development, the Bylaw required parking totals 171 stalls which is accommodated by the proposed 91 residential parking spaces on the P2 underground parking level of Block B and 75 spaces allocated for Block B residential parking but located in the Block A underground parking. This Block B residential allocation totals 166 spaces but counts as 171 spaces with the ‘two for one’ supply adjustment for the 5 accessible parking spaces provided.

For the commercial component of the Block B development, the Bylaw required parking totals 101 stalls which is 43 stalls more than the 58 (61 with the accessible parking adjustment) proposed parking supply. However, as evident from the Appendix B shared parking calculation, the anticipated peak parking demand condition for the commercial uses in Block B is only 63 parked vehicles during the Saturday mid-day period, which is only slightly below the available parking supply within Block B.

With both the residential and commercial components considered together, the Appendix B shared parking analysis identifies an overall peak parking demand for Block B of 230 parked vehicles for the Saturday mid-day period, while the total actual parking supply is 224 stalls, or 6 stalls below the peak parking demand.

4.3 Blocks A and B Combined

Table 4.3 provides a summary of the vehicle parking supply conditions for Blocks A and B combined. As indicated, the Bylaw required parking for Blocks A and B combined (all uses) calculates to 675 stalls which is greater than the actual 647 parking spaces proposed for Blocks A and B combined.

However, the detailed shared parking analysis indicates that actual peak parking demand is estimated to be just 559 parked vehicles which is comfortably within the proposed parking supply of 647 spaces.

Table 4.3: Vehicle Parking Summary – Blocks A and B

Component	Land use	Bylaw Required	Anticipated Peak Demand	Proposed 'On-Site' Parking Supply
Block A	Residential	156	147	169 (181*)
	Non-Residential	247	186	254 (259*)
	Totals	403	329**	423 (440*)
Block B	Residential	171	171	166 (171*)
	Non-Residential	101	63	58 (61*)
	Totals	272	230**	224 (232*)
Combined	Residential	327	318	335 (352*)
	Non-Residential	348	249	312 (320*)
	Totals	675	559**	647 (672*)

Notes: * with 'two for one' adjustment for accessible parking spaces

** totals may not add as the residential and non-residential uses peak at different times

From a sustainable transportation standpoint, the proposed parking supply strategy is conservative with a parking supply approximately matching the City of Vancouver Parking Bylaw required minimum parking supply for both Block A and Block B.

This reflects a conscious design direction to not overly encourage reliance on private vehicles for both the residential and commercial components of the project. The parking demand analysis for the project does however confirm that the proposed actual physical parking supply, while slightly below the Parking Bylaw minimum requirements, is expected to accommodate the predicted peak parking demand conditions for Blocks A and B separately and taken together.

5. LOADING

5.1 Bylaw Requirements and Proposed Provision

Table 5.1 provides a summary of the loading supply requirements for Blocks A and B combined. The City of Vancouver Parking Bylaw requires a total of 8 loading spaces for the Block A component and 4 Class B loading spaces for the Block B component of the Arbutus Centre redevelopment.

The proposed loading provision combined for Block A and Block B is 12 spaces including 4 Class A spaces, 6 Class B spaces and 2 Class C spaces, allocated as follows:

- The 2 Class A spaces for Block A will be located at the far southeast corners of the level P1 and level P2 underground parking;
- The 2 Class A spaces for Block B will each be located near the southeast and southwest elevator cores;
- The 6 Class B spaces are all located in the underground truck loading court located on the P2 underground parking level with its separate loading access driveway connecting to the North Lane on the Arbutus Centre site. Two of the Class B spaces are allocated for the Block B liquor store tenant, 4 are planned for shared use between the retail (other than Safeway), office tenants, and residential uses;
- The 2 Class C loading spaces are designated for the Safeway grocery store tenant and will be located in a separate court positioned just inside of the North Lane, at the top of the underground truck court driveway ramp.

Table 5.1: Loading Supply Summary – Blocks A and B

Component	Land use	Bylaw Required	Proposed Loading Supply
Block A	Residential	1 Class B	
	Restaurant/Grocery	3 Class B 2 Class C	
	Office	1 Class A 1 Class B	
	Totals	1 Class A 5 Class B 2 Class C	2 Class A 3 Class B 2 Class C
Block B	Residential	1 Class B	
	Liquor Store/Retail	2 Class B	
	Fitness Centre	1 Class B	
	Totals	4 Class B	2 Class A 3 Class B
Combined		1 Class A 9 Class B 2 Class C	4 Class A 6 Class B 2 Class C

5.2 Truck Turning Path Analysis

The truck turning path requirements for the Class C and Class B loading spaces have been modeled using the AutoTurn software package. A summary of the vehicle turning path analysis for the surface level and the underground truck loading court is provided in **Appendix C**.

6. BICYCLE PARKING

Table 6.1 provides a summary of the bicycle supply requirements for Blocks A and B combined. The City of Vancouver Parking Bylaw requires a total of 455 Class A bicycle spaces and 36 Class B bicycle spaces for the combined Block A and Block B of the Arbutus Centre redevelopment. The detailed calculation is included in Appendix B.

The proposed bicycle provision combined for Block A and Block B is 473 Class A spaces including 243 spaces located in Block A and 230 spaces located in Block B, and 42 Class B bicycle racks around both Block A and B buildings. There will be 18 Class A and 6 Class B bicycle spaces in excess of the bylaw requirement.

Table 6.1: Bicycle Supply Summary – Blocks A and B

Component	Land use	Bylaw Required	Proposed Loading Supply
Block A	Residential Market Rental and Non-market Rental	207 Class A 6 Class B	222 Class A 12 Class B
	Residential Non-market Seniors	13 Class A 6 Class B	
	Retail/Restaurant	11 Class A 6 Class B	21 Class A 6 Class B
	Office	3 Class A	
	Totals	234 Class A 18 Class B	243 Class A 18 Class B
Block B	Residential Market Rental	213 Class A 6 Class B	223 Class A 12 Class B
	Liquor Store/Retail	4 Class A 6 Class B	7 Class A 12 Class B
	Fitness Centre	4 Class A 6 Class B	
	Totals	221 Class A 18 Class B	230 Class A 24 Class B
Combined		455 Class A 36 Class B	473 Class A 42 Class B

7. TRAFFIC ACCESS

As mentioned previously, the December 2009 detailed Transportation Impact Assessment report for the Arbutus development provides a comprehensive analysis of existing and projected future traffic operations on the area street system including the planned new roadway connections to the Arbutus project. The Block A and B development when completed will have full access to the new signalized intersection of Arbutus Street and Arbutus Mews, Arbutus Street and the north lane, and the Nanton Avenue intersection with Yew Street.

As directed by the City of Vancouver, with completion of the Block A and B components of the Arbutus development, Nanton Avenue between Arbutus Street and Yew Street will be converted from its existing two-way traffic operation to a one-way eastbound street. This treatment will ensure that all site traffic exiting the Arbutus development at this location will necessarily use Nanton for access to Arbutus Street and not travel into the neighbourhood to the south along Yew Street.

APPENDIX A

Block A and B Construction Period – Access, Parking and Loading

APPENDIX B

Block A and B Shared Parking Analysis

APPENDIX C

Truck Turning Path Analysis

APPENDIX B

Block A DP Vehicle and Bicycle Parking Summary

Arbutus Actual Parking, Loading and Bicycle Spaces Summary

4111.56 based on May 18, 2017 plan
18-May-17

based on May 18, 2017 plan

Residential

Block A									
	Parking				Loading			Bicycle	
	Standard	Small	Accessible	Total	Class A	Class B	Class C	Class A	Class B
Surface	0	0	0	0	0	0	0		12
P1	0	0	0	0	1	0	0		
P2	29	3	3	35	1	2	0	222	
P3	169	24	8	201	0	0	0		
	198	27	11	236	2	2	0	222	12

Block B									
	Parking				Loading			Bicycle	
	Standard	Small	Accessible	Total	Class A	Class B	Class C	Class A	Class B
Surface	0	0	0	0	0	0	0	186	12
P1	0	0	0	0	0	0	0	37	
P2	79	7	5	91	2	1	0		
	79	7	5	91	2	1	0	223	12

Residential Visitor

Block A									
	Parking				Loading			Bicycle	
	Standard	Small	Accessible	Total	Class A	Class B	Class C	Class A	Class B
Surface	0	0	0	0	0	0	0		
P1	0	0	0	0	0	0	0		
P2	7	0	1	8	0	0	0		
P3	0	0	0	0	0	0	0		
	7	0	1	8	0	0	0	0	0

Block B									
	Parking				Loading			Bicycle	
	Standard	Small	Accessible	Total	Class A	Class B	Class C	Class A	Class B
Surface	0	0	0	0	0	0	0		
P1	0	0	0	0	0	0	0		
P2	0	0	0	0	0	0	0		
	0	0	0	0	0	0	0	0	0

Commercial

Block A									
	Parking				Loading			Bicycle	
	Standard	Small	Accessible	Total	Class A	Class B	Class C	Class A	Class B
Surface	0	0	0	0	0	0	2		6
P1	115	19	3	137	0	0	0		
P2	75	4	2	81	0	1	0	21	
P3	0	0	0	0	0	0	0		
	190	23	5	218	0	1	2	21	6

Block B									
	Parking				Loading			Bicycle	
	Standard	Small	Accessible	Total	Class A	Class B	Class C	Class A	Class B
Surface	0	0	0	0	0	0	0		12
P1	84	7	3	94	0	0	0	7	
P2	0	0	0	0	0	2	0		
	84	7	3	94	0	2	0	7	12

Combined

Block A									
	Parking				Loading			Bicycle	
	Standard	Small	Accessible	Total	Class A	Class B	Class C	Class A	Class B
Surface	0	0	0	0	0	0	2	0	18
P1	115	19	3	137	1	0	0	0	0
P2	111	7	6	124	1	3	0	243	0
P3	169	24	8	201	0	0	0	0	0
	395	50	17	462	2	3	2	243	18

Block B									
	Parking				Loading			Bicycle	
	Standard	Small	Accessible	Total	Class A	Class B	Class C	Class A	Class B
Surface	0	0	0	0	0	0	0	186	24
P1	84	7	3	94	0	0	0	44	0
P2	79	7	5	91	2	3	0	0	0
	163	14	8	185	2	3	0	230	24

Block A

Parking

Land Use		GFA (m2)	Dwelling Units	Parking Bylaw	Bylaw Required Parking	Estimated Demand (Shared Parking Calculation)					Proposed Parking Supply (Actual)	Proposed Parking Supply (Adjusted)
						Weekday				Saturday Mid-day		
						AM	Noon	PM	Evening			
Residential	Market Rental	9,140	115	4.2.1.13	115	110	110	110	116	113	117	117
	Residents					104	104	104	104	104	110	110
	Visitors					6	6	6	12	9	7	7
	Non-Market Rental	2,842	50	4.5B	18	18	18	18	18	18	18	18
	Non-Market Rental Seniors	2,400	50	4.5B	15	7	7	7	5	7	15	15
	Non Market Residential Visitor			4.5B	8	4	4	4	8	6	8	9
	Disability			4.8.4(a)	8						11	22
Residential Totals		14,382	215		156	139	139	139	147	144	169	181
Non Residential	New Retail (Safeway)	4,341		4.2.5.3	171	86	111	137	111	171	249	249
	New Retail (Other)	150		4.2.5.1	2	0	0	0	0			
	New Restaurant	745		4.2.5.11	54	14	54	27	54	14		
	New Office	1,172		4.2.5.1	20	20	16	18	1	1		
	Disability			0	4						5	10
Commercial Totals		6,408			247	119	181	182	166	186	254	259
Development Totals		20,790			403	258	320	321	313	329	423	440

Notes: Proposed Parking Supply (Adjusted) accounts for the 2 for 1 supply credit for Disability parking spaces
 254 spaces (actual) allocated to Block A Commercial Uses includes 218 spaces in Block A and 36 spaces in Block B

Bicycle

Land Use		GFA (m2)	Dwelling Units	Parking Bylaw	Bylaw Required Parking		Proposed Supply	
					Class A	Class B	Class A	Class B
Residential	Market Rental	9,140	115	6.2.1.2	207	6	147	6
	Non-Market Rental	2,842	50	6.2.1.2				
	Non-Market Rental Seniors	2,400	50	6.2.1.4	13	6	75	6
	Residential Totals		14,382	215		220	12	222
Non Residential	New Retail (Safeway)	4,341		6.2.5.1	11	6	21	6
	New Retail (Other)	150		6.2.5.1				
	New Restaurant	745		6.2.5.1				
	New Office	1,172		6.2.4.1	3	0		
Commercial Totals		6,408			14	6	21	6
Development Totals		20,790			234	18	243	18

Block B

Parking

Land Use		GFA (m2)	Dwelling Units	Parking Bylaw	Bylaw Required Parking	Estimated Demand (Shared Parking Calculation)					Proposed Parking Supply (Actual)	Proposed Parking Supply (Adjusted)
						Weekday				Saturday Mid-day		
						AM	Noon	PM	Evening			
Residential	Market Rental	16,893	170	4.2.1.13	171	162	162	162	171	167	161	161
	Residents					154	154	154	154	154	161	161
	Visitors					9	9	9	17	13	0	0
	Disability			4.8.4(a)	7						5	10
	Residential Totals	16,893	170		171	162	162	162	171	167	166	171
Commercial	New Retail (LDB Store)	987		4.2.5.3	37	19	19	28	19	37	55	55
	New Retail (Other)	805		4.2.5.1	13	7	7	8	7	13		
	Danceco	943		4.2.4.4	51	2	4	15	20	13		
	Disability			0	2						3	6
	Commercial Totals	2,735			101	27	29	51	45	63	58	61
Development Totals		19,628			272	189	191	214	216	230	224	232

Notes: Proposed Parking Supply (Adjusted) accounts for the 2 for 1 supply credit for Disability parking spaces
 166 spaces (actual) allocated to Block B Residential Uses includes 91 spaces in Block B and 75 spaces in Block A

Bicycle

Land Use		GFA (m2)	Dwelling Units	Parking Bylaw	Bylaw Required Parking		Proposed Supply	
					Class A	Class B	Class A	Class B
Residential	Market Rental	16,893	170	6.2.1.2	213	6	223	12
	Residential Totals	16,893	170		213	6	223	12
Non Residential	New Retail (LDB Store)	987		6.2.5.1	4	6	7	12
	New Retail (Other)	805		6.2.5.1				
	Danceco	943		6.2.3.3	4	6		
	Commercial Totals	2,735			8	12	7	12
Development Totals		19,628			221	18	230	24