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Memorandum

To:	Krista Baronian, WestStone Group	**From:**	Matthew Woo, Binnie Allan Fan, Binnie
Cc:	Ava Li, Binnie Eric Tam, Binnie	**Date:**	June 2nd, 2023
Project #:	18-0884	**File:**	18-0884-05
Re:	14937 Thrift Avenue Traffic Study – Revised Site Statistics Addendum FINAL Rev.0		

1 INTRODUCTION

R.F. Binnie & Associates Ltd. (Binnie) was retained by WestStone Group (the Developer) to prepare a traffic study for a proposed multi-family residential development located at 14937 Thrift Avenue in the City of White Rock (the City). A final version of the original traffic study, completed by Binnie, was submitted to the City on June 29, 2020.

The development site plan has since been revised and Binnie was requested to review the latest drawings by Keystone Architecture & Planning Ltd. dated May 19, 2023 for potential traffic impacts to the road network and off-street parking supply. Binnie was further requested to investigate whether a parking reduction would be feasible by reviewing anticipated parking demand. A Transportation Demand Management (TDM) plan was also recommended to the Developer to support the parking variance request. This memorandum summarizes these findings as an addendum to the final version of the original traffic study.

The site plan changes – since the final version of the original traffic study – includes:

- An increase of residential rental units from 129 to 139;
- An increase of off-street parking stalls from 179 to 198; and
- An increase of bicycle parking stalls from 156 to 183.

The revised site statistics dated May 19, 2023 are provided in **Appendix A**.

2 TRIP GENERATION AND TRAFFIC ANALYSIS

2.1 Trip Generation and Distribution

The revised May 19, 2023 site statistics indicate a net increase of ten residential rental units from the previous 129 units noted in the final version of the original traffic study. During the AM peak hour, there is an increase of one vehicle entering and an increase of two vehicles exiting the development. During the PM peak hour, an increase of two vehicles entering and increase of two vehicles exiting the development is expected. The revised trip generation using the May 19, 2023 count of residential rental units is compared with the original unit count from the June 2020 traffic study in **Table 2-1**. The forecast trip generation for the study development was estimated based on the rates published in the Institute of Transportation Engineers' (ITE) *Trip Generation, 11th Edition*. This edition is noted to supersede the *Trip Generation 10th Edition* used in the June 2020 traffic study.

Table 2-1: Revised Trip Generation

Description	2020 TIS Submission			2023 Revised Site Plan			Net Change		
	Unit Count	Vehicles Entering	Vehicles Exiting	Unit Count	Vehicles Entering	Vehicles Exiting	Unit Count	Vehicles Entering	Vehicles Exiting
AM Peak Hour	129	11	37	139	12	39	+10	+1	+2
PM Peak Hour	129	31	19	139	33	21	+10	+2	+2

**2020 Traffic Study Volumes have been updated to reflect the new rates published in ITE Trip Generation 11th Edition*

The forecast trip distribution for the site generated traffic volumes was estimated based on the existing travel patterns which has already been established in the final version of the original traffic study. With the intention of being consistent with the previously completed operational analysis, all site generated traffic accessing the development will pass through the Vidal Street and Thrift Avenue intersection. Based on the revised unit count, the site generated traffic volumes are presented in **Figure 2-1**.

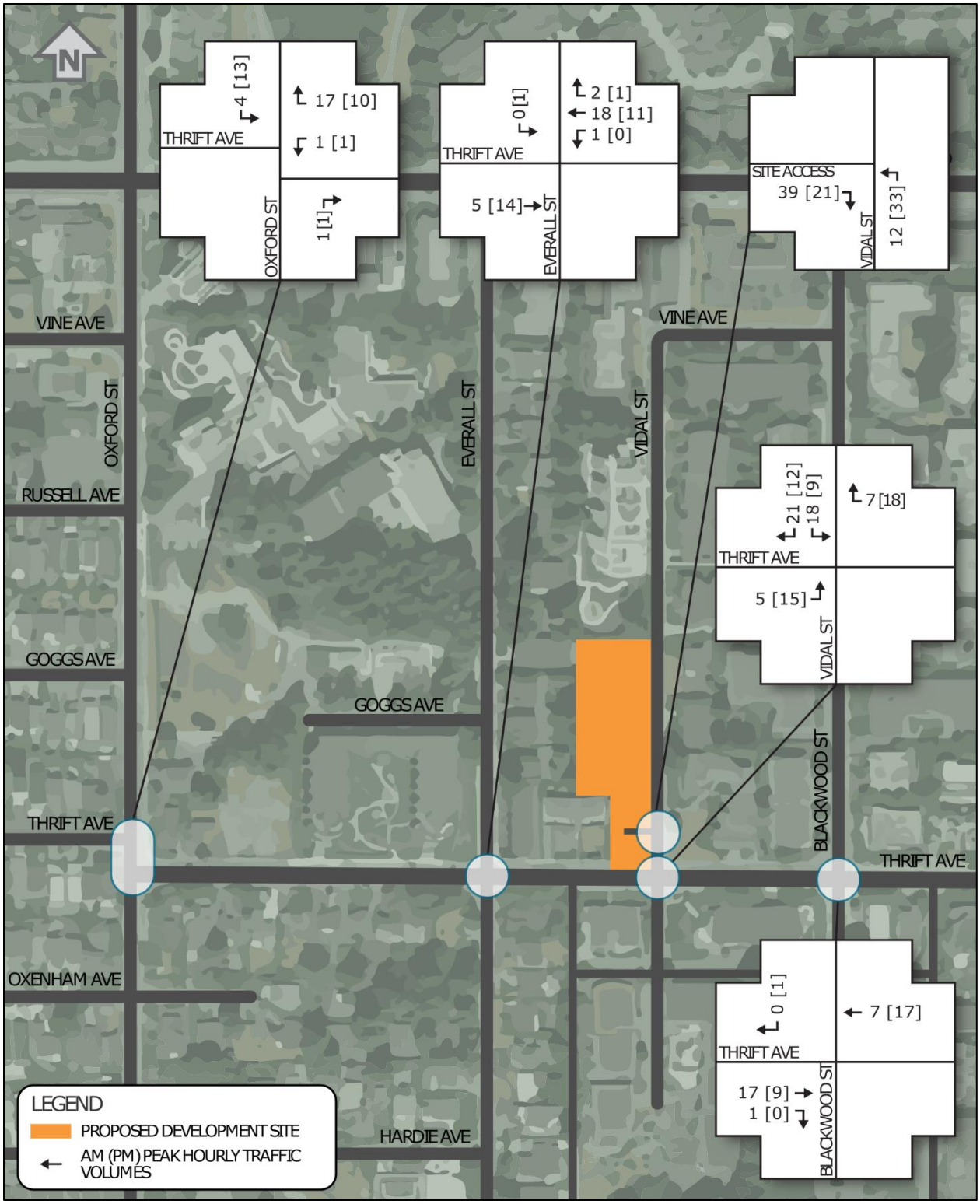


Figure 2-1: Forecast Site Generated Traffic Volumes

2.2 Traffic Operations Analysis

2.2.1 Methodologies

Traffic operations analysis in this memorandum is consistent in methodology with the final version of the original traffic study. The same traffic operations study thresholds will be applied to this iteration of analysis. The study thresholds for unsignalized intersections are the following:

- Overall intersection and individual movement of LOS D or better;
- Individual movement v/c ratio of 0.85 or less;
- Delay less than 35 s; and
- 95th percentile queue lengths impacting adjacent intersections or accesses.

Considering that the change in planned units of the proposed development is marginal since the original traffic study, traffic analysis will only be re-done for the 2045 horizon year combined volumes scenario. This would be the worst-case scenario with the highest traffic volumes. The assumption is that if this scenario confirms that all intersections are expected to operate within threshold limits, all other scenarios are also expected to operate within threshold limits.

2.2.2 2045 Horizon Year Combined Traffic Operations

The 2045 horizon year background traffic operations analysis assumes the existing intersection and laning configurations. Traffic controls are also assumed to be the same as the existing design with no signalization at any of the study intersections. The 2045 horizon year combined traffic volumes were determined by applying a 2% growth factor per year to the existing traffic volumes and adding the non-factored site generated volumes. The 2045 horizon year combined traffic volumes are shown in **Figure 2-2**.

AM Peak Hour

During the AM peak hour, all of the study intersections are expected to operate within the study thresholds, consistent with the results from the original traffic study. The maximum v/c ratio is expected to be 0.52 for the westbound movements at the intersection of Thrift Avenue and Oxford Street.

PM Peak Hour

During the PM peak hour, all of the study intersections are expected to operate within the study thresholds, consistent with the results from the original traffic study. The maximum v/c ratio is expected to be 0.60 for the westbound movements at the intersection of Thrift Avenue and Oxford Street.

The 2045 horizon year background traffic analysis results are summarized in **Table 2-2.**

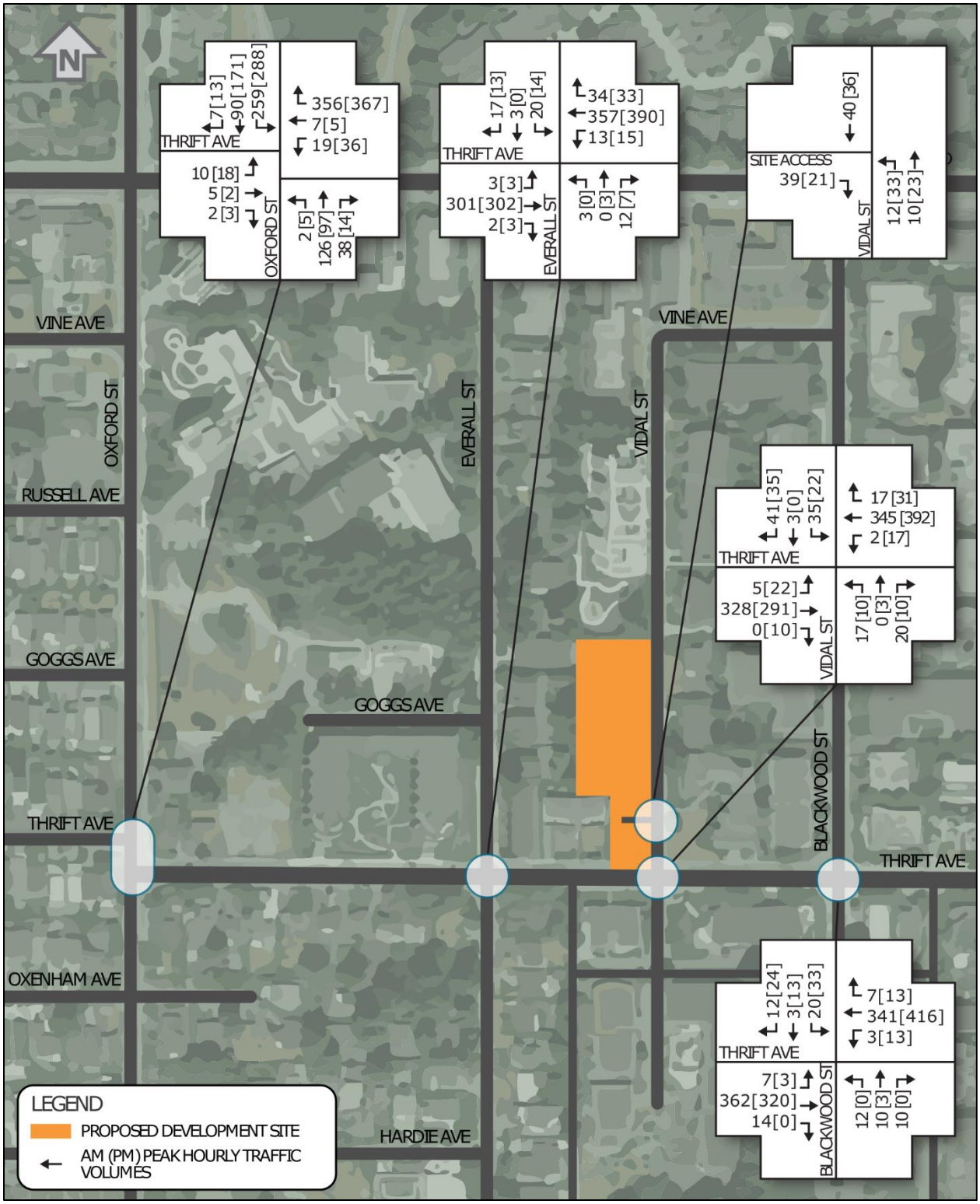


Figure 2-2: 2045 Horizon Year Combined Traffic Volumes

Table 2-2: 2045 Horizon Year Combined Traffic Operations

Intersection	Turning Movement	AM Peak Hour				PM Peak Hour			
		LOS	Delay (s)	V/C Ratio	95% Q (m)	LOS	Delay (s)	V/C Ratio	95% Q (m)
Thrift Avenue at Oxford Street South *(Unsignalized)*	**WBL/R**	B	14.4	0.52	23.6	C	17.0	0.60	31.1
	NBT/R	A	-	0.11	-	A	-	0.07	-
	SBL/T	A	6.6	0.21	5.9	A	5.8	0.22	6.3
	Int. LOS	**A**				**A**			
Thrift Avenue at Oxford Street North *(Unsignalized)*	**EBL/R**	B	14.8	0.05	1.2	C	18.8	0.09	2.2
	NBL/T	A	0.2	0.01	0.2	A	0.3	0.01	0.2
	SBT/R	A	-	0.23	-	A	-	0.30	-
	Int. LOS	**A**				**A**			
Thrift Avenue at Everall Street *(TWSC)*	**EBL/T/R**	A	0.1	0.00	0.1	A	0.1	0.00	0.1
	WBL/T/R	A	0.4	0.01	0.3	A	0.4	0.01	0.3
	NBL/T/R	B	11.6	0.03	0.7	B	12.1	0.02	0.5
	SBL/T/R	C	15.3	0.11	2.8	C	15.1	0.08	1.8
	Int. LOS	**A**				**A**			
Thrift Avenue at Vidal Street *(TWSC)*	**EBL/T/R**	A	0.2	0.00	0.1	A	0.8	0.02	0.5
	WBL/T/R	A	0.1	0.00	-	A	0.5	0.01	0.3
	NBL/T/R	B	14.6	0.10	2.4	C	16.1	0.07	1.7
	SBL/T/R	C	15.6	0.20	5.7	C	15.5	0.15	4.1
	Int. LOS	**A**				**A**			
Thrift Avenue at Blackwood Street *(TWSC)*	**EBL/T/R**	A	0.2	0.01	0.2	A	0.1	0.00	0.1
	WBL/T/R	A	0.1	0.00	0.1	A	0.4	0.01	0.3
	NBL/T/R	C	16.1	0.10	2.4	C	17.4	0.01	0.2
	SBL/T/R	C	16.4	0.11	2.7	C	18.3	0.22	6.3
	Int. LOS	**A**				**A**			
Thrift Avenue at Development Access *(Unsignalized)*	**EBL/R**	A	8.7	0.04	1.0	A	8.6	0.02	0.5
	NBL/T	A	4.0	0.01	0.2	A	4.4	0.02	0.5
	SBT/R	A	-	0.03	-	A	-	0.02	-
	Int. LOS	**A**				**A**			

3 PARKING REVIEW

3.1 Vehicle Parking Requirements and Supply

The off-street parking requirements for the proposed development were calculated based on the City's Bylaw No. 2000 (2022). Based on Section 4.14, a total of 209 parking stalls are required with 167 stalls for resident parking and 42 stalls for visitor parking, which is presented in **Table 3-1**.

Table 3-1: Bylaw Required Parking Stalls

Description	Bylaw Ref.	Size	Unit	Required Stalls Per Unit	Stalls Required
Resident Parking Stalls - Apartment	2000 - 4.14	139	Units	1.20	167
Visitor Parking Stalls	2000 - 4.14	139	Units	0.30	42
				Total:	**209**

Based on the May 19, 2023 data sheet, the proposed development is expected to provide a total of 198 parking stalls with 41 stalls for visitor parking, two stalls for dedicated car-share vehicles, and 155 stalls for resident parking. The Developer is seeking a parking variance of 11 stalls to meet the Bylaw requirements.

3.2 Forecast Parking Demand

The forecast parking demand for the proposed development was also reviewed based on the parking rates published in the Metro Vancouver *2018 Regional Parking Study* (the Study).

According to the 2018 Metro Vancouver study, the parking supply for market rental apartment buildings was observed to exceed utilization by 35 percent. The report also found that 0.99 stalls were occupied per unit for market rental sites. This figure was observed for resident parking for market rental sites not within close proximity to the frequent transit network (FTN). With a utilization rate of 0.99 stalls per unit, the estimated parking demand for the development would be 138 stalls, which is 29 stalls less than the Bylaw-required 167 stalls for resident parking. It is also 17 stalls less than the 155 parking stalls proposed for residents.

The parking demand using Metro Vancouver rates is summarized in **Table 3-2**.

Table 3-2: Metro Vancouver Forecast Study Development Generated Parking Demand

Description	Size	Unit	Site Type	Avg. Parking Gen Per Unit	Generated Parking Demand
Resident Parking	139	Dwelling Units	Market Rental - Away from FTN	0.99	138

A key finding from the Study was that visitor parking may also be over supplied. The Study found that observed parking demand rates were below 0.1 stalls per apartment unit, which would result in an estimated demand for 14 visitor parking spaces. Considering that the proposed development is expected to provide visitor stall parking at the Bylaw rate of 0.3 stalls per unit, visitor parking supply may exceed the forecasted demand.

3.3 Bicycle Parking Requirements and Supply

Based on section 4.16 of the City's Bylaw No. 2000 (2022), a total of 167 bicycle parking stalls are required with 139 stalls for Class 1 secure long-term parking and 28 stalls for Class 2 short-term parking. The Bylaw requirements for bicycle parking supply are presented in **Table 3-3**.

Table 3-3: Bylaw Required Bicycle Parking Stalls

Description	Bylaw Ref.	Size	Unit	Required Stalls Per Unit	Stalls Required
Bicycle Parking Stall Class 1	2000 - 4.16	139	Units	1.00	139
Bicycle Parking Stall Class 2	2000 - 4.16	139	Units	0.20	28
				Total:	**167**

Based on the May 19, 2023 data sheet, the proposed development is expected to provide 153 Class 1 bicycle parking stalls, which exceeds the Bylaw required 139 Class 1 bicycle parking stalls by 14 stalls. The development is also expected to provide 30 Class 2 bicycle parking stalls, which is two more than the Bylaw required 28 Class 2 bicycle parking stalls.

3.4 Transportation Demand Management Plan

Due to the proposed reduction of 11 vehicle parking stalls from the Bylaw required total, a Transportation Demand Management (TDM) plan has been provided. The following sections describe the TDM measures proposed by the Developer to ensure that the reduction in parking stalls is offset by the availability of other, more sustainable, modes of transportation. TDM measures work by incentivizing these modes by increasing the convenience and decreasing the relative costs of sustainable modes.

3.4.1 Car Share Spaces

The proposed development is expected to provide two publicly available vehicle parking spaces, specifically for car share vehicles. Access to these car share spots, located at the P2 level with other visitor parking stalls, will be granted to the public 24 hours a day, seven days a week. The building manager will be responsible for facilitating public access to these car share spaces in a manner that

maintains the security of the proposed development. A letter of support from a car share company will be obtained by the Developer.

3.4.2 Transportation Marketing Services

The developer will consider providing tailored marketing and communications campaigns to encourage the use of sustainable transportation modes. Promotions around the proposed development, centered on targeted messaging and incentives along with other marketing strategies, will seek to deliver an overarching campaign to encourage residents to choose transit and other active modes of transportation. New residents of the proposed development will receive the necessary information to assess their commuting options via specific transit and bicycle routes.

3.4.3 Monthly Transit Pass Subsidy

The developer will consider offering monthly subsidies towards TransLink Compass Cards (stored value or monthly pass) per dwelling unit. These passes would be offered to residents upon request, but residents should be made aware of the program.

3.4.4 Improved Access to Class 1 Bicycle Parking

The proposed development is expected to provide an access ramp to the Class 1 bicycle parking that is fully separated from the vehicle parking ramp. This entrance, located just south of the entry lobby stairs at the P1 level, opens immediately to the bicycle parking for ease of access and safety. **Figure 3-1** shows the expected plan layout of the Class 1 bicycle parking in relation to the main entrance of the development.

3.4.5 Electric Class 1 Bicycle Parking

The proposed development is expected to provide a portion of Class 1 bicycle parking as spaces designated for electric bicycles. Considering the moderate to steep hills surrounding the proposed development, electric bicycles are likely to be an attractive transportation option for many residents. These electric bicycle parking spots will provide outlets with the capacity to charge common bicycle batteries and bicycle lights. **Figure 3-1** shows the expected location of the 16 Class 1 bicycle parking stalls dedicated to electric bicycles.

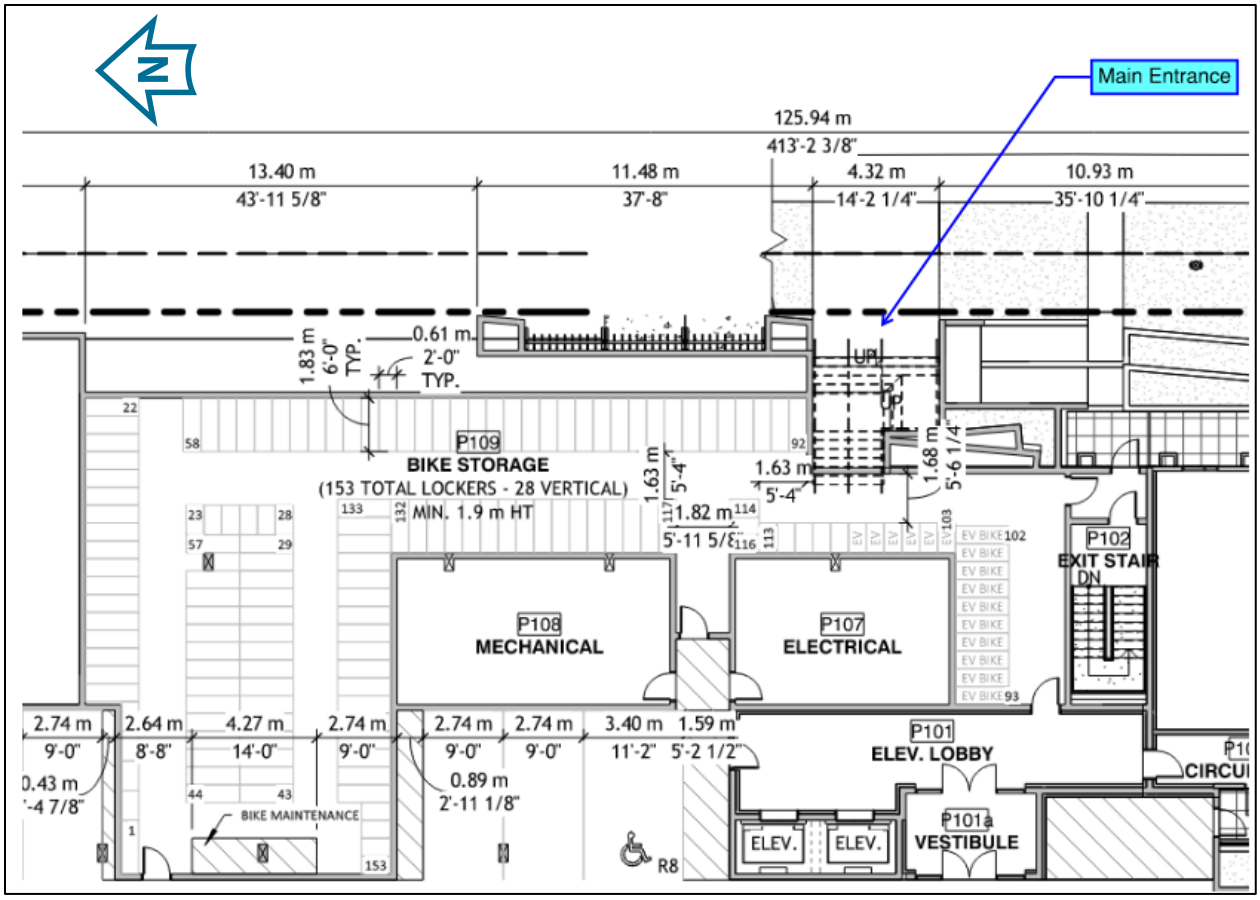


Figure 3-1: Location of Class 1 Bicycle Parking – P1 Level (Source: Keystone Architecture)

3.4.6 Additional Class 1 and 2 Bicycle Parking

The proposed development is expected to provide Class 1 and 2 bicycle parking in excess of the Bylaw required number. By providing 14 additional Class 1 bicycle lockers, the developer is increasing the parking supply by 10%. Provided Class 2 bicycle parking will also exceed minimum requirements by 7%.

3.4.7 Walking Improvements

The proposed development is committed to providing walking improvements that enhance the pedestrian network within the site and connect to the existing pedestrian infrastructure. This includes pedestrian accommodations along Vidal Street and Thrift Avenue frontages. The improvements provide direct off-site connections from the building's entrances to increase accessibility to transit options and other popular, nearby destinations. Ground-oriented units fronting Vidal Street will incorporate associated planting, elevated patios, and base-of-building façade materials to provide a pleasant pedestrian environment. **Figure 3-2** shows the planned pedestrian network upgrades around the proposed development.

Figure 3-2: Walking Improvements Plan View of Pedestrian and Cycling Routes (Source: Keystone Architecture)

3.4.8 Multimodal Wayfinding Signage

The proposed development is expected to provide multimodal wayfinding signage that can withstand the weather elements in key locations on site. These signs will be located near the main entrance and other access points to ensure that residents and visitors will be directed to the nearest bus stop, car share station, bicycle parking, and other key destinations within walking distance. Signage will be provided both inside and outside the building, prioritizing high pedestrian traffic areas.

4 CONCLUSIONS

Based on the revised May 19, 2023 data sheet, 10 additional residential rental units will be provided when compared to the June 29, 2020 submitted traffic study, for a total of 139 residential rental units. This translates to an expected increase in generated trips of three vehicles during the AM peak hour and an increase of four vehicles during the PM peak hour.

In the original traffic study, traffic operations under all three horizon years (2022, 2032, 2045) were expected to operate within the study thresholds with the addition of the study development traffic. As the revised site statistics result in a minimal net change in generated trips, only the combined background and site generated traffic volumes for the horizon year of 2045 was analyzed to evaluate traffic operations given the worst-case scenario. Traffic operations of all study intersections were found to be within the study thresholds for this scenario. Therefore, traffic operations for all three horizon years are expected to operate within the study thresholds.

The proposed parking supply does not meet the Bylaw requirement of 209 total stalls. However, based on the Metro Vancouver *2018 Regional Parking Study*, the resident (excluding visitor) parking demand for market rentals more than 800 metres from a FTN route, is 0.99 stalls per dwelling unit. The same report notes that visitor parking demand was observed to be less than 0.1 stalls per apartment unit.

This would result in a generated parking demand of 138 stalls for residents and 14 stalls for visitors. The proposed 198 stall parking supply (resident, car-share, and visitor) is expected to be sufficient in meeting the forecast residential rental parking demands with the support of the proposed TDM plan strategies. By providing additional accommodations for pedestrians, cyclists, and transit users, the mode share for vehicles may be reduced.

The proposed 153 Class 1 bicycle parking stalls exceeds the Bylaw required 139 Class 1 bicycle parking stalls by a count of 14. Correspondingly, the proposed 30 Class 2 bicycle parking stalls exceeds the Bylaw required 28 Class 2 bicycle parking stalls by a count of two. These bicycle parking stalls, provided in excess of the Bylaw requirement, further supports the TDM plan.

Memorandum Prepared by:

Allan Fan, EIT
Transportation Engineer

Memorandum Reviewed by:

Matthew Woo, P.Eng., PTOE, M.Sc., RSP1
Transportation Engineer of Record

Attachment: Appendix A – Revised Site Statistics
Appendix B – Synchro Results

APPENDIX A

REVISED SITE STATISTICS

0.1. project data

PROJECT:	VIDAL STREET (RESIDENTIAL APARTMENT BUILDING)
EXISTING ZONING:	RS-1, RT-1, CD
PROPOSED ZONING:	CD (COMPREHENSIVE DEVELOPMENT ZONE)
CIVIC ADDRESS:	VIDAL STREET, WHITE ROCK, B.C.
LEGAL DESCRIPTION :	LOT 1 PLAN EPP46879,LOT 8 PLAN 13684, AND STRATA PLAN NWS2236, ALL OF SEC 10 TP 1 NWD
VARIANCES APPLIED FOR:	PARKING REDUCTION OF 22.5% FROM 204 STALLS TO 158 STALLS (REFER TO TRAFFIC REPORT FROM BINNIE FOR PARKING REDUCTION RATIONALE)
BYLAW EXEMPTIONS:	
MAXIMUM BUILDING HEIGHT:	
MINIMUM BUILDING ELEVATION:	
SITE AREA:	41,714 S.F. (3,875.4 S.M.) (0.958 ACRES)
BUILDING AREA:	16,517 S.F.
FAR :	102,015 S.F. (GROSS FLOOR AREA) / 41,714 S.F. = 2.45
LOT COVERAGE:	16,517 S.F. / 41,714 S.F. = 39.6%
BUILDING HEIGHT:	123.08m - 96.66m = 26.42m (T.O. ROOF ELEV. - OVERALL AVERAGE NATURAL GRADE = BLDG. HEIGHT)
AVERAGE NATURAL GRADE:	NORTH: 100.25M, EAST: 97.14M, SOUTH: 92.25M, WEST: 96.99M OVERALL: 96.66M
EFFICIENCY:	85,327 S.F. / 102,015 S.F. = 83.6%
RESIDENTIAL FLOOR AREA:	85,327 S.F.
CIRCULATION AREA:	14,762 S.F.

NOTE: 1. NI = NOT INCLUDED IN TOTALS 2. INC = INCLUDING

NOTE: "GRADE, AVERAGE NATURAL" MEANS THE AVERAGE THAT IS DETERMINED BY MEASURING AT THE MIDPOINTS OF THE WALLS OF THE FOUR SIDES OF THE BUILDING OR STRUCTURE.

0.2. building floor area summary

LEVEL	AREA
P4 LEVEL	19376 SF
P3 LEVEL	25864 SF
P2 LEVEL	28648 SF
P1 LEVEL	21572 SF
	95460 SF
GROSS FLOOR AREA	
P1 LEVEL	1474 SF
1st LEVEL	16426 SF
2nd LEVEL	16160 SF
3rd LEVEL	16405 SF
4th LEVEL	16405 SF
5th LEVEL	16405 SF
6th LEVEL	16405 SF
T/O ROOF	815 SF
	100498 SF
INDOOR AMENITY	
P1 LEVEL	1517 SF
	1517 SF
OUTDOOR AMENITY	
T/O ROOF	12672 SF
	12672 SF

NOTE: "GROSS FLOOR AREA" MEANS THE SUM TOTAL OF FLOOR AREAS OF EACH STOREY IN A BUILDING, INCLUSIVE OF EXTERIOR WALLS. GROSS FLOOR AREA SHALL EXCLUDE COMMUNITY AMENITY SPACE.

0.3. circulation area summary

UNIT	AREA	COUNT	LEVEL	TYPE	TOTAL AREA
COMMON AREA	288 SF	1	P1 LEVEL	CIRCULATION	288 SF
COMMON AREA	1186 SF	1	P1 LEVEL	CIRCULATION	1,186 SF
COMMON AREA	2632 SF	1	1st LEVEL	CIRCULATION	2,632 SF
COMMON AREA	2097 SF	1	2nd LEVEL	CIRCULATION	2,097 SF
COMMON AREA	1979 SF	1	3rd LEVEL	CIRCULATION	1,979 SF
COMMON AREA	1979 SF	1	4th LEVEL	CIRCULATION	1,979 SF
COMMON AREA	1979 SF	1	5th LEVEL	CIRCULATION	1,979 SF
COMMON AREA	1979 SF	1	6th LEVEL	CIRCULATION	1,979 SF
COMMON AREA	218 SF	2	T/O ROOF	CIRCULATION	436 SF
COMMON AREA	379 SF	1	T/O ROOF	CIRCULATION	379 SF
COMMON AREA: 11					14,934 SF

0.4. unit floor area summary

UNIT	UNIT AREA	COUNT	LEVEL	TYPE	TOTAL UNIT AREA
UNIT A	323 SF	2	1st LEVEL	STUDIO	645 SF
UNIT A	323 SF	2	2nd LEVEL	STUDIO	645 SF
UNIT A	323 SF	2	3rd LEVEL	STUDIO	646 SF
UNIT A	323 SF	2	4th LEVEL	STUDIO	646 SF
UNIT A	323 SF	2	5th LEVEL	STUDIO	646 SF
UNIT A	323 SF	2	6th LEVEL	STUDIO	646 SF
UNIT A: 12					**3,874 SF**
UNIT A2	377 SF	1	3rd LEVEL	STUDIO	377 SF
UNIT A2	377 SF	1	4th LEVEL	STUDIO	377 SF
UNIT A2	377 SF	1	5th LEVEL	STUDIO	377 SF
UNIT A2	377 SF	1	6th LEVEL	STUDIO	377 SF
UNIT A2: 4					**1,507 SF**
UNIT A3	404 SF	1	1st LEVEL	STUDIO	404 SF
UNIT A3: 1					**404 SF**
UNIT B	460 SF	5	1st LEVEL	1 BEDROOM	2,301 SF
UNIT B	460 SF	5	2nd LEVEL	1 BEDROOM	2,301 SF
UNIT B	460 SF	5	3rd LEVEL	1 BEDROOM	2,301 SF
UNIT B	460 SF	4	4th LEVEL	1 BEDROOM	1,840 SF
UNIT B	460 SF	4	5th LEVEL	1 BEDROOM	1,840 SF
UNIT B	460 SF	4	6th LEVEL	1 BEDROOM	1,840 SF
UNIT B: 27					**12,424 SF**
UNIT B1.1	453 SF	2	1st LEVEL	1 BEDROOM	906 SF
UNIT B1.1	453 SF	2	2nd LEVEL	1 BEDROOM	906 SF
UNIT B1.1	453 SF	3	3rd LEVEL	1 BEDROOM	1,359 SF
UNIT B1.1	453 SF	3	4th LEVEL	1 BEDROOM	1,359 SF
UNIT B1.1	453 SF	3	5th LEVEL	1 BEDROOM	1,359 SF
UNIT B1.1	453 SF	3	6th LEVEL	1 BEDROOM	1,359 SF
UNIT B1.1: 16					**7,247 SF**
UNIT B2	483 SF	2	1st LEVEL	1 BEDROOM	966 SF
UNIT B2	483 SF	1	2nd LEVEL	1 BEDROOM	483 SF
UNIT B2: 3					**1,450 SF**
UNIT B3	573 SF	1	2nd LEVEL	1 BEDROOM	573 SF
UNIT B3: 1					**573 SF**
UNIT B4	519 SF	1	1st LEVEL	1 BEDROOM	519 SF
UNIT B4	519 SF	1	2nd LEVEL	1 BEDROOM	519 SF
UNIT B4	519 SF	1	3rd LEVEL	1 BEDROOM	519 SF
UNIT B4	519 SF	1	4th LEVEL	1 BEDROOM	519 SF
UNIT B4	519 SF	1	5th LEVEL	1 BEDROOM	519 SF
UNIT B4	519 SF	1	6th LEVEL	1 BEDROOM	519 SF
UNIT B4: 6					**3,116 SF**
UNIT B4.1	486 SF	1	1st LEVEL	1 BEDROOM	486 SF
UNIT B4.1	486 SF	1	2nd LEVEL	1 BEDROOM	486 SF
UNIT B4.1	486 SF	1	3rd LEVEL	1 BEDROOM	486 SF
UNIT B4.1	486 SF	1	4th LEVEL	1 BEDROOM	486 SF
UNIT B4.1	486 SF	1	5th LEVEL	1 BEDROOM	486 SF
UNIT B4.1	486 SF	1	6th LEVEL	1 BEDROOM	486 SF
UNIT B4.1: 6					**2,913 SF**
UNIT B5	569 SF	1	1st LEVEL	1 BEDROOM	569 SF
UNIT B5	569 SF	1	2nd LEVEL	1 BEDROOM	569 SF
UNIT B5	569 SF	1	3rd LEVEL	1 BEDROOM	569 SF
UNIT B5	569 SF	1	4th LEVEL	1 BEDROOM	569 SF
UNIT B5	569 SF	1	5th LEVEL	1 BEDROOM	569 SF
UNIT B5	569 SF	1	6th LEVEL	1 BEDROOM	569 SF
UNIT B5: 6					**3,414 SF**
UNIT B6	518 SF	1	1st LEVEL	1 BEDROOM	518 SF
UNIT B6	518 SF	1	2nd LEVEL	1 BEDROOM	518 SF
UNIT B6	518 SF	1	3rd LEVEL	1 BEDROOM	518 SF
UNIT B6: 3					**1,555 SF**
UNIT C	745 SF	1	1st LEVEL	2 BEDROOM	745 SF
UNIT C	745 SF	1	2nd LEVEL	2 BEDROOM	745 SF
UNIT C	745 SF	1	3rd LEVEL	2 BEDROOM	745 SF

0.4. unit floor area summary

UNIT	UNIT AREA	COUNT	LEVEL	TYPE	TOTAL UNIT AREA
UNIT C	745 SF	1	4th LEVEL	2 BEDROOM	745 SF
UNIT C	745 SF	1	5th LEVEL	2 BEDROOM	745 SF
UNIT C	745 SF	1	6th LEVEL	2 BEDROOM	745 SF
UNIT C: 6					**4,467 SF**
UNIT C2	783 SF	1	1st LEVEL	2 BEDROOM	783 SF
UNIT C2	783 SF	1	2nd LEVEL	2 BEDROOM	783 SF
UNIT C2	783 SF	1	3rd LEVEL	2 BEDROOM	783 SF
UNIT C2	783 SF	1	4th LEVEL	2 BEDROOM	783 SF
UNIT C2	783 SF	1	5th LEVEL	2 BEDROOM	783 SF
UNIT C2	783 SF	1	6th LEVEL	2 BEDROOM	783 SF
UNIT C2: 6					**4,697 SF**
UNIT C3	794 SF	1	1st LEVEL	2 BEDROOM	794 SF
UNIT C3	794 SF	1	2nd LEVEL	2 BEDROOM	794 SF
UNIT C3	794 SF	1	3rd LEVEL	2 BEDROOM	794 SF
UNIT C3	794 SF	1	4th LEVEL	2 BEDROOM	794 SF
UNIT C3	794 SF	1	5th LEVEL	2 BEDROOM	794 SF
UNIT C3	794 SF	1	6th LEVEL	2 BEDROOM	794 SF
UNIT C3: 6					**4,765 SF**
UNIT C4	584 SF	1	2nd LEVEL	2 BEDROOM	584 SF
UNIT C4	584 SF	1	3rd LEVEL	2 BEDROOM	584 SF
UNIT C4	592 SF	1	3rd LEVEL	2 BEDROOM	592 SF
UNIT C4	584 SF	1	4th LEVEL	2 BEDROOM	584 SF
UNIT C4	592 SF	1	4th LEVEL	2 BEDROOM	592 SF
UNIT C4	584 SF	1	5th LEVEL	2 BEDROOM	584 SF
UNIT C4	592 SF	1	5th LEVEL	2 BEDROOM	592 SF
UNIT C4	584 SF	1	6th LEVEL	2 BEDROOM	584 SF
UNIT C4	592 SF	1	6th LEVEL	2 BEDROOM	592 SF
UNIT C4: 9					**5,291 SF**
UNIT D	1046 SF	1	1st LEVEL	3 BEDROOM	1,046 SF
UNIT D	1051 SF	1	1st LEVEL	3 BEDROOM	1,051 SF
UNIT D	1046 SF	1	2nd LEVEL	3 BEDROOM	1,046 SF
UNIT D	1051 SF	1	2nd LEVEL	3 BEDROOM	1,051 SF
UNIT D	1046 SF	1	3rd LEVEL	3 BEDROOM	1,046 SF
UNIT D	1047 SF	1	3rd LEVEL	3 BEDROOM	1,047 SF
UNIT D	1046 SF	1	4th LEVEL	3 BEDROOM	1,046 SF
UNIT D	1047 SF	1	4th LEVEL	3 BEDROOM	1,047 SF
UNIT D	1046 SF	1	5th LEVEL	3 BEDROOM	1,046 SF
UNIT D	1047 SF	1	5th LEVEL	3 BEDROOM	1,047 SF
UNIT D	1046 SF	1	6th LEVEL	3 BEDROOM	1,046 SF
UNIT D	1047 SF	1	6th LEVEL	3 BEDROOM	1,047 SF
UNIT D: 12					**12,569 SF**
UNIT D2	978 SF	1	4th LEVEL	3 BEDROOM	978 SF
UNIT D2	978 SF	1	5th LEVEL	3 BEDROOM	978 SF
UNIT D2	978 SF	1	6th LEVEL	3 BEDROOM	978 SF
UNIT D2: 3					**2,935 SF**
UNIT D3	882 SF	1	1st LEVEL	3 BEDROOM	882 SF
UNIT D3	882 SF	1	2nd LEVEL	3 BEDROOM	882 SF
UNIT D3	882 SF	1	3rd LEVEL	3 BEDROOM	882 SF
UNIT D3	882 SF	1	4th LEVEL	3 BEDROOM	882 SF
UNIT D3	882 SF	1	5th LEVEL	3 BEDROOM	882 SF
UNIT D3	882 SF	1	6th LEVEL	3 BEDROOM	882 SF
UNIT D3: 6					**5,295 SF**
UNIT D4	1110 SF	1	1st LEVEL	3 BEDROOM	1,110 SF
UNIT D4	1110 SF	1	2nd LEVEL	3 BEDROOM	1,110 SF
UNIT D4	1110 SF	1	3rd LEVEL	3 BEDROOM	1,110 SF
UNIT D4	1110 SF	1	4th LEVEL	3 BEDROOM	1,110 SF
UNIT D4	1110 SF	1	5th LEVEL	3 BEDROOM	1,110 SF
UNIT D4	1110 SF	1	6th LEVEL	3 BEDROOM	1,110 SF
UNIT D4: 6					**6,658 SF**
UNIT TOTALS: 139					85,154 SF

0.5. parking

REQUIRED (BYLAW REQUIREMENT)				TOTALS
	UNITS	FACTOR	TOTAL	
DWELLING UNIT	139	*1.2	167	
VISITOR	139	*0.3	42	
BARRIER FREE (DWELLING UNITS)	167 STALLS	2 VAN / 2 STANDARD		
BARRIER FREE (VISITOR)	42 STALLS	1 VAN-ACCESSIBLE		
TOTAL STALLS			209	209 REQUIRED
ELECTRIC STALLS	209 STALLS	*0.1	21	21 EV
OFF STREET LOADING				1 REQUIRED

PROVIDED	SMALL CAR	BARRIER FREE	EV	TOTAL
TENANT (P1 FLOOR)	5	1 VAN-ACCESSIBLE	0	17
TENANT (P2 FLOOR)	15	1 VAN-ACCESSIBLE	17	37
TENANT (P3 FLOOR)	22	1 VAN/1 STANDARD	0	60
TENANT (P4 FLOOR)	9	0	0	41
VISITOR (P1 FLOOR)	9	0	0	18
VISITOR (P2 FLOOR)	11	1 VAN-ACCESSIBLE	4	25 (INC. 2 CO-OP)
TOTAL STALLS	71	5	21	198 PROVIDED
OFF STREET LOADING				1 PROVIDED

BIKE PARKING REQUIRED (BYLAW REQUIREMENT)	UNITS	FACTOR	TOTAL	
BIKE STALLS CLASS I	139	*1	139	
BIKE STALLS CLASS II	139	*0.2	28	
TOTAL STALLS			167	167 REQUIRED
BIKE PARKING PROVIDED				
BIKE STALLS CLASS I	(10.9% ADDITIONAL STALLS)		153	
BIKE STALLS CLASS II	(7.1% ADDITIONAL STALLS)		30	
TOTAL STALLS	(10.2% ADDITIONAL STALLS)		183	183 PROVIDED

NOTE 1: NI = NOT INCLUDED IN TOTALS

0.6. unit count

RESIDENTIAL	UNIT #	UNIT %
1 BED	68	49%
2 BED	27	19%
3 BED	12	9%
3 BED (ADAPTABLE)	15	11%
STUDIO	17	12%
UNIT TOTALS: 139		

NOTES:
- NO CURRENT STEP CODE REQUIREMENTS FOR CITY OF WHITE ROCK
- INTENT FOR PROPOSED CONSTRUCTION TO MEET STEP 2 EQUIVALENCY
- WOOD FRAME THERMAL PERFORMANCE BETTER THAN STEEL OR CONCRETE
- DEVELOPER IS AWARE OF THE IMPORTANCE OF ENERGY EFFICIENCY IN THE CURRENT MARKET

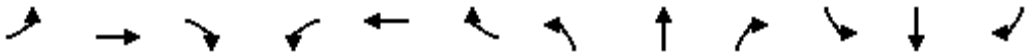
APPENDIX B

SYNCHRO RESULTS

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	19	363	128	38	264	92
Future Volume (Veh/h)	19	363	128	38	264	92
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	21	395	139	41	287	100
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	834	160			180	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	834	160			180	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	55			79	
cM capacity (veh/h)	269	886			1396	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	416	180	387
Volume Left	21	0	287
Volume Right	395	41	0
cSH	794	1700	1396
Volume to Capacity	0.52	0.11	0.21
Queue Length 95th (m)	23.6	0.0	5.9
Control Delay (s)	14.4	0.0	6.6
Lane LOS	B		A
Approach Delay (s)	14.4	0.0	6.6
Approach LOS	B		

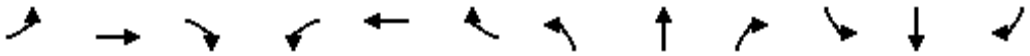
Intersection Summary			
Average Delay	8.7		
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	301	2	13	357	34	3	0	12	20	3	17
Future Volume (Veh/h)	3	301	2	13	357	34	3	0	12	20	3	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	327	2	14	388	37	3	0	13	22	3	18
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	425			329			788	787	328	782	770	406
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	425			329			788	787	328	782	770	406
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			99	100	98	93	99	97
cM capacity (veh/h)	1134			1231			295	319	713	303	327	644

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	332	439	16	43
Volume Left	3	14	3	22
Volume Right	2	37	13	18
cSH	1134	1231	563	392
Volume to Capacity	0.00	0.01	0.03	0.11
Queue Length 95th (m)	0.1	0.3	0.7	2.8
Control Delay (s)	0.1	0.4	11.6	15.3
Lane LOS	A	A	B	C
Approach Delay (s)	0.1	0.4	11.6	15.3
Approach LOS			B	C

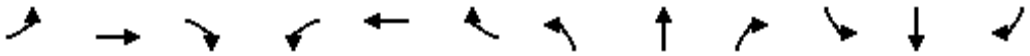
Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	40.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	328	0	2	345	17	17	0	20	35	3	41
Future Volume (Veh/h)	5	328	0	2	345	17	17	0	20	35	3	41
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	357	0	2	375	18	18	0	22	38	3	45
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	393			357			802	764	357	777	755	384
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	393			357			802	764	357	777	755	384
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			94	100	97	87	99	93
cM capacity (veh/h)	1166			1202			279	332	687	303	336	664

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	362	395	40	86
Volume Left	5	2	18	38
Volume Right	0	18	22	45
cSH	1166	1202	414	425
Volume to Capacity	0.00	0.00	0.10	0.20
Queue Length 95th (m)	0.1	0.0	2.4	5.7
Control Delay (s)	0.2	0.1	14.6	15.6
Lane LOS	A	A	B	C
Approach Delay (s)	0.2	0.1	14.6	15.6
Approach LOS			B	C

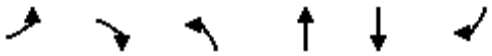
Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	33.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	362	14	3	341	7	12	10	10	20	3	12
Future Volume (Veh/h)	7	362	14	3	341	7	12	10	10	20	3	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	393	15	3	371	8	13	11	11	22	3	13
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	379			408			812	802	400	814	805	375
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	379			408			812	802	400	814	805	375
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			95	97	98	92	99	98
cM capacity (veh/h)	1179			1151			288	315	650	282	313	671

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	416	382	35	38
Volume Left	8	3	13	22
Volume Right	15	8	11	13
cSH	1179	1151	360	355
Volume to Capacity	0.01	0.00	0.10	0.11
Queue Length 95th (m)	0.2	0.1	2.4	2.7
Control Delay (s)	0.2	0.1	16.1	16.4
Lane LOS	A	A	C	C
Approach Delay (s)	0.2	0.1	16.1	16.4
Approach LOS			C	C

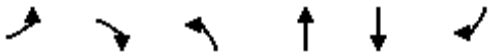
Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	34.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	39	12	10	40	0
Future Volume (Veh/h)	0	39	12	10	40	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	42	13	11	43	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	80	43	43			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	80	43	43			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	96	99			
cM capacity (veh/h)	915	1027	1566			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	42	24	43
Volume Left	0	13	0
Volume Right	42	0	0
cSH	1027	1566	1700
Volume to Capacity	0.04	0.01	0.03
Queue Length 95th (m)	1.0	0.2	0.0
Control Delay (s)	8.7	4.0	0.0
Lane LOS	A	A	
Approach Delay (s)	8.7	4.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	17.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	7	9	482	349	7
Future Volume (Veh/h)	10	7	9	482	349	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	8	10	524	379	8
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	927	383	387			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	927	383	387			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	96	99	99			
cM capacity (veh/h)	295	664	1171			

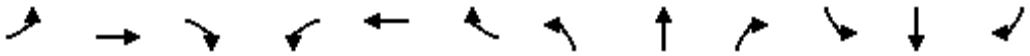
Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	19	534	387
Volume Left	11	10	0
Volume Right	8	0	8
cSH	385	1171	1700
Volume to Capacity	0.05	0.01	0.23
Queue Length 95th (m)	1.2	0.2	0.0
Control Delay (s)	14.8	0.2	0.0
Lane LOS	B	A	
Approach Delay (s)	14.8	0.2	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	42.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	36	372	102	14	291	174
Future Volume (Veh/h)	36	372	102	14	291	174
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	39	404	111	15	316	189
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	940	118			126	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	940	118			126	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	83	57			78	
cM capacity (veh/h)	229	933			1460	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	443	126	505
Volume Left	39	0	316
Volume Right	404	15	0
cSH	735	1700	1460
Volume to Capacity	0.60	0.07	0.22
Queue Length 95th (m)	31.1	0.0	6.3
Control Delay (s)	17.0	0.0	5.8
Lane LOS	C		A
Approach Delay (s)	17.0	0.0	5.8
Approach LOS	C		

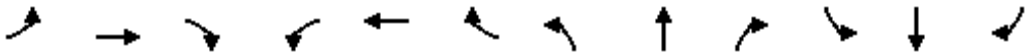
Intersection Summary			
Average Delay	9.8		
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	302	3	15	390	33	0	3	7	14	0	13
Future Volume (Veh/h)	3	302	3	15	390	33	0	3	7	14	0	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	328	3	16	424	36	0	3	8	15	0	14
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	460			331			824	828	330	819	811	442
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	460			331			824	828	330	819	811	442
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	99	99	95	100	98
cM capacity (veh/h)	1101			1228			282	302	712	285	309	615

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	334	476	11	29
Volume Left	3	16	0	15
Volume Right	3	36	8	14
cSH	1101	1228	519	385
Volume to Capacity	0.00	0.01	0.02	0.08
Queue Length 95th (m)	0.1	0.3	0.5	1.8
Control Delay (s)	0.1	0.4	12.1	15.1
Lane LOS	A	A	B	C
Approach Delay (s)	0.1	0.4	12.1	15.1
Approach LOS			B	C

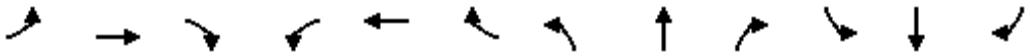
Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	47.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	291	10	17	392	31	10	3	10	22	0	35
Future Volume (Veh/h)	22	291	10	17	392	31	10	3	10	22	0	35
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	316	11	18	426	34	11	3	11	24	0	38
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	460			327			886	866	322	861	854	443
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	460			327			886	866	322	861	854	443
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			99			95	99	98	91	100	94
cM capacity (veh/h)	1101			1233			242	281	719	262	285	615

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	351	478	25	62
Volume Left	24	18	11	24
Volume Right	11	34	11	38
cSH	1101	1233	350	404
Volume to Capacity	0.02	0.01	0.07	0.15
Queue Length 95th (m)	0.5	0.3	1.7	4.1
Control Delay (s)	0.8	0.5	16.1	15.5
Lane LOS	A	A	C	C
Approach Delay (s)	0.8	0.5	16.1	15.5
Approach LOS			C	C

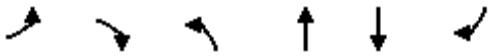
Intersection Summary				
Average Delay	2.0			
Intersection Capacity Utilization	38.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	320	0	13	416	13	0	3	0	33	13	24
Future Volume (Veh/h)	3	320	0	13	416	13	0	3	0	33	13	24
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	348	0	14	452	14	0	3	0	36	14	26
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	466			348			874	848	348	842	841	459
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	466			348			874	848	348	842	841	459
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	99	100	87	95	96
cM capacity (veh/h)	1095			1211			246	294	695	278	297	602

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	351	480	3	76
Volume Left	3	14	0	36
Volume Right	0	14	0	26
cSH	1095	1211	294	346
Volume to Capacity	0.00	0.01	0.01	0.22
Queue Length 95th (m)	0.1	0.3	0.2	6.3
Control Delay (s)	0.1	0.4	17.4	18.3
Lane LOS	A	A	C	C
Approach Delay (s)	0.1	0.4	17.4	18.3
Approach LOS			C	C

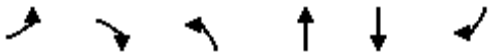
Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	48.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	21	33	23	36	0
Future Volume (Veh/h)	0	21	33	23	36	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	23	36	25	39	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	136	39	39			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	136	39	39			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	98			
cM capacity (veh/h)	838	1033	1571			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	23	61	39
Volume Left	0	36	0
Volume Right	23	0	0
cSH	1033	1571	1700
Volume to Capacity	0.02	0.02	0.02
Queue Length 95th (m)	0.5	0.5	0.0
Control Delay (s)	8.6	4.4	0.0
Lane LOS	A	A	
Approach Delay (s)	8.6	4.4	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	19.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	5	10	464	459	13
Future Volume (Veh/h)	18	5	10	464	459	13
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	20	5	11	504	499	14
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1032	506	513			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1032	506	513			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	99	99			
cM capacity (veh/h)	255	566	1052			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	25	515	513
Volume Left	20	11	0
Volume Right	5	0	14
cSH	287	1052	1700
Volume to Capacity	0.09	0.01	0.30
Queue Length 95th (m)	2.2	0.2	0.0
Control Delay (s)	18.8	0.3	0.0
Lane LOS	C	A	
Approach Delay (s)	18.8	0.3	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	42.4%	ICU Level of Service	A
Analysis Period (min)	15		