Attachment 10

WATT Consulting Group

960 Foul Bay Road

Traffic Impact Assessment

Holland Planning Innovations



WATT CONSULTING GROUP
January 4, 2023

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960 FOUL BAY ROAD

Traffic Impact Assessment

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1.0 INTRODUCTION

Watt Consulting Group was retained by Holland Planning Innovations to undertake a traffic impact assessment for the proposed development at 960 Foul Bay Road in the District of Oak Bay. The proposed development is to include 16 townhouses and a renovated heritage home with eight units. This report examines the existing and long-term conditions within the study area, highlights any potential operational issues, and recommends mitigation measures to ensure accommodation of development traffic. A review of the active transportation accommodations is also provided in this report.

1.1 Study Area

The development site is located on the southwest corner of the Foul Bay Road / Brighton Avenue intersection. The study area includes the following intersections:

- Foul Bay Road / Brighton Avenue.
- Brighton Avenue / Brighton Crescent / Amphion Street.

See **Figure 1** for the study area and site location.

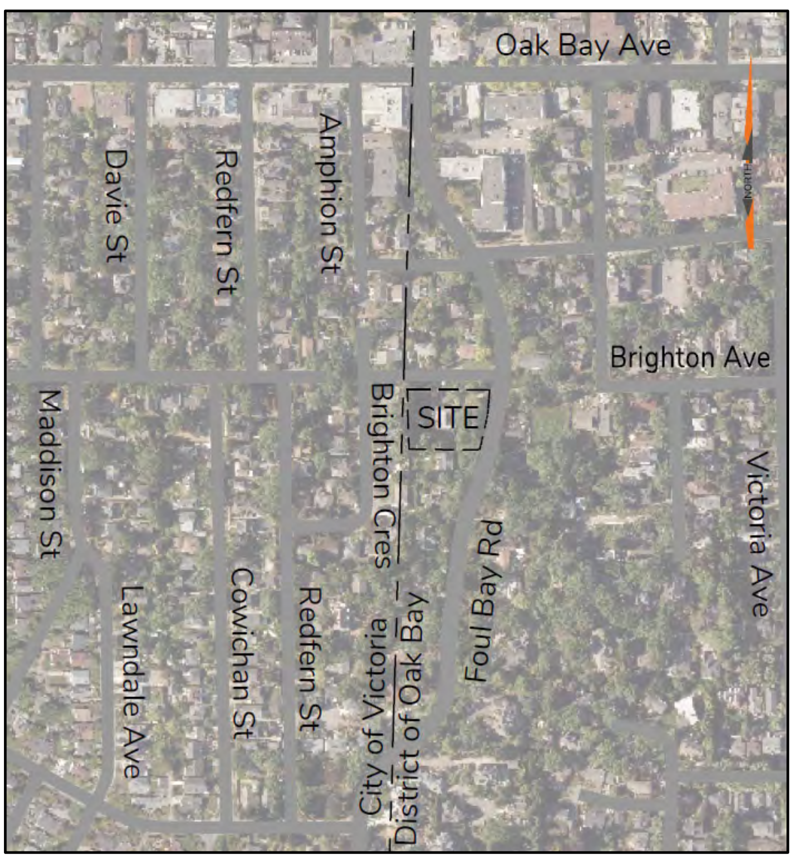

Figure 1: Study Area

2.0 EXISTING CONDITIONS

2.1 Land Use

The site currently contains one house and is zoned as One-Family Residential Use (RS-4). The surrounding land use is comprised of One-Family Residential Use (RS-4 and RS-5).

2.2 Road Network

There are four roadways within the study area as described below:

- **Foul Bay Road** is an undivided, two-lane, arterial road that runs north / south within the study area. Foul Bay Road is within the District of Oak Bay's jurisdiction.
- **Brighton Avenue** is an undivided, two-lane, local road that runs east / west within the study area. Brighton Avenue changes from the District of Oak Bay's jurisdiction to the City of Victoria's jurisdiction just west of the site.
- **Brighton Crescent** is an undivided, two-lane, local road that runs north / south within the study area. Brighton Crescent is within the City of Victoria's jurisdiction.
- **Amphion Street** is an undivided, two-lane, local road that runs north / south within the study area. Amphion Street is within the City of Victoria's jurisdiction.

The posted speed limit on Foul Bay Road within the study limits is 30 km/h. The posted speed limit is 50 km/h on all other roads within the study area. Two key intersections were identified within the study area:

- **Foul Bay Road / Brighton Avenue** is a three-leg, unsignalized intersection with a stop on the west leg and free flow on the north / south legs. There are no auxiliary lanes at this intersection. There is a crosswalk on the south leg of Foul Bay Road. Foul Bay Road / Brighton Avenue is within the District of Oak Bay.
- **Brighton Avenue / Brighton Crescent / Amphion Street** is a three-leg, uncontrolled intersection. The north leg (Amphion Street) is a no through road and ends approximately 25 metres north of the intersection and there is no west leg of Brighton Avenue. This intersection is within the City of Victoria.

See **Figure 2** for the existing road network.

Figure 2: Existing Road Network

2.3 Traffic Modelling – Background Information

Analysis of the traffic conditions at the study intersections was undertaken using Synchro Studio (version 10/11). Synchro / SimTraffic is a two-part traffic modelling software that provides analysis of the traffic conditions based on the Highway Capacity Manual (2010) evaluation methodology. A detailed description is provided in **Appendix A.**

For unsignalized (stop-controlled) intersections, the level of service (LOS) is based on the computed delay on each of the critical movements. LOS A represents minimal delays for minor street traffic movements, and LOS F represents a scenario with an insufficient number of gaps on the major street for minor street motorists to complete their movements without significant delays.

2.4 Existing Traffic Conditions (2022)

Traffic data has started to normalize with the status of the Covid pandemic. While the pandemic may have affected some traffic patterns the overall volumes are now reaching pre-pandemic (normalized) levels; therefore, no Covid factor was applied to the traffic volumes for this study. Traffic counts were conducted by Watt Consulting Group on September 8, 2022 during the AM and PM peak hours. The AM and PM peak hour traffic volumes were modelled using Synchro. See **Table 1** and **Figure 3** for the existing AM and PM peak hour traffic volumes and traffic conditions.

Figure 3: Existing 2022 Volume – AM (PM)

Table 1: 2022 Existing Conditions – AM (PM)

Intersection	Movement	LOS	Delay (s)	95th % Queue (m)
Foul Bay Road / Brighton Avenue	EB	B (B)	14.7 (13.2)	6.8 (4.7)
	NB	A (A)	7.9 (0.0)	9.0 (3.7)
	SB	A (A)	0.0 (0.0)	5.9 (2.3)
Brighton Avenue / Brighton Crescent / Amphion Street	WB	A (A)	1.6 (1.8)	0.0 (1.3)
	NB	A (A)	0.4 (0.5)	0.0 (0.0)
	SB	A (A)	1.4 (1.4)	1.3 (0.0)

All movements at the two intersections operate at LOS A except for the eastbound movements at Foul Bay Road / Brighton Avenue which operates at LOS B. The 95th percentile queues do not interfere with any surrounding intersections.

3.0 POST DEVELOPMENT

3.1 Site Access

The existing site has two site accesses: one on Foul Bay Road and one on Brighton Avenue. The proposed development eliminates the access on Foul Bay Road and retains access to the development on Brighton Avenue. The site access on Brighton Avenue is located approximately 25 metres west of Foul Bay Road. The proposed site plan including the site access is shown in **Figure 4**.

Figure 4: Proposed Site Plan

The Transportation Association of Canada's *Geometric Design Guide for Canadian Roads (2017)* recommends a minimum corner clearance of 15m on a local road. The proposed location of this development's access exceeds TAC's minimum recommendation for a local road.

3.2 Site Distance at Access

TAC identifies a minimum of 105m of sight distance for vehicles turning from a stop onto a road with a 50 km/h posted speed limit. The position of the access does not achieve the 105m required sight distance; however, this is due to the proximity of the adjacent intersections, both of which are T-intersections that do not continue through. The site access has a clear view of both intersections. Vehicles turning onto Brighton Avenue from these intersections will be travelling at slower speeds. There are no safety concerns due to the position of the site access.

3.3 Trip Generation

Trip generation for the proposed development was calculated using the Institute of Transportation Engineers' (ITE) *Trip Generation Manual (11th Edition)*. The Trip Generation Manual provides trip rates for a wide variety of land uses gathered from actual sites across North America over the past 40 years. The proposed development will generate 10 trips (2 entering and 8 exiting) during the AM peak hour and 13 trips (8 entering and 5 exiting) during the PM peak hour. The AM and PM peak hour trip generation results for the proposed development are summarized in **Table 2**.

Table 2: Proposed Development Trip Generation – AM and PM Peak Hours

ITE Code	Peak Hour	Land Use	Units	Trip Rates	Trips In	Trips Out	Total Trips
220	AM	Multi-Family (Low-Rise)	24	0.40 trips/unit	2	8	10
220	PM	Multi-Family (Low-Rise)	24	0.51 trips/unit	8	5	13

3.4 Trip Assignment

The trip assignment was based on the existing traffic patterns and key origin / destinations in the region. A majority of the trips are likely to travel straight to Foul Bay Road with only the occasional trip through Brighton Crescent. The trips generated by the proposed development during the peak hours were assigned using the following distribution pattern:

<u>AM Peak Hour</u>

Entering

- 50% from the north on Foul Bay Road.
- 50% from the south on Foul Bay Road.

Exiting

- 50% to the north on Foul Bay Road.
  40% to the south on Foul Bay Road.
  10% to the south on Brighton Crescent.

<u>PM Peak Hour</u>

Entering

- 50% from the north on Foul Bay Road.
- 40% from the south on Foul Bay Road.
- 10% from the south on Brighton Crescent.

Exiting

- 50% to the north on Foul Bay Road.
  40% to the south on Foul Bay Road.
  10% to the south on Brighton Crescent.

See **Figure 5** for the AM and PM trip assignments.

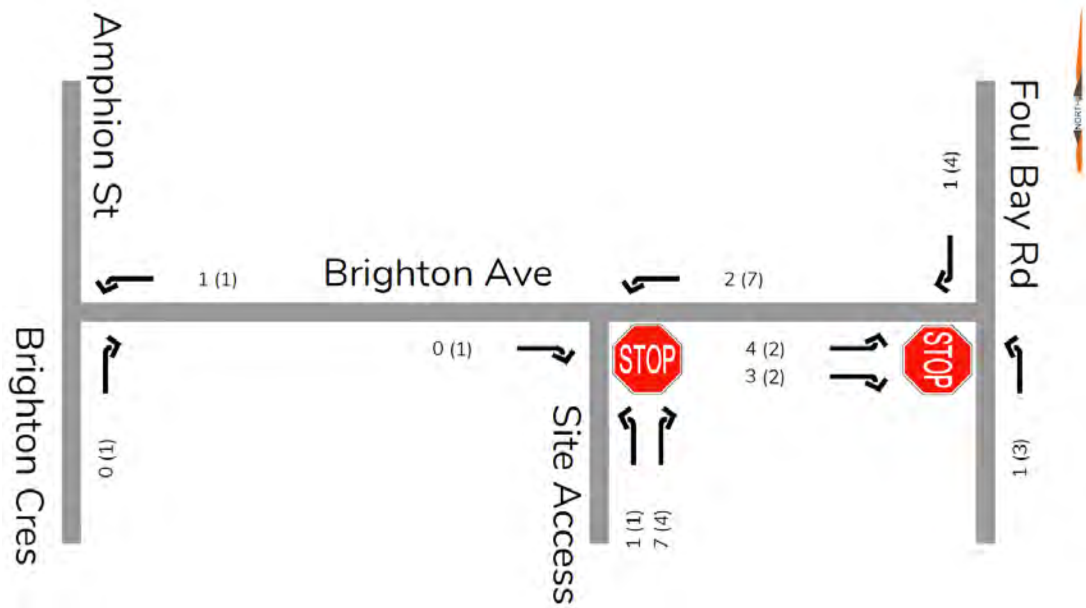

Figure 5: Trip Assignment – AM (PM) Peak Hours

3.5 Opening (2024) Conditions

3.5.1 2024 Background Conditions

Statistics Canada's *2021 Census of Population* results showed that Oak Bay had a negative growth rate of 0.6%; however, population growth does not always translate to vehicle growth. Therefore, a conservative 1.0% vehicle growth rate was applied to obtain the background traffic volumes. **Figure 6** and **Table 3** show the 2024 background AM and PM peak hour conditions.

Figure 6: 2024 Background Conditions – AM (PM)

Table 3: 2024 Background Conditions – AM (PM)

Intersection	Movement	LOS	Delay (s)	95th % Queue (m)
Foul Bay Road / Brighton Avenue	EB	B (B)	14.9 (13.4)	6.8 (4.7)
	NB	A (A)	7.9 (0.0)	9.6 (3.4)
	SB	A (A)	0.0 (0.0)	5.9 (4.1)
Brighton Avenue / Brighton Crescent / Amphion Street	WB	A (A)	2.0 (1.7)	0.0 (0.0)
	NB	A (A)	0.4 (0.4)	0.0 (0.0)
	SB	A (A)	1.4 (1.9)	1.3 (0.0)

Both intersections operate at LOS B or better for all movements during the AM and PM peak hours of travel. The 95th percentile queues do not interfere with any surrounding intersections.

3.5.2 2024 Post Development Conditions

The development traffic was then added to the 2024 background volumes and analyzed in Synchro. See **Figure 7** and **Table 4** for the 2024 Post Development traffic conditions.

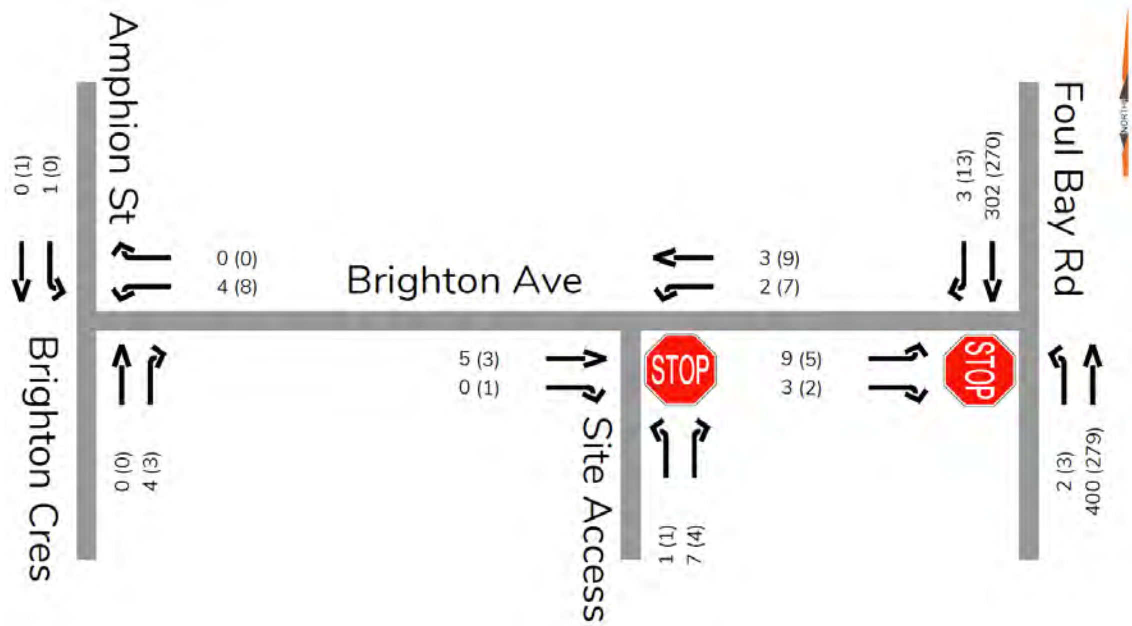

Figure 7: 2024 Post Development Conditions – AM (PM)

Table 4: 2024 Post Development Conditions – AM (PM)

Intersection	Movement	LOS	Delay (s)	95th % Queue (m)
Foul Bay Road / Brighton Avenue	EB	B (B)	14.1 (12.7)	10.6 (7.7)
	NB	A (A)	7.9 (7.9)	6.9 (2.6)
	SB	A (A)	0.0 (0.0)	6.4 (3.6)
Brighton Avenue / Brighton Crescent / Amphion Street	WB	A (A)	1.5 (1.9)	0.0 (1.2)
	NB	A (A)	0.5 (0.5)	0.0 (0.0)
	SB	A (A)	1.3 (2.2)	0.0 (0.0)
Site Access / Brighton Avenue	EB	A (A)	0.0 (0.0)	0.0 (0.0)
	WB	A (A)	7.4 (7.2)	1.5 (0.0)
	NB	A (A)	8.8 (8.4)	8.1 (6.6)

There is no change to the LOS for any movement within the study area after the additional of the development traffic during the AM and PM peak of opening day. There is minimal change to the 95th percentile queues with the addition of the development traffic.

3.6 Long Term (2034) Conditions

3.6.1 2034 Background Conditions

The 2034 background conditions were analyzed during the AM and PM peak hours within the study area. See **Figure 8** and **Table 5** for the 2034 background traffic conditions.

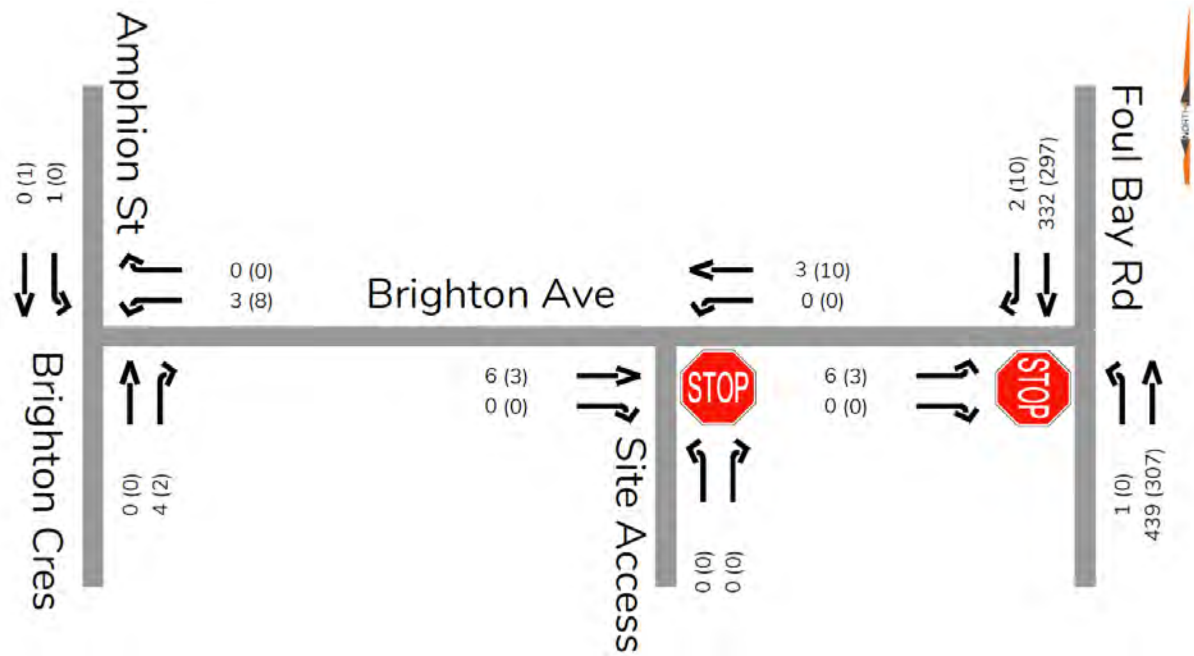

Figure 8: 2034 Background Conditions – AM (PM)

Table 5: 2034 Background Conditions – AM (PM)

Intersection	Movement	LOS	Delay (s)	95th % Queue (m)
Foul Bay Road / Brighton Avenue	EB	C (B)	16.0 (14.1)	7.9 (5.9)
	NB	A (A)	8.0 (0.0)	12.4 (2.6)
	SB	A (A)	0.0 (0.0)	6.9 (3.6)
Brighton Avenue / Brighton Crescent / Amphion Street	WB	A (A)	1.5 (1.7)	0.0 (1.3)
	NB	A (A)	0.4 (0.5)	0.0 (0.0)
	SB	A (A)	0.8 (1.2)	0.0 (0.0)

The eastbound movement at Foul Bay Road / Brighton Avenue with the 2034 background traffic operates at LOS C for the AM peak and LOS B for the PM peak. All other movements within the study area operate at LOS A during both peak hours. The 95th percentile queues do not interfere with any surrounding intersections.

3.6.2 2034 Post Development Conditions

The development traffic was then added to the 2024 background volumes and analyzed in Synchro. See **Figure 9** and **Table 6** for the 2034 post development traffic conditions.

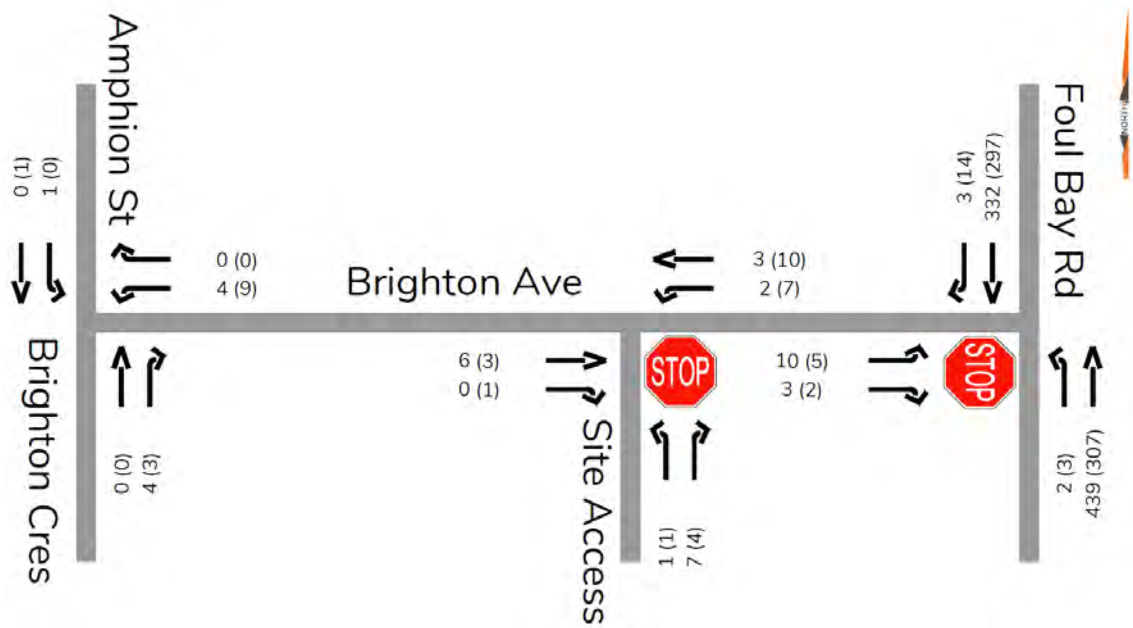

Figure 9: 2034 Post Development Conditions – AM (PM)

Table 6: 2034 Post Development Conditions – AM (PM)

Intersection	Movement	LOS	Delay (s)	95th % Queue (m)
Foul Bay Road / Brighton Avenue	EB	C (B)	15.2 (13.3)	10.7 (8.4)
	NB	A (A)	8.0 (8.0)	9.0 (3.7)
	SB	A (A)	0.0 (0.0)	6.2 (1.9)
Brighton Avenue / Brighton Crescent / Amphion Street	WB	A (A)	1.4 (1.5)	0.0 (0.0)
	NB	A (A)	0.8 (0.5)	1.8 (0.0)
	SB	A (A)	0.8 (2.4)	0.0 (0.0)
Site Access / Brighton Avenue	EB	A (A)	0.0 (0.0)	0.0 (0.0)
	WB	A (A)	7.4 (7.2)	0.0 (0.0)
	NB	A (A)	8.8 (8.4)	7.7 (6.8)

There is no change to the LOS for any movement within the study area after the additional of the development traffic into the long-term horizon (2034). There is minimal change to the 95th percentile queues with the addition of the development traffic.

4.0 ALTERNATIVE TRANSPORTATION MODES

4.1 Pedestrians Network

There is an existing sidewalk on the east side of Foul Bay Road and a crosswalk on the south leg of Foul Bay Road / Brighton Avenue. There are no sidewalks on Brighton Avenue or Brighton Crescent. There is a high number of pedestrians travelling east / west along Brighton Avenue between Foul Bay Road and Brighton Crescent. There were 43 pedestrians counted during the AM peak hour and 12 pedestrians counted during the PM peak hour.

The City's *Complete Streets Handbook (2015)* and *Subdivision Bylaw (Bylaw 3378)* both outline that a sidewalk is to be included on at least one side of all streets. It is recommended that a sidewalk be included on the site frontage of Brighton Avenue that will allow pedestrians to access the existing crosswalk on Foul Bay Road.

4.2 Cycling Network

Foul Bay Road is part of the City's Commuter Route; however, there are no separate bike lanes south of Cadboro Bay Road. Foul Bay Road within the study area is a low-speed street where bikes are expected to share the lane with vehicles. Brighton Avenue and Brighton Crescent are low volume local roads which do not need separate bike facilities. See **Figure 10** for the existing cycling network. No cycling infrastructure upgrades are recommended due to this development.

Figure 10
Existing Cycling Network

4.3 Transit Network

There are five bus routes in relative proximity to the site. **Table 7** summarizes the four transit routes.

Table 7: Transit Route Summary

Route	Destination	Daily Trips Weekday / Sat / Sun	Frequency
Route 2 / 5	James Bay to / from South Oak Bay / Willows	58 / 47 / 42	15 – 30 min
Route 3	James Bay / Royal Jubilee	31 / 29 / 25	30 min
Route 7	UVic / Downtown	57 / 35 / 30	20 – 30 min
Route 8	Interurban / Tillicum Centre / Oak Bay	25 / 16 / 12	20 – 45 min

Routes 2, 5, and 8 can be accessed at bus stops on Oak Bay Avenue which is approximately 260m north of the proposed development site. The closest bus stops on Foul Bay Road are approximately 130 metres north of the site and 220 metres south of the site which accommodate Routes 3 and 7. See **Figure 11** for the existing traffic network. No transit upgrades are recommended due to this development.

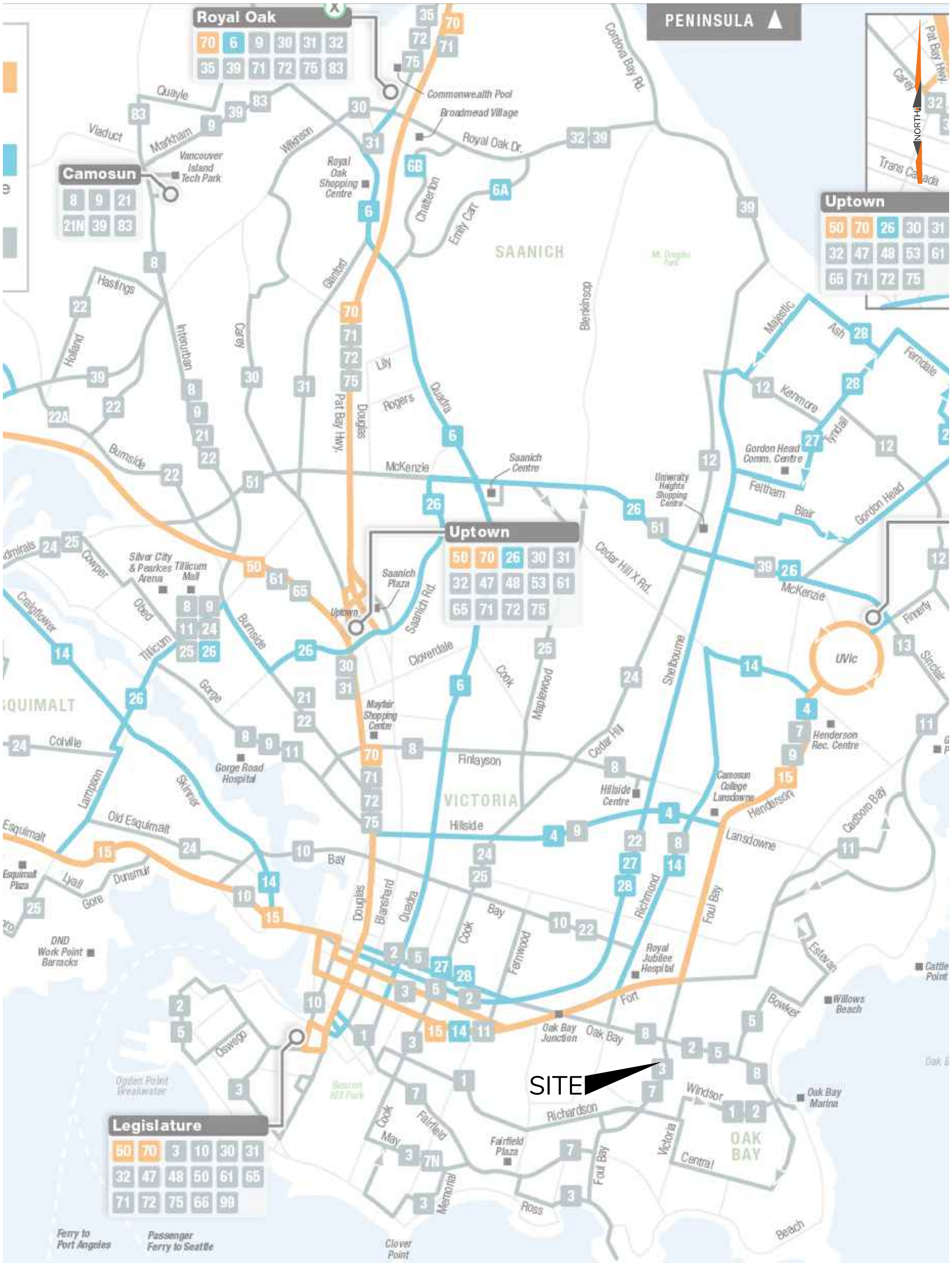

Figure 11
Existing Transit Network

5.0 CONCLUSIONS

A 16-unit townhouse development and a renovated heritage home with eight units are proposed for 960 Foul Bay Road in the District of Oak Bay. The development is to close the existing access on Foul Bay Road and only include one access on Brighton Avenue. There are no safety concerns with the location of the proposed access.

Traffic operations were analyzed in the study area in the short-term and ten-year horizons for both the AM and PM peak hours. There were no changes to the LOS at either intersection after the addition of the development traffic.

A high number of pedestrians were observed travelling east / west on Brighton Avenue. There are no existing pedestrian facilities on this road until the Foul Bay Road / Brighton Avenue intersection. It is recommended that a sidewalk be included on the site frontage of Brighton Avenue to help facilitate pedestrians in the area.

Foul Bay Road has existing shared bike facilities within the study area. All other road in the study area are local roads and do not require special bike facilities. No cycling infrastructure upgrades are recommended due to this development.

There are a number of busing options in the area located on Foul Bay Road and Oak Bay Road all within approximately 200m. No transit upgrades are recommended due to this development.

6.0 RECOMMENDATIONS

- Developer to install sidewalk along the Brighton Avenue Site Frontage.

APPENDIX A: SYNCHRO BACKGROUND

SYNCHRO MODELLING SOFTWARE DESCRIPTION

The traffic analysis was completed using Synchro and SimTraffic traffic modelling software. Results were measured in delay, level of service (LOS), 95th percentile queue length and volume to capacity ratio. Synchro is based on the Highway Capacity Manual (HCM) methodology. SimTraffic integrates established driver behaviours and characteristics to simulate actual conditions by randomly “seeding” or positioning vehicles travelling throughout the network. The simulation is run ten times (ten different random seedings of vehicle types, behaviours and arrivals) to obtain statistical significance of the results.

Levels of Service

Traffic operations are typically described in terms of levels of service, which rates the amount of delay per vehicle for each movement and the entire intersection. Levels of service range from LOS A (representing best operations) to LOS E/F (LOS E being poor operations and LOS F being unpredictable/disruptive operations). LOS E/F are generally unacceptable levels of service under normal everyday conditions. A LOS C or better is considered acceptable operations, while D is considered to be on the threshold between acceptable and unacceptable operations. Highway operations will typically need to operate at LOS C or better for through movements and LOS E or better for other traffic movements with lower order roads.

The hierarchy of criteria for grading an intersection or movement not only includes delay times, but also takes into account traffic control type (stop signs or traffic signal). For example, if a vehicle is delayed for 19 seconds at an unsignalized intersection, it is considered to have an average operation, and would therefore be graded as an LOS C. However, at a signalized intersection, a 19 second delay would be considered a good operation and therefore it would be given an LOS B. The table below indicates the range of delay for LOS for signalized and unsignalized intersections.

Table A1: LOS Criteria, by Intersection Traffic Control

Level of Service (LOS)	Unsignalized Intersection Average Vehicle Delay (sec / veh)	Signalized Intersection Average Vehicle Delay (sec / veh)
A	0 – 10	0 – 10
B	> 10 – 15	> 10 – 20
C	> 15 – 25	> 20 – 35
D	> 25 – 35	> 35 – 55
E	> 35 – 50	> 55 – 80
F	> 50	> 80

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Marking Developments
152-2223A Oak Bay Avenue
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June 16, 2025
Our File No: 3385.B01

To: Jennifer Travelbea

Re: 960 Foul Bay Road – Transportation Impact Assessment Addendum

1.0 INTRODUCTION

WATT Consulting Group was retained by Marking Developments to provide transportation consulting services in support of a proposed residential development at 960 Foul Bay Road in the District of Oak Bay. The proposed development is to include 16 townhouses and a renovated heritage home with eight units.

A Transportation Impact Assessment (TIA) for this site was prepared by WATT, dated January 4th, 2023. This memo provides an addendum to the original 2023 TIA. It examines the difference between the 2022 conditions and current (2025) conditions within the study area, analyzes traffic from new concurrent developments near the site, and highlights any major changes to post development operations in the area.

2.0 COMPARISON OF 2022 – 2025 TRAFFIC DATA

WATT performed an initial traffic count on September 8, 2022 during the AM and PM peak hours at Brighton Ave & Amphion Street Intersection, and at Foul Bay Road & Brighton Ave. Given that these counts are now close to 3 years out of date, a new traffic count was conducted on May 8, 2025 during the AM and PM peak hours at the same intersections.

Foul Bay / Brighton Ave

In the three years since the original counts, northbound traffic on Foul Bay Road during the AM peak hour has increased 4% and southbound traffic has decreased 14%. This is equivalent to a 1% increase per year for northbound traffic and a 5% decrease per year for southbound traffic.

During the same three year period, traffic during PM peak hour on Foul Bay Road increased 15% for Northbound traffic and 1% for southbound traffic. This is representative of a 5% per year increase in Northbound traffic and 0.4% per year increase in Southbound traffic. These rates have been outlined in **Table 1**.

Table 1: Foul Bay Road & Brighton Ave Growth Rate from 2022 to 2025

Time	Direction	2022	2025	% Growth per Year	Total % Growth
AM	NB	392	407	1%	4%
	SB	296	254	-5%	-14%
PM	NB	274	314	5%	15%
	SB	265	268	0.4%	1%

Each direction and time had varying growth rates, so the average of all growth rates (AM, PM, northbound, and southbound) were taken to obtain an average corridor growth rate of 0.5% per year. This corridor growth rate was used to forecast increased volumes on Foul Bay Road for the background and post-development conditions. This corridor growth rate is used to account for unforeseen increases in traffic due to changes in travel patterns in the area, or new developments that arise that have not already been accounted for in the section below.

Amphion Street / Brighton Ave

AM traffic at this intersection increased by 25% for vehicles (increase of 2 vehicles), 80% for cyclists (increase of 4 cyclists), and decreased 6% pedestrians (decrease of 4 pedestrians) over the three-year period. PM traffic increased 10% for vehicles (increase of 1 vehicle), decreased 48% for pedestrians (decrease of 26 pedestrians), and showed no change for cyclists. Due to the low volume of traffic at this intersection, the growth rates were not applied to Amphion Street or Brighton Avenue in the updated analysis.

The 80% increase in cyclists found at Amphion Street & Brighton Ave aligns with the Oak Bay Active Transportation Strategy, which highlights the municipality's focus on creating safer and more sustainable cycling routes. This increase could further indicate the modal shift from vehicles to cycling, which could potentially reduce the vehicle growth rates in future years.

3.0 CONCURRENT DEVELOPMENTS

Three concurrent developments were incorporated in the updated analysis:

1908 Foul Bay Road

1908 Foul Bay Road is a site north of the proposed development in the City of Victoria. It is currently in a rezoning process to be constructed into a multi-family rental building. This development will include six-stories and 83 residential units.

1513 Amphion Street / 1964 Oak Bay Ave

This site is north of the proposed development in the City of Victoria. It is planned to be six stories. This will include 42 dwelling units, as well as live-work units and a commercial unit with a gross floor area (GFA) of 2045 ft^2.

902 Foul Bay Road

902 Foul Bay Road is located South of the proposed site in the City of Victoria. It is in the construction phase of developing 18 town homes in two 4-storey buildings.

Trip generation for the concurrent developments was calculated using the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Edition). The Trip Generation Manual provides trip rates for a wide variety of land uses gathered from actual sites across North America over the past 40 years. **Table 2** outlines the expected trip generation for the concurrent developments.

Table 2: Concurrent Developments Trip Generation - AM and PM Peak hours

Development	ITE Code	Peak Hour	Land Use	Units	Trip Rates	Trips In	Trips Out	Total Trips
1908 Foul Bay Road	**221**	AM	Multi-Family (Mid-Rise)	83	0.37 trips/unit	7	24	31
	221	PM	Multi-Family (Mid-Rise)	83	0.39 trips/unit	20	12	32
1513 Amphion Street / 1964 Oak Bay Ave	**221**	AM	Multi-Family (Mid-Rise)	42	0.37 trips/unit	4	12	16
	221	PM	Multi-Family (Mid-Rise)	42	0.39 trips/unit	10	6	16
		AM	Commercial Retail Unit (CRU)	1	1.5 trips/1000 sqft	1	2	3
		PM	Commercial Retail Unit (CRU)	1	3.69 trips/1000 sqft	5	3	8
902 Foul Bay Road	**215**	AM	Single-Family Attached Housing	18	0.48	2	7	9
	215	PM	Single Family Attached Housing	18	0.48	6	4	10

4.0 PROPOSED DEVELOPMENT

4.1 Trip Generation & Trip Assignment

The trip generation for the proposed development has been adjusted to calculate the trip generation for the townhouses separately from the eight units in the renovated heritage home. Conversion units are smaller, less expensive, and are likely to house different types of residents from the townhouses, thus, it was most appropriate to calculate their trip generations separately. **Table 3** shows the adjusted trip generations for the proposed development for both the AM and PM peak hours.

Table 3: Proposed Development Trip Generation - AM and PM Peak Hours

ITE Code	Peak Hour	Land Use	Units	Trip Rates	Trips In	Trips Out	Total Trips
220	AM	Multi-Family (Low-Rise)	8	0.40 trips/unit	1	2	3
220	PM	Multi-Family (Low-Rise)	8	0.51 trips/unit	3	1	4
215	AM	Single-Family Attached Housing	16	0.48 trips/unit	2	6	8
215	PM	Single Family Attached Housing	16	0.57 trips/unit	5	4	9

The trip assignments from the January 4th, 2023 TIA have been used for the updated model, since the travel patterns and direction of travel during the AM and PM peak hours for the residents of the proposed development will remain similar to the 2023 estimations. The trips generated by the proposed development during the peak hours were assigned using the following distribution.

<u>AM Peak Hour</u>

Entering
- 50% from the north on Foul Bay Road.
- 50% from the south on Foul Bay Road.

Exiting
- 50% to the north on Foul Bay Road.
  40% to the south on Foul Bay Road.
  10% to the south on Brighton Crescent.

<u>PM Peak Hour</u>

Entering
- 50% from the north on Foul Bay Road.
- 40% from the south on Foul Bay Road.
- 10% from the south on Brighton Crescent.

Exiting
- 50% to the north on Foul Bay Road.
  40% to the south on Foul Bay Road.
  10% to the south on Brighton Crescent.

4.2 Opening Day (2027) Conditions

4.2.1 2027 Background Conditions

Background traffic is the sum of existing (2025) traffic volumes, corridor growth rate (calculated in **Section 2.0** above), and concurrent development traffic.

Background traffic volumes for opening day are illustrated in **Figure 1.** Background traffic operations for opening day are shown in **Table 4**.

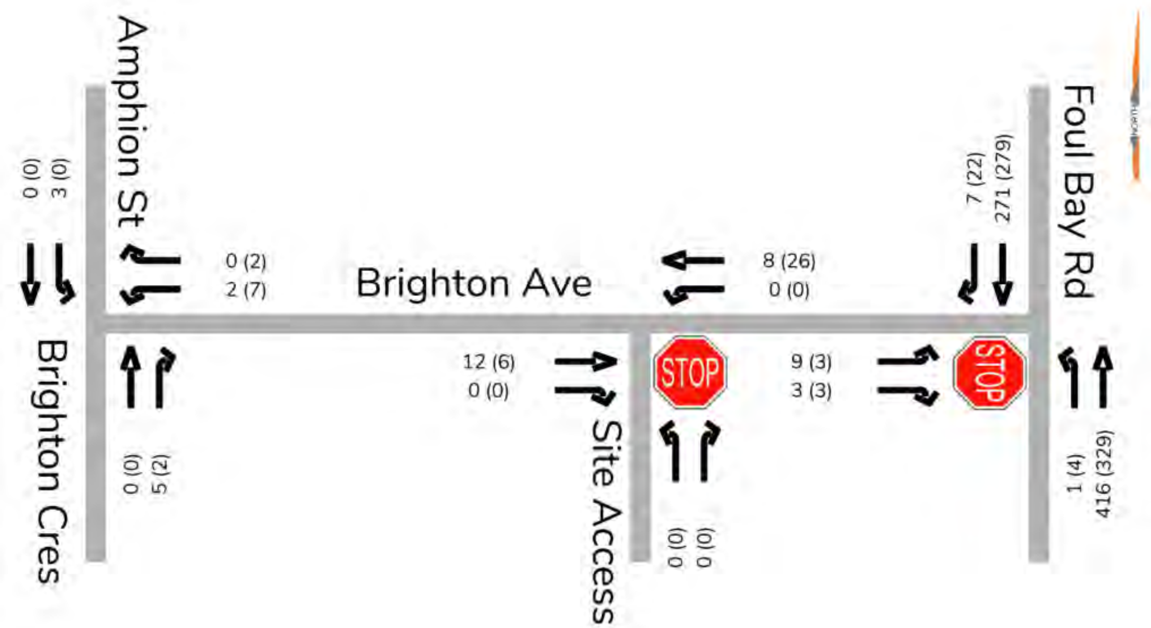

Figure 1: 2027 Background Conditions - AM (PM)

Table 4: 2027 Background Conditions AM (PM)

Intersection	Movement	LOS	Delay (seconds)	95th % Queue (veh)
Foul Bay Road / Brighton Avenue	EB	B (B)	13.9 (11.8)	0.1 (0.0)
	NB	A (A)	7.9 (7.9)	0.0 (0.0)
	SB	A (A)	0.0 (0.0)	0.0 (0.0)
Brighton Avenue / Brighton Crescent / Amphion Street	WB	A (A)	7.1 (7.0)	0.0 (0.0)
	NB	A (A)	6.3 (6.3)	0.0 (0.0)
	SB	A (A)	7.1 (7.2)	0.0 (0.0)

Level of service (LOS) is a qualitative measure that relates the volume of vehicles in a corridor to the capacity of a corridor. LOS A has the best traffic flow with minimal delays and low volumes of vehicles, whereas LOS F has the worst traffic flow with heavy congestion and long queues due to a large volume of vehicles and low corridor capacity. The 95th percentile queue represents the queue length that is exceeded by only 5% of the traffic volumes, ie. the worst case queue.

Under background conditions on opening day, both intersections operate at LOS B or better for all movements during the AM and PM peak hours of travel. The 95th percentile queues do not interfere with any surrounding intersections.

4.2.2 2027 Post-Development Conditions

The development traffic was added to the opening day background volumes and analysed in Synchro. See **Figure 2** for post-development traffic volumes and **Table 5** for post-development traffic conditions.

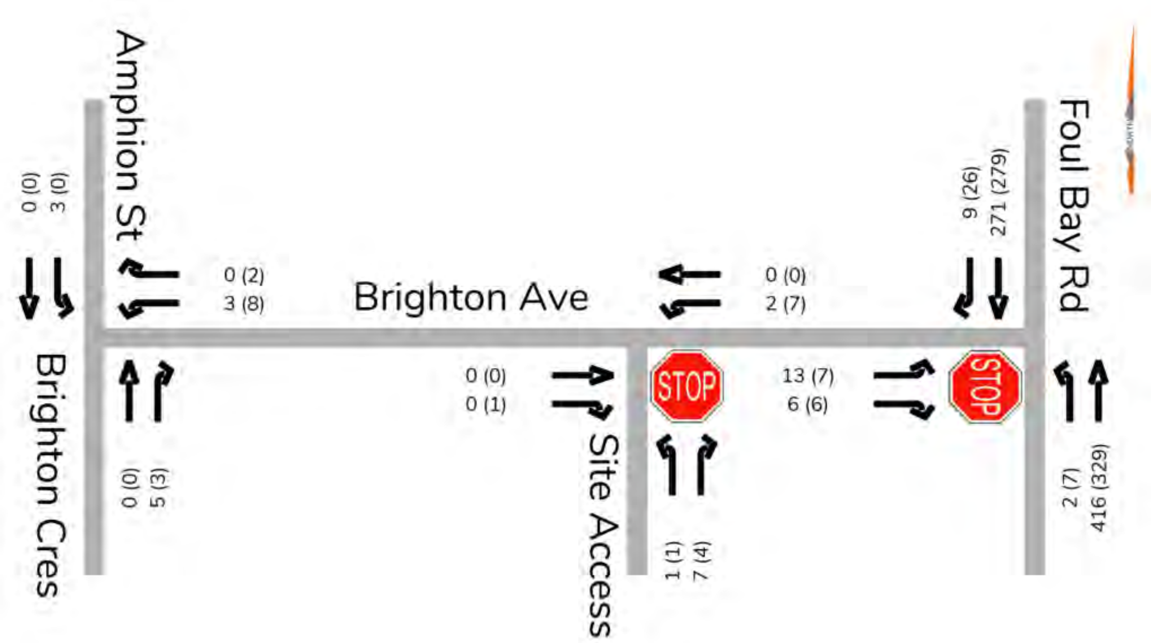

Figure 2: 2027 Post Development - AM (PM)

Table 5: 2027 Post Development Conditions - AM (PM)

Intersection	Movement	LOS	Delay (seconds)	95th % Queue (veh)
Foul Bay Road / Brighton Avenue	EB	B (B)	13.8 (12.1)	0.2 (0.1)
	NB	A (A)	7.9 (7.9)	0.0 (0.0)
	SB	A (A)	0.0 (0.0)	0.0 (0.0)
Brighton Avenue / Brighton Crescent / Amphion Street	WB	A (A)	7.2 (7.0)	0.0 (0.0)
	NB	A (A)	6.4 (6.3)	0.0 (0.0)
	SB	A (A)	7.2 (6.9)	0.0 (0.0)
Site Access / Brighton Avenue	EB	A (A)	0.0 (0.0)	0.0 (0.0)
	WB	A (A)	7.2 (7.2)	0.0 (0.0)
	NB	A (A)	8.4 (8.4)	0.0 (0.0)

There is no change to the LOS for any movement within the study area after the addition of the development traffic during the AM and PM peak of opening day.

4.3 Long Term (2037) Conditions

4.3.1 2037 Background Conditions

The 2037 long-term background conditions were analyzed during the AM and PM peak hours within the study area. Assuming the growth rate remains the same or similar as it has over the last decade, the same growth rate of 0.5% was used for the long-term analyses. See **Figure 3** for background traffic volumes and **Table 6** for the background traffic conditions.

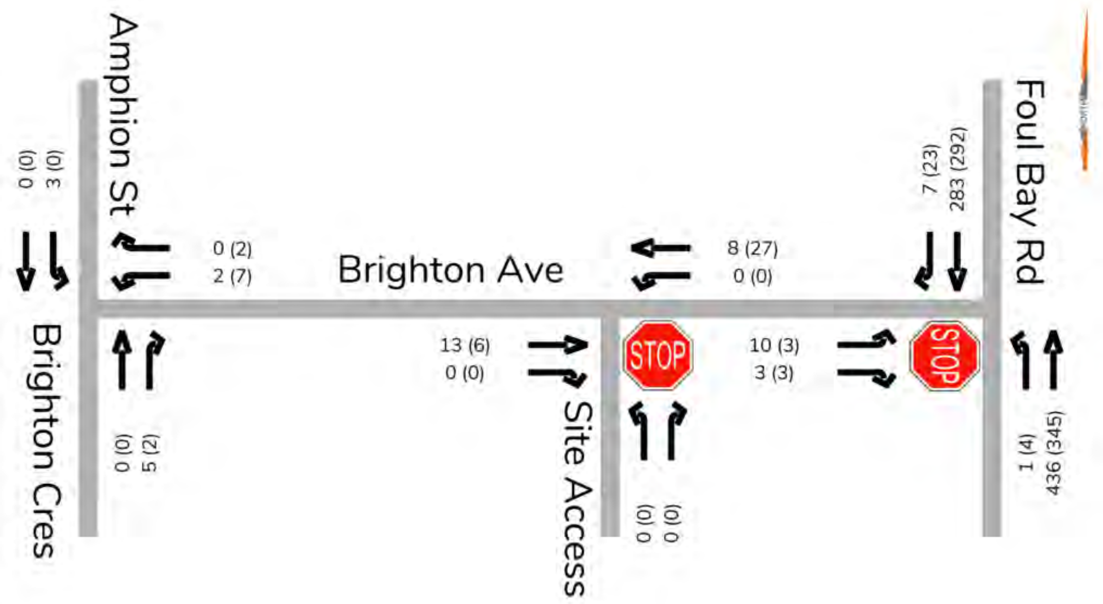

Figure 3: 2037 Background Conditions - AM (PM)

Table 6: 2037 Background Conditions - AM (PM)

Intersection	Movement	LOS	Delay (seconds)	95th % Queue (veh)
Foul Bay Road / Brighton Avenue	EB	B (B)	14.5 (12)	0.0 (0.0)
	NB	A (A)	7.9 (7.9)	0.0 (0.0)
	SB	A (A)	0.0 (0.0)	0.0 (0.0)
Brighton Avenue / Brighton Crescent / Amphion Street	WB	A (A)	7.1 (7.0)	0.0 (0.0)
	NB	A (A)	6.3 (6.3)	0.0 (0.0)
	SB	A (A)	7.1 (6.9)	0.0 (0.0)

There is no change to the LOS for any movement withing the study area with the increase corridor growth for the long-term conditions.

4.3.2 2037 Post-Development Conditions

The development traffic was then added to the 2037 background volumes and analyzed in Synchro. See **Figure 4** for the 2037 post development traffic volumes and **Table 7** for the 2037 post development conditions.

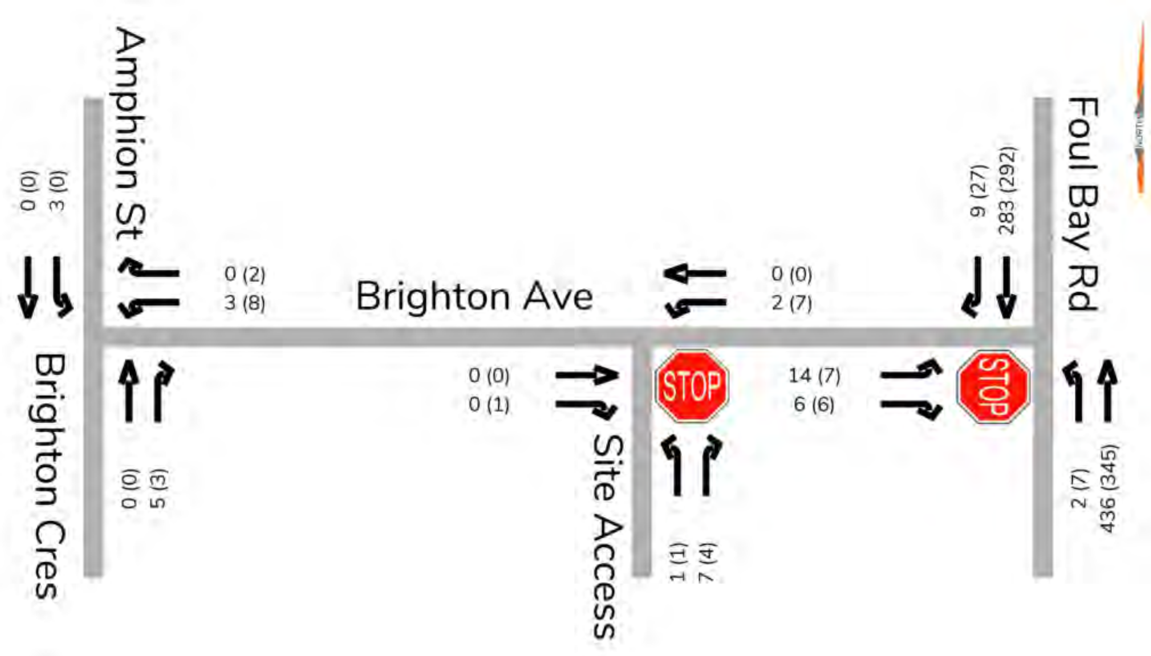

Figure 4: 2037 Post Development Conditions - AM (PM)

Table 7: 2037 Post Development Conditions - AM (PM)

Intersection	Movement	LOS	Delay (seconds)	95th % Queue (veh)
Foul Bay Road / Brighton Avenue	EB	B (B)	14.3 (12.3)	0.2 (0.0)
	NB	A (A)	7.9 (7.9)	0.0 (0.0)
	SB	A (A)	0.0 (0.0)	0.0 (0.0)
Brighton Avenue / Brighton Crescent / Amphion Street	WB	A (A)	7.1 (7.0)	0.0 (0.0)
	NB	A (A)	6.3 (6.3)	0.0 (0.0)
	SB	A (A)	7.1 (6.9)	0.0 (0.0)
Site Access / Brighton Avenue	EB	A (A)	0.0 (0.0)	0.0 (0.0)
	WB	A (A)	7.2 (7.2)	0.0 (0.0)
	NB	A (A)	8.4 (8.4)	0.0 (0.0)

There is no change to the LOS for any movement within the study area after the addition of the development traffic into the long-term horizon (2037).

5.0 CONCLUSIONS

A 16-unit townhouse development and a renovated heritage home with eight units are proposed for 960 Foul Bay Road in the District of Oak Bay. The development is to close the existing access on Foul Bay Road and only include one access on Brighton Avenue. There are no safety concerns with the location of the proposed access.

Updated data collection conducted on May 8th, 2025 found that both the Foul Bay Road & Brighton Avenue, and Brighton Cresent & Amphion Road intersections have not seen significant growth in pedestrian, cyclist, heavy vehicle and vehicle traffic since the original 2022 traffic counts were conducted. Using the new volumes, the northbound and southbound directions of Foul Bay Road have shown an average growth rate of 0.5% per annum.

Traffic operations were analyzed in the study area in the short-term and the ten-year horizons for both the AM and PM peak hours using the updated data collection, the updated growth rate, and new concurrent developments. The new volumes revealed similar results to the past analysis. The new analysis found that there were no changes to the LOS at either intersection after the addition of the development traffic.

In conclusion, no operational issues are forecasted for the proposed development based on this updated analysis. The results of the previous 2023 TIA remain valid.

Sincerely,

WATT Consulting Group

PROFESSIONAL
PROVINCE OF
K. A. MACHINA
54513
BRITISH COLUMBIA
ENGINEER
2025-06-16

PERMIT TO PRACTICE:
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July 27, 2023
File No: 11742-1

960 Foul Bay Holdings
754 Humboldt Street
Victoria, BC
V8W 4A1

Attn: Jennifer Travelbea (By E-mail: jenniferandscott2010@shaw.ca)

Re: Proposed Townhouse Development
960 Foul Bay Road – Oak Bay, BC

As requested, we have completed a site reconnaissance and brief geotechnical investigation of the soil conditions at the referenced site. The following report summarizes the results of our assessment, and associated recommendations related to the proposed development. Our work in this regard has been carried out in accordance with, and is subject to, the previously accepted Terms of Engagement.

PROPOSED DEVELOPMENT

The site has an area of approximately 3322 m^2 and is bounded by Brighton Avenue to the north, Foul Bay Road to the east, and single-family dwellings to the south and west. Topographically, the site slopes down gradually from the southeast to west with an approximate grade relief of 2 m based on the provided survey produced by Powell & Associates. The site is currently occupied by a Heritage house and garage with large mature Garry Oaks, Douglas Firs, and Red Cedars scattered across the property.

Based on our review of the provided preliminary architectural drawings produced by Koka Architecture and Design Inc. dated December 15th, 2022, we understand that it is intended to relocate the existing heritage house to the northeastern corner of the property and subsequently construct three at-grade townhouse buildings (Block A, Block B, and Block C). We understand that Block A will comprise four units, Block B will comprise five units, and Block C will comprise seven units. Parking will be provided by private garage spaces at-grade below each unit.

We anticipate the use of conventional shallow concrete foundations with timber frame above. Foundation loads associated with the proposed buildings are anticipated to be light.

GEOTECHNICAL ASSESSMENT AND RECOMMENDATIONS

On the basis of the above, we expect that the development of the site, as proposed, is feasible from a geotechnical perspective with little to no unique geotechnical issues.

Excavation Considerations

Excavations are anticipated to be no more than 1.0 m deep and can likely be achieved using open cut slopes. Local deeper trenches may be required for installation of buried utilities. We anticipate that temporary bulk excavation cutslopes will be stable where cut vertically up to 1.0 m height but must be inspected and approved by a qualified geotechnical professional at the time of excavation. In the case deeper excavations are required, such should be considered stable at the following configurations:

- 1.0 H:1.0 V (Horizontal: Vertical) for fill materials,
- 0.5 H:1.0 V for very stiff to hard brown silty clay, and
- Near vertical within bedrock.

Modifications to cutslopes may be required where groundwater seepage is encountered, as such can cause slope instability. If any seepage is observed that could affect the excavation cutslope stability, we should be contacted immediately to make adjustments and provide updated recommendations. According to WorkSafeBC guidelines, excavations deeper than 1.2 m must be inspected and approved by a qualified geotechnical professional, unless sloped in accordance with the guidelines.

Building Foundations

We expect that reinforced concrete foundations for the renovated dwelling and proposed townhomes will consist of typical pad and strip footings. Any topsoil, disturbed soil, or fill will need to be removed from the proposed building areas to expose suitable subgrade. We expect that suitable subgrade for this site will consist of either very stiff silty clay, glacial till, bedrock, or approved engineered fill placed atop such. Foundation elements can be dimensioned according to Table 1, below.

Table 1: Summary of expected bearing resistance for various subgrade conditions

Subgrade Soil	**Limit State Design (LSD)****	
	Strip Footing	**Pad Footing**
Native silty clay/glacial till or approved engineered fill on bedrock	150 kPa (SLS) 225 kPa (ULS)	175 kPa (SLS) 260 kPa (ULS)
Intact/fractured-in-place bedrock	1500 kPa (ULS)	1800 kPa (ULS)

**Limit State Design values use a geotechnical resistance factor of 0.5 as per the current Canadian Foundation Engineering Manual

Actual bearing conditions will need to be confirmed once footing subgrade is exposed. Minimum footing widths of 400 mm and 600 mm are recommended for strip and pad footings, respectively. For frost protection, the base of all footings should extend to a depth of at least 450 mm below adjacent finished grades. For footings placed directly on bedrock, the bedrock surface should be sufficiently level or keyed. Otherwise, where the surface slopes at or greater than 6H:1V, we would recommend installing rebar dowelling within the footing with a minimum of 450 mm embedment into the bedrock (spacing and size of rebar dowel to be determined based on requirements in the foundation plans). All foundation subgrade areas must be inspected by a geotechnical professional to confirm the subgrade bearing resistance prior to placement of engineered fill or foundation elements.

Engineered Fill

Engineered fill, if required, should be placed upon approved subgrade and should consist of a select free draining granular material such as 19 mm or 75 mm minus crushed rock. The fill should be placed and compacted in suitably thin lifts under the supervision of a geotechnical professional to at least 95% of the Standard Proctor Maximum Dry Density (SPMDD) value or judged equivalent. The recommended lift thickness is dependent on both the type of material and the method of compaction (i.e. 300 mm thick lifts for 19 mm minus crushed rock fill compacted with a vibratory diesel plate compactor). Placement methodology should be confirmed by a geotechnical professional before commencing.

Engineered fill must be placed to extend horizontally beyond the edge of the foundation by 1.0 m plus a distance equal to the depth of fill placed unless suitable splay is present within approved native soils.

Seismic Considerations

The National Building Code of Canada (NBCC) has recently released an updated NBCC 2020 which is anticipated to be adopted by the BC Building Code (BCBC) in December of 2023 (BCBC 2023), however the exact date is uncertain. We expect that the BCBC 2023 will fully adopt the NBCC 2020 Division B – 4.1.8. Earthquake Loads and Effects Section. The Structural Commentaries, which accompanies the new code have not been released; however, we can comment on the preliminary available information to date.

The new building code has significantly changed the seismic hazard within Greater Victoria. This is due to an updated 6th generation seismic hazard model for Canada, which has incorporated the Leech River Valley/Devils Mountain Fault, in addition to the updated seismic hazard stemming from the proximity to an active tectonic plate boundary (Cascadia Subduction Zone). The new code has increased seismic response by 15-100% depending on the Site Class and building period.

The definition of V_{s30} was also updated to be defined as the time-averaged shear wave velocity **measured from the ground surface** to a depth of 30 m, rather than the underside of the Seismic Force Resisting System (SFRS) foundation elements, which has a significant impact on buildings with deeper underground structures. Possible embedment factors may be applicable for projects constructed below grade, but details of such have not be released to date.

For sites where the shear wave velocity is directly measured in-situ, the design spectrum of the site may be calculated using a site specific V_{s30} value. When in-situ shear wave velocities are not determined, the site may be designated through Site Classification, similar to NBCC 2015. The major difference between Site Classification of NBCC 2015/2020, is that in the 2020 the design spectrum is calculated based on the lowest end of the shear wave velocity of a Site Class. For example, in 2015 Site Class of C was designed based on V_{s30} of 450 m/s, whereas in 2020 Site Class of C is designed based on V_{s30} of 360 m/s. Additionally, any site with a V_{s30} below 140 m/s is designated as Site Class F within the NBCC 2020.

In-situ shear wave velocity measurements were not completed as part of our investigation. Based on soil conditions observed it is reasonable to expect the shear wave velocity in the upper 30 m (Vs30) to be between 760 m/s and 1500 m/s. This corresponds to a Site Classification for Seismic Site Response of 'B', in accordance with the current BC Building Code. The corresponding design spectrum of spectral accelerations may be determined from the online 2020 NBCC Seismic Hazard Tool for a Site Class of 'B' and 2% probability of exceedance in a 50-year seismic event.

Settlement Considerations

Provided adverse soils (i.e., topsoils and fill) are removed from all building/foundation areas and areas of expected heavy loading (from moving truck, garbage trucks, etc.), we expect that settlement at this site will be minor, if any, and of minimal significance to the structural or geotechnical design.

Slab Construction

Use of a grade supported floor slab for the ground floor for each building is considered feasible. It is recommended that all topsoil and/or fill materials be removed within slab areas. A minimum 150 mm of 19 mm minus crushed rock or free draining coarse sand is recommended immediately beneath the slab, as well as a conventional subslab moisture barrier to minimize capillary rise of moisture into the slab. All subslab fill material should be compacted as per the Engineered Fill section above.

Foundation Wall Backfill & Earth Pressures

Foundation walls should be backfilled with clean, well graded granular material, with less than 5% passing the #200 sieve. Backfill should be placed and compacted in maximum 300 mm lifts to at least 95% of Standard Proctor Maximum Dry Density (SPMDD). Additionally, adequate drainage should be provided for the backfill to prevent the buildup of hydrostatic pressure against the foundation walls.

We anticipate that the foundation walls will be backfilled with a select imported crush rock product. Foundation walls backfilled with select crushed rock can be designed based on the attached Lateral Earth Pressure Diagrams and the following lateral earth pressure coefficients, which are based on a friction angle of 40°:

Table 2. Lateral Earth Pressure Coefficients

Lateral Earth Pressure Coefficient			
Wall Type	**Static K**		**ΔK_e**
Yielding (unrestrained)	Active (K_a)	0.20	0.31
Non-yielding (restrained)	At-Rest (K_o)	0.36	1.47

A yielding wall is able to move a minimum of 0.2% of the height of the wall (rotation or translation) to allow active pressures to develop. Where such movement cannot occur, the non-yielding, at-rest earth pressure coefficient should be used. Seismic earth pressures for yielding and non-yielding walls are based on 50% and 100% of the site class adjusted PGA, respectively.

In the case where a compacted sand and gravel product is proposed to backfill foundation walls, a reduced friction angle would need to be utilized for design. Given that the structural commentaries with respect to the 2023 BCBC have yet to be released, it is unclear on what the design parameters will be for non-yielding walls with the increased PGA values. These will need to be further assessed at a later date and a site-specific assessment of the lateral earth pressures would be required.

Foundation Drainage

Conventional perimeter foundation drainage backfilled with the recommended free draining granular material will be suitable to limit hydrostatic pressure on the foundation walls. The foundation drain arrangement (perforated pipe and uniform gravel/drain rock) should be covered with a medium weight, non-woven geotextile, to prevent migration of fine materials from the backfill into voids within the drain arrangement. Any pits below perimeter drainage should be designed to accommodate hydrostatic pressure.

Additionally, it should be noted that given the native soil/anticipated shallow rock present below the site, the option to discharge water (storm, perimeter drains, etc.) into the ground is likely not feasible. Therefore, captured water should be directed towards municipal systems.

Pavement Considerations

For pavement structure, in areas of light traffic within driveways and roadways, we typically recommend 50 mm of asphalt atop 100 mm of 19 mm minus crushed rock containing low fines (less than 5%) overlying 150 mm to 300 mm of 75 mm minus crushed rock upon approved subgrade. If an asphalt surface with reduced maintenance potential is desired, an increase to 80 mm of asphalt is recommended. In areas where subgrade consists of compacted over blast, it may be possible to reduce or eliminate the 75 mm minus crushed rock layer.

For heavier traffic areas, we suggest a minimum of 80 mm of asphalt over a minimum of 150 mm of 19 mm minus crushed rock above a further 300 mm of 75 mm minus crushed rock. Alternatively, 300 mm of 19 mm minus crushed rock could be used provided it is low in fines for sufficient water drainage. A concrete pad is often preferred in front of garbage enclosures.

We recommend in-situ density testing be carried out (either at regular intervals or by spot checks) to ensure fill materials are compacted to a minimum of 95% of the SPMDD value or judged equivalent for support of civil infrastructure.

CLOSURE

We trust the preceding is suitable for your purposes at present. Please do not hesitate to contact our office if we can be of further assistance.

Sincerely,
Ryzuk Geotechnical

Austin Baird, EIT
Advanced Junior Engineer

R.S. Currie, P.Eng.
Senior Geotechnical Engineer

PROFESSIONAL ENGINEER, PROVINCE OF BRITISH COLUMBIA, R. S. CURRIE # 28372

PTPN: 1002996

Attachment –
- Location Plan

Cc: Hoel Engineering (By Email: steve@jshengineering)
Attn: Mr. S. Hoel, P.Eng., Struct. Eng.

NOTES
1. This drawing is scaled for 8.5x11 sheet and does not require further scaling to fit. Scales will differ if printed on different sheet size.
2. Orthographic imagery taken from CRD Regional Mapping

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SEAL: PROFESSIONAL · PROVINCE OF BRITISH COLUMBIA · R. S. CURRIE · # 28372 · ENGINEER · 2023/7/25

PTPN: 1002996

DRAWN BY	AB
EOR/LEAD	RSC
REVIEW	-
SCALE	1:500
DATE	2023/07/25
CLIENT	960 FOUL BAY ROAD HOLDINGS LTD
PROJECT TITLE	PROPOSED TOWNHOUSE DEVELOPMENT
PROJECT ADDRESS	960 FOUL BAY ROAD - OAK BAY, BC
DRAWING NAME	LOCATION PLAN
PROJECT No.	11742-1
SHEET No.	01 of 01
REVISION	.00

Multi-Unit Residential

Development Permit Area Guidelines

Review Checklist

960 Foul Bay Rd. – DP000056

This checklist is adapted from the Official Community Plan, and a ✓ indicates that, to the best of staff's understanding, the respective guideline is being met on balance. A ✗ indicates that a guideline is not being met, and a box will be left blank if it is unknown or unclear whether a guideline is being met. An NA mark indicates the guideline is considered not applicable for the project under consideration.

.3 Objectives

OBJECTIVES OF THE MULTI-UNIT-RESIDENTIAL DEVELOPMENT PERMIT AREA		
TO PROMOTE DEVELOPMENTS AND REDEVELOPMENTS THAT ACCOMPLISH THE FOLLOWING:		Guideline Met?
1	Support a sustainable and compact community.	✓
2	Respect and integrate with neighbourhood character and streetscapes.	✓
3	Provide housing diversity to meet the changing needs of residents throughout their life cycle, including the needs of those with physical and developmental disabilities.	✓
4	Provide landscapes that include vegetation and rainwater management.	✓
5	Support safe pedestrian access and accessibility.	✓
6	Consider the impacts of new construction on adjacent residents.	The site has been designed to screen parking areas from adjacent properties, to provide increased setbacks (from R-4 standards) along the interior side lot line for Building C, and to provide landscape screening along the rear property line. With a reduction in on-site parking, there may be further opportunities to site Building C further from the existing property to the south

.6 Site Planning and Building Guidelines

SITE PLANNING AND BUILDING GUIDELINES		
CONTEXT, SCALE AND MASSING		Guideline Met?
1	Design and build new development to contribute to the cohesion, visual identity and the quality of streetscapes.	✓
2	Incorporate building elements that are complementary to other buildings on the street, such as street walls, façade rhythm, and horizontal cornice lines.	✓
3	Add visual interest to the streetscape including laneways through variations in building height, rooflines and massing. Break up the perceived mass of large buildings by incorporating visual breaks in facades.	✓
4	Step back upper storeys of large buildings and arrange the massing and siting of buildings to consider shadowing on lower-level units, adjacent buildings, as well as public and open spaces such as sidewalks, plazas and courtyards. Building articulation may consider the use of balconies, trellises and architectural features to reduce the impact of larger buildings. Articulation may be considered in lieu of setbacks through the use of balconies, trellises and architectural features.	N/A Intended for taller building typologies; however, buildings do feature balconies and articulated facades
5	Avoid blank, windowless walls along and/or visible from streets or other public open spaces. Where blank walls cannot be avoided, features such as texture, graphics, reveals, and colours may be incorporated into the façade.	✓
6	Incorporate subtle vertical and horizontal recesses / articulation on large primary facades (e.g. cladding details).	✓
7	Contribute to both streetscapes including laneways if the building is located on a corner site.	✓
8	Locate and design building massing to provide a transition between the form, character and scale of the surrounding neighbourhood and the character of commercial areas or arterial and collector roads that are close to or adjacent to the property being developed. Consider future land use when designing transition in building heights from taller to shorter buildings both within and adjacent to the site.	✓
COMMUNITY AND PRIVACY		Guideline Met?
9	Respect the privacy of adjacent properties by reducing overlook between buildings and neighbouring properties.	✓
10	Limit shadowing of public outdoor use areas and adjacent residential properties.	✓
11	Retain prominent views of nearby or distant landscape features from public spaces.	N/A
12	Orient building frontages and main entrances to the dominant street frontage where possible, with well-defined entries and direct pedestrian access to the entries from the street.	✓
13	Retain large front setbacks where there is substantial green space and trees that contribute to the character of the streetscape. Flexibility should be considered to accommodate courtyards and other features between	✓ Plantings included along street frontages

	buildings that would result in building facades up to the minimum front yard setback.	to minimize impact of reduced setbacks needed for internal circulation and parking areas
14	Apply CPTED principles to building and site design, balancing these with objectives related to landscaping, sustainability and tree retention.	✓
15	Finish building elevations visible from the street to a similar standard as the street-fronting façade.	✓
16	Screen roof-top mechanical and ground-level equipment from views in a manner that is consistent with the architectural design of the building, as so as not to cause visual, noise or vibration impacts on project residents or adjacent residential lots.	Unknown how rooftop heat pumps will be screened
17	Avoid locating utility infrastructure (such as electrical meters, HVAC units etc.) on the front façade of buildings where alternative locations are feasible and that are screened to minimize visual impact from the street and neighbouring properties.	✓
18	Locate garbage and recycling rooms in underground or covered parking areas where feasible. Where not feasible, exterior garbage or recycling areas may be considered with landscaping and screened to minimize visual impact from public view.	✓
19	Encourage community connection with the street through the use of balconies, patios, and work-live units (where permitted).	✓
SUSTAINABLE DESIGN		Guideline Met?
20	Use sustainable and green building practices and technologies such as water conservation, waste reduction, reduction of ghgs, solar panels, geothermal energy and other emerging systems.	✓
21	Apply passive solar siting principles to reduce the energy needed for lighting and heating, e.g. the penetration of sunlight and natural light into interior spaces.	✓
22	Incorporate planted roofs and roof-top gardens on buildings for use by residents, with care taken in design to minimize the impact on privacy of neighbours.	✗
23	Provide charging stations for electric vehicles and secured storage for bicycles in accordance with District bylaws.	✓

.7 Landscape Guidelines

LANDSCAPE GUIDELINES		
		Guideline Met?
1	Design the site layout and building locations to retain and conserve as much natural vegetation, rock outcrops, existing hydrology, and unique site features as possible, including Garry Oaks, other large trees, and significant vegetation.	✗

2	Respect existing topography, minimizing the need for cut and fill, major blasting or tall retaining walls.	✓
3	Use low impact development practices such as the following: - Maximize the extent of landscaped areas on site with absorbent soils and minimize the amount of impervious surfaces to increase the natural infiltration of rainwater and to provide a more natural or landscaped character - Reduce the amount of impervious paving and use permeable materials where possible, e.g. permeable pavers, permeable asphalt or concrete, decks, reinforced grass - Consider the use of bioswales, rain gardens and other design techniques that allow greater infiltration of water including within and around parking areas - Use rainwater collection/re-use systems that collect rainwater for irrigation.	As the impermeable surface coverage is quite high there may be opportunities to achieve greater alignment
4	Use native, low maintenance (drought resistant, low water requirement) concepts in landscape plans.	✓
5	Design the landscape to retain, and if possible to increase, the tree canopy on the site.	✓
6	Make sites accessible to people of all abilities through the use of universal design principles	✗
7	Consider energy efficiency and conservation in landscape design (e.g. provide shade in summer, moderate wind, while allowing sunlight / daylight into buildings).	✓
8	Incorporate outdoor amenities such as benches, courtyards, food gardens, dog relief areas, and recreation facilities to provide opportunities for residents to socialize and to contribute to a sense of community.	✓
9	Screen surface parking areas and service areas where necessary to reduce impacts on neighbouring residences and the public realm. Use planting for screening where possible.	✓
10	Design the front yard landscape to include a significant proportion of vegetation and design fences to allow views into the property.	✓
11	Locate and design directional signs and any similar features to be low profile, ground-oriented and externally lit with low intensity fixtures accentuated by landscaping. Do not use flashing lights, neon signs and similar bright lights.	✓
12	Locate refuse and recycling container areas where they are accessible to residents and to container pick-up trucks, screened with an appropriate durable enclosure, and provide landscaping around the perimeter of the enclosure where possible. Avoid direct exposure of refuse and recycling areas to public streets.	✓
13	Design and select outdoor light fixtures based on dark sky principles, e.g. shielded to direct light downward to ground surfaces only and avoid lighting of building faces and trees.	✓

.8 Access, Circulation and Parking Area Guidelines

ACCESS, CIRCULATION AND PARKING AREA GUIDELINES		
		Guideline Met?
1	Design the internal road and parking system for efficient circulation of all types of vehicles, with a layout that discourages speeding, and provide safe pedestrian routes from parking areas to building entrances.	✓
2	Include internal landscaping within large areas of surface parking in order to “break up” the hard surface area.	✓
3	Locate parking to the rear or side yard, underground or under the building where possible.	✓
4	Locate access points and route driveways to minimize impacts on existing trees.	✓
5	Garage entries should be located on the rear or side facades of buildings. If this is not possible, they should be receded behind the front building face and incorporate architectural detailing to avoid a streetscape that is auto-centric. Garage doors visible from the street should include glazing, design features, and materials/colours to soften the impact.	✓
6	Consider the use of laneways for access where they exist.	N/A