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Wilson Street / Alston Street Development
TRANSPORTATION STUDY

Prepared for
Citizen Design Build

February 05 2019

File no.
4606.0001.01

Contents

1.0 Introduction

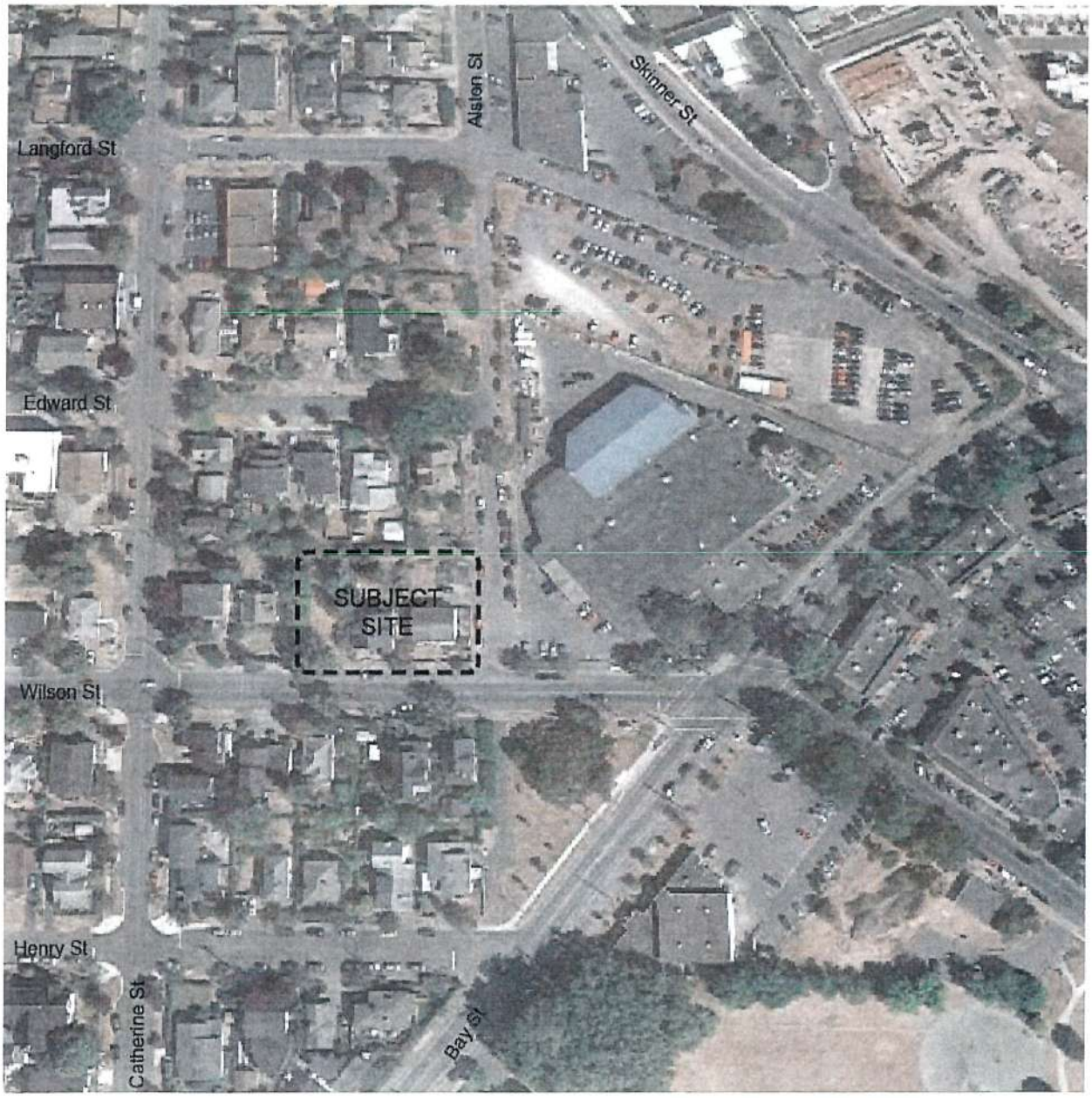
Urban Systems Ltd has been retained by Citizen Design Build to complete a transportation study of the proposed redevelopment of the 210-230 Wilson Street properties on the northwest corner of the Wilson Street / Alston Street intersection. The study is a comprehensive review of the potential transportation impacts on the surrounding community, with specific consideration of the following:

- The proposed parking supply and expected parking demand associated with the site redevelopment;
- On-street parking conditions and neighbourhood parking management;
- The Wilson Street / Alston Street intersection performance and potential impacts on the surrounding road network; and
- Opportunities to limit parking and traffic impacts through transportation demand management ("TDM").

1.1 Location

The subject site is located on the northwest corner of the Wilson Street / Alston Street intersection. See **Figure 1**.

FIGURE 1. STUDY AREA



1.2 Context

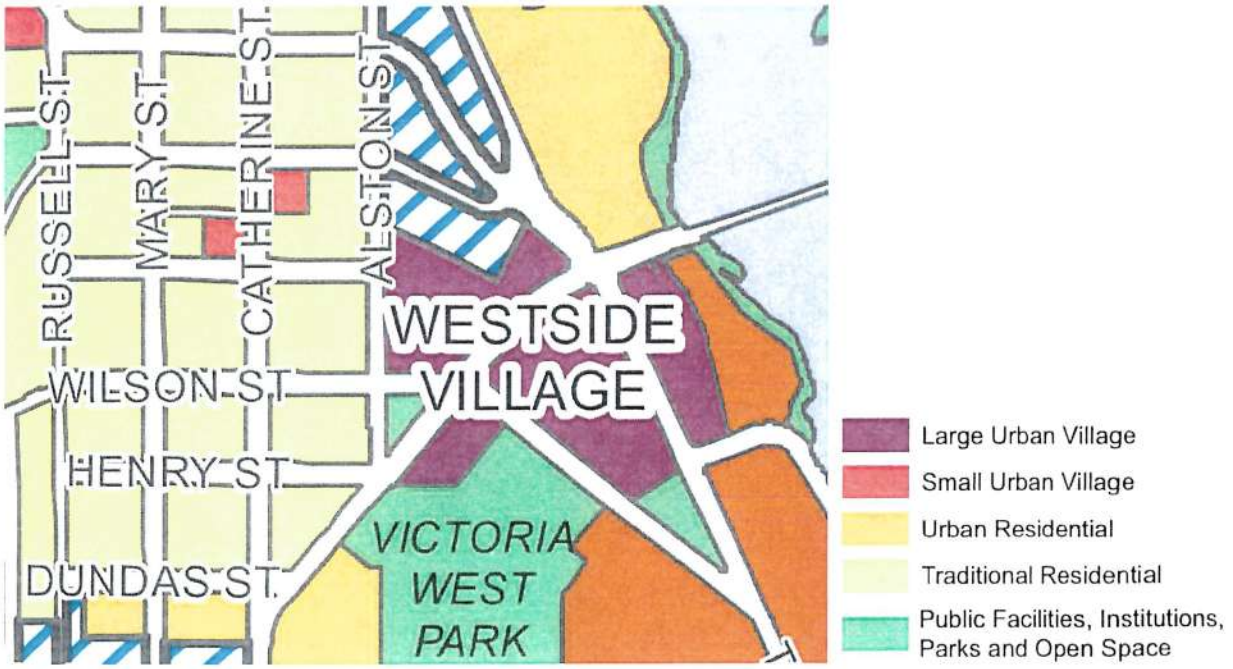
1.2.1 Land Use

The subject site is located in the Victoria West neighbourhood.

The Official Community Plan ("OCP") identifies the site as **Traditional Residential**. Traditional Residential consists primarily of residential and accessory uses in a wide range of primarily ground-oriented building forms including single, duplexes, townhouses and row-houses, house conversions, and low-rise multi-unit residential and mixed-use buildings up to three storeys in height located along arterial and secondary arterial roads.

Properties to the south, west and north are also designated Traditional Residential. Properties to the immediate east are designated **Large Urban Village**. See **Figure 2**. Large Urban Village consists of low to mid-rise mixed-use buildings that accommodate ground-level commercial, offices, community services, visitor accommodation, and multi-unit residential apartments, with a public realm characterized by wide sidewalks, regularly spaced street tree planting and buildings set close to the street frontage, anchored by a full service grocery store or equivalent combination of food retail uses, serving either as a local, rapid or frequent transit service hub[1].

FIGURE 2. URBAN PLACE DESIGNATIONS, VICTORIA OCP



[1] City of Victoria, Official Community Plan, Section 6: Land Management and Development. Available online: www.victoria.ca/assets/Departments/Planning~Development/Community~Planning/OCP/Replaced/OCP_Sect6_Oct4_2018.pdf

1.2.2 Travel Options

The following is an overview of the transportation infrastructure and services in proximity to the site.

Walking The subject site is located approximately 200m (3-minute walk) from the Westside Village Shopping Centre, which includes many commercial and service uses (i.e., grocery, pharmacy, various other retail uses). The site is 1.5 to 2.5km to downtown Victoria (depending on location), an approximately 20- to 30-minute walk. Recent upgrades to the Johnson Street Bridge improve the crossing to/from downtown Victoria.

The subject site's WalkScore is 81 ("very walkable, most errands can be accomplished on foot")[2], indicating a high level of walkability.

With the exception of Alston Street, sidewalks are provided on the both sides of all streets in the vicinity of the site. Sidewalks will be installed on the Alston Street frontage as part of the development frontage improvements, as well as improved sidewalks with landscaped boulevards installed on the Wilson Street frontage.

Cycling The site is approximately 1.5- to 2.5-km from downtown Victoria - a comfortable cycling distance for most. Recent improvements to the Johnson Street Bridge improve the cycling connection between Vic West and downtown.

Conventional bike lanes are present on many of the major roads nearby the site, including Bay Street, Craigflower Road / Skinner Street, Tyee Road, and Esquimalt Road providing connection to the Esquimalt DND, Royal Jubilee Hospital and other key commute destinations.

The Galloping Goose Regional Trail is accessed at Bay Street or Regatta Landing and provides a dedicated off-street cycling facility to Uptown, the Victoria General Hospital and Western Communities, and the Saanich Peninsula via the Lochside Regional Trail. The E+N Regional Trail is accessed from Wilson Street approximately 500m west of the site and provides a dedicated off-street cycling facility through Esquimalt, View Royal and to the Western Communities.

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[2] More information on the site's WalkScore is available online at: www.walkscore.com/score/210-wilson-st-victoria-bc-canada

Public Transit

The subject site is well served by public transit with five (5) routes accessed within 5-minutes walk of the site. The most frequent service is provided on the following routes:

- No.14 – Vic General / UVic provides frequent service between the Victoria General Hospital and the University of Victoria via Craigflower Road and downtown Victoria, and is accessed by bus stops on Tyee Road at Bay Street approximately 200m from the site;
- No.15 – Esquimalt / UVic provides frequent service between the Esquimalt Dockyards and the University of Victoria via Esquimalt Road and downtown Victoria, and is accessed by bus stops on Esquimalt Road at Bay Street approximately 300m from the site;
- No.10 – James Bay / Royal Jubilee provides service between James Bay and the Royal Jubilee Hospital via downtown Victoria and Vic West, and is accessed by bus stops on Bay Street approximately 100m from the site;
- No.24 – Cedar Hill / Admirals Walk provides service between View Royal and Cedar Hill Road / McKenzie Avenue in Saanich via downtown Victoria, as is access by bus stops on Wilson Street immediately adjacent the site; and
- No.25 – Maplewood / Admirals Walk provides service between Reynolds Secondary School on McKenzie Avenue and View Royal via downtown Victoria and Esquimalt, and is accessed by bus stops on Esquimalt Road approximately 300m from the site.

The *Victoria Region Transit Future Plan*[3] identifies Craigflower Road, Esquimalt Road and Bay Street corridors in the Frequent Transit Network that will have a service frequency of 15 minutes or better between 7:00am to 10:00pm, 7 days a week. Access to these three corridors within 300m of the site will support transit use among residents.

Carshare

The most prevalent local two-way carshare service is Modo, with approximately 70 vehicles in the Capital Region (as of January 2019)[4]. Members can access any vehicle within the fleet and pay usage based on the length of time and distance of their trip. Three vehicles are located with 5-minutes walk of the subject site - Tyee Road at Wilson Street (approx. 400m), Raynor Avenue at Arthur Currie Lane (400m), Raynor Avenue at Craigflower Road (475m). The development proposal includes a carshare program among residents, which is explored further in *Section 5.3*.

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[3] BC Transit, Transit Future Plan Victoria Region: Executive Summary, 2011. Available online at: www.bctransit.com/victoria/transit-future

[4] Count based on Modo "Car Map", available online at: www.modo.coop/map

1.3 Proposed Redevelopment

1.3.1 Land Use

The redevelopment proposal includes a total of 34 units - 22 townhouse units and 12 bachelor units. See **Figure 3**. All townhouse units will be owned via strata title. Twelve (12) of the townhouse units will have a bachelor suite attached that is owned by the townhouse owner but to remain available as market rental units secured in perpetuity through a covenant.

FIGURE 3. PROPOSED SITE PLAN[5]

1.3.2 Parking

The proposal includes 24 parking spaces. The underground parking facility consists of 23 spaces for residents. One space will be provided adjacent the Alston Street access for a carshare vehicle.

1.3.3 Access

Site access is proposed via Alston Street approximately 30m north of Wilson Street. Refer to **Figure 3**.

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[5] Site plan provided by Citizen Design Build by email, January 2019

2.0 On-Site Parking

2.1 Parking Requirement

The required off-street parking supply is determined through the City's Zoning Bylaw no.80-159, Schedule C: Off-Street Parking Requirements[6]. The site parking requirement is 42 spaces, as shown in **Table 1**.

TABLE 1. SUMMMARY OF OFF-STREET PARKING REQUIREMENT ("OTHER AREA")

Land Use	Quantity	Minimum Parking Supply	
		Supply Rate	Total
Townhouses, Condominium (greater than 70m^2)	10 units	1.45 spaces per unit	14.5
Townhouses, Apartment[7] (greater than 70m^2)	12 units	1.30 spaces per unit	15.6
Apartment (less than 45m^2)	12 units	0.75 spaces per unit	9.0
Visitor	34 units	0.1 spaces per unit	3.4
Total			**42**

It should be noted that properties on Alston Street immediately opposite the subject site are classified as "Village / Centre" for the purposes of calculating the off-street parking requirement (consistent with the Official Community Plan). The site requirement if considered using the "Village / Centre" minimum supply rates is 39 parking spaces, five fewer than under the "Other Area" classification.

It should also be noted that the 12 bachelor units are being considered independent units for the purpose of calculating the off-street parking requirement. They will, however, function very much like a secondary suite from a parking perspective as they will be owned and rented by the owners of the attached townhouse unit. The City's regulations do not require off-street parking for secondary suites, which if applied to the subject site would reduce the total requirement by nine parking spaces. The City has acknowledged that the proposed use is not well represented in the parking regulations and has requested an independent study (i.e., this study) to rationalize the site's parking need[8].

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[6] Available online at: https://www.victoria.ca/assets/Departments/Planning~Development/Development~Services/Zoning/Bylaws/Schedule%20C.pdf

[7] Townhouses with bachelor suites subject to "Rental Apartment" rate, as communicated by City staff to the applicant

[8] Conversation between the applicant and City staff, communicated by email January 14 2019

2.2 Anticipated Parking Demand

Anticipated parking demand is estimated in the following sections based on vehicle ownership data from representative sites in the City of Victoria. All referenced vehicle ownership data was provided by the Insurance Corporation of British Columbia (ICBC) through the *Vehicle Ownership Request* program, as contained in *Working Paper no.3* that was prepared in 2016 / 2017 as part of the City's review of off-street parking regulations[9].

2.2.1 Townhouse Units

Anticipated parking demand for the townhouse units is based on vehicle ownership data for condominium sites in areas classified as a Large Urban Village or Town Centre in the OCP. The average vehicle ownership rate for the nine sites surveyed (representing 382 units) is 0.83 vehicles per unit. See **Table 2**.

TABLE 2. VEHICLE OWNERSHIP AT REPRESENTATIVE SITES, TOWNHOUSE[10]

Site	No. Units	Owned Vehicles	
		Total	Rate (vehicles / unit)
1545 Pandora Avenue[a]	56	55	0.98
1025 Hillside Avenue[a]	25	17	0.68
755 Hillside Avenue[a]	34	17	0.50
300 Waterfront Crescent[a]	29	33	1.14
320 Menzies Street[a]	24	16	0.67
240 Cook Street[a]	25	15	0.60
1050 Park Boulevard[b]	27	28	1.04
160 Wilson Street[c]	123	130	1.06
225 Menzies Street[d]	39	30	0.77
Average			**0.83**

Note: Vehicle ownership data current as of March 31 2016 (a), December 31 2014 (b), April 30 2014 (c), December 31 2013 (d)

[9] Review of Zoning Regulations Bylaw Off-Street Parking Requirements (Schedule C), Working Paper No.3: Parking Demand Assessment, prepared by Boulevard Transportation / Watt Consulting Group, September 2016.

[10] Based on data from Review of Zoning Regulations Bylaw Off-Street Parking Requirements (Schedule C), Working Paper No.3: Parking Demand Assessment, prepared by Boulevard Transportation / Watt Consulting Group, September 2016, Appendix A.

Parking demand varies based on unit size, where a unit with more bedrooms generally has a higher parking demand as compared to a unit with fewer bedrooms. Ratios were identified in the King County Metro study[11] and verified with six study sites in Victoria as part of the City's review of off-street parking regulations. The results conclude that a one-bedroom unit has a 20% higher parking demand than a bachelor unit, a two-bedroom unit has a 60% higher parking demand than a one-bedroom unit, and a three-bedroom unit has a 15% higher parking demand than a two-bedroom unit.

The results of this exercise suggest that for a townhouse in a Large Urban Village / Town Centre, a two-bedroom unit will experience a parking demand of approximately 0.95 vehicles per unit and a three-bedroom a parking demand of approximately 1.10 vehicles per unit. The proposal includes 15 two-bedroom and 7 three-bedroom townhouse units, resulting in a resident parking demand of 22 vehicles associated with the townhouse units.

2.2.2 Apartment Units

The same process as above was undertaken to assess parking demand associated with bachelor units. The average vehicle ownership rate for the five sites surveyed (representing 325 units) is 0.51 vehicles per unit. See **Table 3**.

TABLE 3. VEHICLE OWNERSHIP AT REPRESENTATIVE SITES, APARTMENT[12]

Site	No. Units	Owned Vehicles	
		Total	Rate (vehicles / unit)
425 Simcoe Street	175	105	0.60
1035 North Park Street	79	24	0.30
2559 Quadra Street	9	7	0.78
1928 Lee Avenue	43	27	0.63
2558 Quadra Street	19	5	0.26
Average			**0.51**

Factors were applied to adjust the average parking demand to reflect the reduced demand experienced by a bachelor unit. The results suggest that a bachelor unit in a Large Urban Village / Town Centre will experience parking demand of approximately 0.31 vehicles per unit - a total of four vehicles.

[11] King County Metro, Right Size Parking Model Code, 2013, Table 2, page 21.
Available online at: https://metro.kingcounty.gov/programs-projects/right-size-parking/pdf/140110-rsp-model-code.pdf

[12] Based on data from Review of Zoning Regulations Bylaw Off-Street Parking Requirements (Schedule C), Working Paper No.3: Parking Demand Assessment, prepared by Boulevard Transportation / Watt Consulting Group, September 2016, Appendix A.

2.2.3 Visitor Parking

Visitor parking demand rates have been demonstrated in the range of 0.05 to 0.07 vehicles per unit for multi- family residential[13]. More recent research completed as part of the City of Victoria review of off-street parking requirements found peak visitor parking rates to be 0.1 vehicles per unit at condominium sites and 0.05 vehicles per unit at apartment sites[14]. Applied to the subject site, this suggests visitor parking demand will be three vehicles. See **Table 4**.

TABLE 4. SUMMARY OF ANTICIPATED VISITOR PARKING DEMAND

Land Use	Quantity	Anticipated Visitor Parking Demand	
		Rate	Total
Townhouse	22 units	0.10 vehicles per unit	2.2
Apartment	12 units	0.05 vehicles per unit	1.2
Total			**3**

2.2.4 Summary

The anticipated parking demand is 29 vehicles, which exceeds the proposed parking supply by six spaces. See **Table 5**. Management approaches are identified in *Section 5* to reduce parking demand.

TABLE 5. SUMMMARY OF ANTICIPATED PARKING DEMAND

Land Use	Quantity	Anticipated Parking Demand	
		Rate	Total
Townhouses, 3-Bedroom (1,075-1,300 sqft)	7 units	1.10 vehicles per unit	7.70
Townhouses, 2-Bedroom (930-980 sqft)	15 units	0.95 vehicles per unit	14.25
Apartments, Bachelor (405-430 sqft)	12 units	0.31 vehicles per unit	3.70
Visitors	34 units	0.10 vehicles per Townhouse unit	2.20
		0.05 vehicles per Bachelor unit	1.20
Total			**29**

[13] Based on observations of visitor parking from the 2012 Metro Vancouver *Apartment Parking Study* (Table 31, pg50) available at: www.metrovancouver.org/services/regionalplanning/PlanningPublications/Apartment_Parking_Study_TechnicalReport.pdf

[14] Based on data from Review of Zoning Regulations Bylaw Off-Street Parking Requirements (Schedule C), Working Paper No.3: Parking Demand Assessment, prepared by Boulevard Transportation / Watt Consulting Group, September 2016, Appendix E.

3.0 Off-Site Parking Review

Off-site parking conditions were reviewed to determine the supply, management, and availability of on-street parking nearby the subject site.

3.1.1 Off-Site Parking Inventory

An on-street parking inventory was developed for an approximately one-black radius surrounding the subject site. See **Figure 4**. The inventory includes a total of 205 on-street parking spaces.

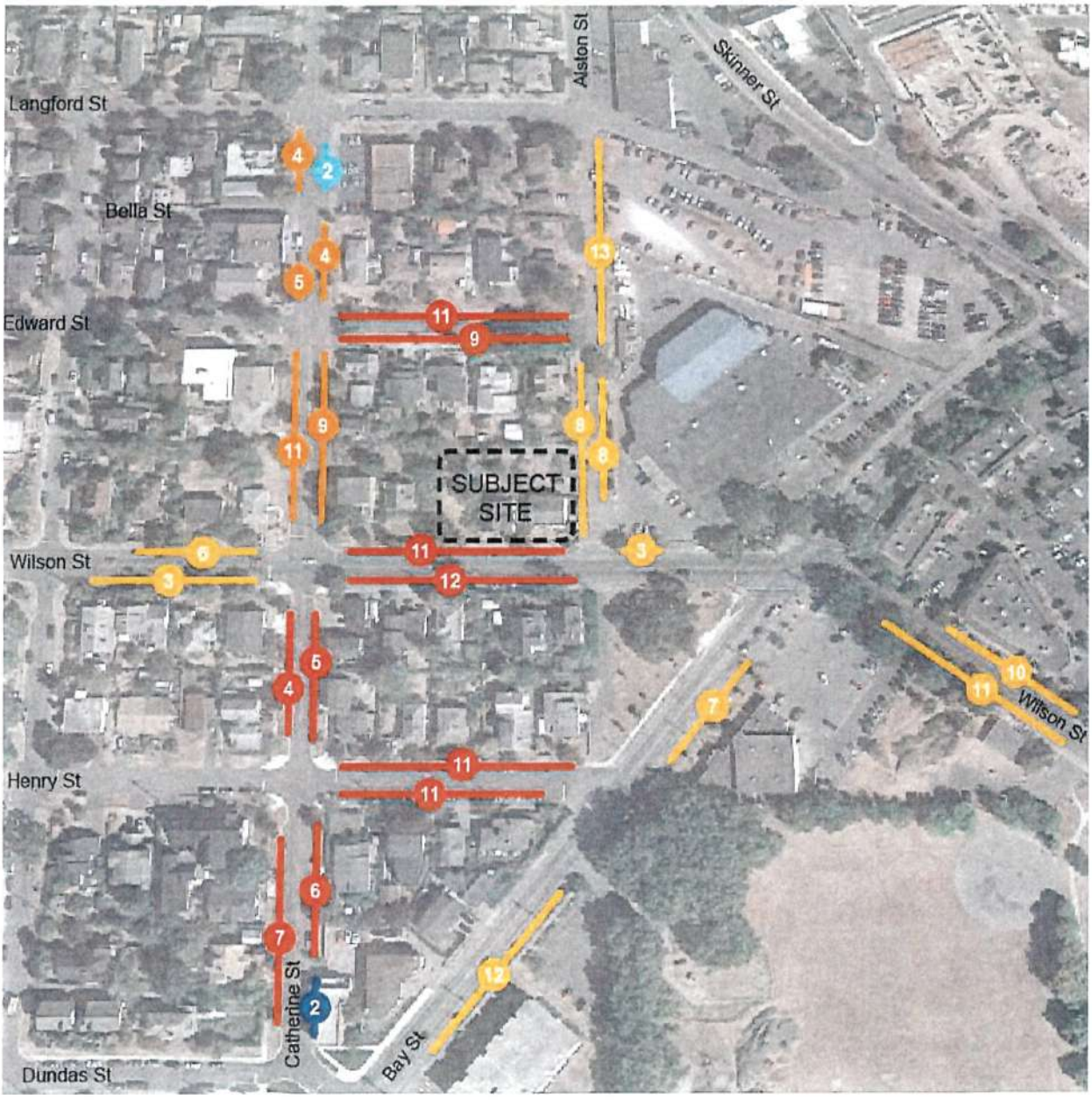
Approximately 60% of the on-street parking supply is restricted as resident parking only, while the other 40% is unrestricted and available to all vehicles.

There are no public off-street parking spaces in the studied area.

It should be noted that the City intends to alter the restrictions on on-street parking along the Wilson Street frontage from resident parking only to 2-hour maximum concurrent with the site development[15].

[15] Communicated to the applicant by City staff

FIGURE 4. ON-STREET PARKING INVENTORY



3.1.2 Off-Site Parking Utilization

On-street parking utilization was assessed for the approximately one-black radius surrounding the subject site. Observations were completed on the following dates / times:

1. Monday, December 17 2018 @ 9:00pm
2. Tuesday, December 18 2018 @ 1:30pm
3. Thursday, December 20 2018 @ 11:30am

The review concluded that on-street parking in the area was approximately half occupied during each of the observation periods. Overall occupancy rates varied little between the three observation periods.

The areas experiencing highest occupancy are Catherine Street (Langford St to Edward St), Bay Street (south of Henry St), and Wilson Street (south of Bay St). Alston Street experiences high occupancy during the daytime, but significantly lower during the evening observation.

The areas most immediately adjacent the subject site where any site parking spillover would be concentrated are Wilson Street (Catherine St to Bay St) and Alston Street (Edward St to Wilson St). These areas were observed at no more than 57% occupied during the daytime observations and 31% occupied (29 vacant spaces) during the evening observation. This suggests that there is ample available on-street parking in case of spillover. Further, residential parking demand is typically highest during evenings and weekends when utilization of parking on Alston Street (unrestricted) and Wilson Street immediately adjacent the site (Catherine St to Alston St, north side) were low.

The full results are summarized in **Table 6**.

It should be noted that on-street parking on the Wilson Street site frontage will be converted to 2hr parking on weekdays[16]. This section of parking was observed at no more than 36% occupied and the change in the on-street parking restriction is not anticipated to significantly alter current conditions or result in existing vehicles unable to find available parking.

[16] The change in the on-street parking restriction was communicated by the City to the applicant

TABLE 6. SUMMARY OF ON-STREET PARKING UTILIZATION

Street Segment			Restriction	Parking Supply	Observed Vehicles					
					Mon, Dec 17 8:30pm		Tues, Dec 18 1:30pm		Thurs, Dec 20 11:30am	
Catherine St	Langford St to Edward St	E	3hr	2	2	100%	2	100%	0	0%
			RPO (limited)	4	3	75%	2	50%	3	75%
	Langford St to Bella St	W	RPO (limited)	4	1	25%	3	75%	2	50%
	Bella St to Edward St			5	3	60%	3	60%	2	40%
	Edward St to Wilson St	W	RPO (limited)	11	5	45%	3	27%	1	9%
		E		9	4	44%	2	22%	3	33%
	Wilson St to Henry St	W	RPO	4	2	50%	1	25%	3	75%
		E	RPO	5	5	100%	2	40%	2	40%
	Henry St to Dundas St	W	RPO	7	4	57%	4	57%	5	71%
		E	RPO	6	3	50%	1	17%	2	33%
			2hr	2	1	50%	2	100%	1	50%
Alston St	Langford St to Edward St	W	-	-	-	-	-	-	-	-
		E	n/a	13	2	15%	9	69%	9	69%
	Edward St to Wilson St	W	n/a	8	2	25%	6	75%	6	75%
		E	n/a	8	0	0%	7	88%	8	100%
Edward St	Catherine St to Alston St	N	RPO	11	3	27%	1	9%	1	9%
		S	RPO	9	8	89%	1	11%	1	11%
	Mary St to Catherine St	N	n/a	6	4	67%	3	50%	3	50%
		S	n/a	3	2	67%	1	33%	0	0%
Wilson St	Catherine St to Alston St	N	RPO	11	3	27%	4	36%	4	36%
		S	RPO	12	8	67%	3	25%	4	33%
	Alston St to Bay St	N	n/a	3	0	0%	2	67%	2	67%
		S	-	-	-	-	-	-	-	-
	Bay St to mid-block	N	n/a	10	10	100%	10	100%	10	100%
		S	n/a	11	11	100%	10	91%	9	82%
Henry St	Catherine St to Bay St	N	RPO	11	5	45%	6	55%	5	45%
		S	RPO	11	5	45%	3	27%	5	45%
Bay St	Wilson St to Henry St	S	n/a	7	1	14%	7	100%	3	43%
	Henry St to Catherine St	S	n/a	12	8	67%	9	75%	9	75%
Total				**205**	**105**	**51%**	**107**	**52%**	103	**50%**

Restriction Codes:

RPO – "Residential Parking Only"
RPO (limited) - "Residential Parking Only, 8AM – 5PM, Mon – Fri"
2hr – 2hr, 8am – 6pm, Mon – Sat
3hr – 3hr, 8AM – 6PM, Mon - Fri

4.0 Traffic + Road Network

Background and post-development intersection performance has been assessed for the Wilson Street / Alston Road intersection. The results are presented below.

The scope of this study does not include detailed consideration of other nearby intersections, although peak period queues on the Wilson Street / Bay Street intersection eastbound leg impact conditions at Wilson Street / Alston Street and are considered.

4.1 Background Conditions

4.1.1 Road Network

Wilson Street is a two-lane undivided road and classified as a Secondary Collector[17]. On-street parking is available along much of Wilson Street in the vicinity of the site (refer to Section 3.0 for a detailed account of on-street parking).

Alston Street is a two-lane undivided road and classified as a Local Road[18]. It has not been constructed to the City's full Local Road standard, which typically includes curb-and-gutter and a 9.0m road width. See **Figure 5**. On-street parking occurs along most of Alston Street on both sides (Wilson St to Edward St).

FIGURE 5. ALSTON STREET (LOOKING SOUTH TOWARD WILSON STREET)

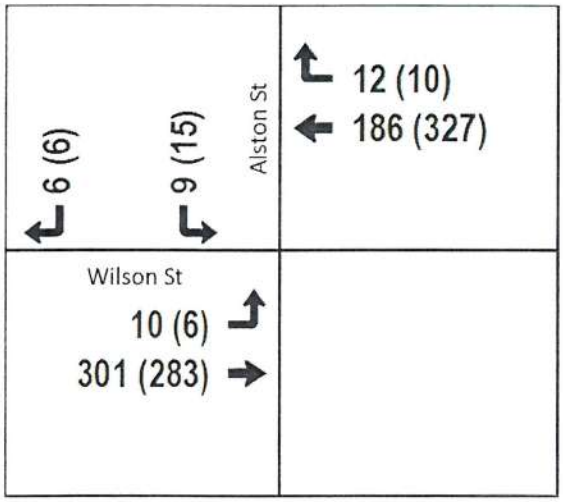
[17] Road Classification Map, https://www.victoria.ca/EN/main/residents/transportation/transportation-reference-documents.html

[18] Ibid.

4.1.2 Traffic Volumes + Site Observations

Intersection turning movement counts were collected on Wednesday, December 19, 2018 between 3:00 and 6:00pm and Thursday December 20, 2018 between 7:00 to 9:00am. **Figure 6** illustrates the background traffic volumes during morning (8:00-9:00am) and afternoon (3:00-4:00pm) peak hours (a background traffic growth rate was not applied as it is assumed traffic growth is static).

FIGURE 6. BACKGROUND AM (PM) PEAK HOUR TRAFFIC VOLUMES



Traffic counts were undertaken for the hardware store access to/from Alston Street (immediately opposite the subject site). See **Table 7**. The results indicate that between 10% and 30% of exit vehicles make a right-turn and circulate via Alston Street. This information is used later in this section to estimate the directional split of trips associated with the subject site.

TABLE 7. HARDWARE STORE ALSTON STREET ACCESS TRAFFIC SUMMARY (EXITS ONLY)

Time Interval	Total	Left Out		Right Out		
		Total	%	Total	%	
AM						
7:00 - 8:00	6	4	67%	2	33%	
8:00 - 9:00	**16**	**14**	**88%**	**2**	**13%**	AM Peak Hour
PM						
15:00 - 16:00	**17**	**15**	**88%**	**2**	**12%**	PM Peak Hour
16:00 - 17:00	21	19	90%	2	10%	
17:00 - 18:00	17	12	71%	5	29%	

Queues on the Wilson Street / Bay Street intersection eastbound approach were observed to determine their impact on the Wilson Street / Alston Street intersection. The results indicate that eastbound queues extend to the Wilson Street / Alston Street intersection up to 20 times in both the morning and afternoon peak hours (i.e., approximately once every three minutes, assumed to be the majority of the Wilson St / Bay St signal cycles). See **Table 8**. Delay on the Alston Street southbound left-turn movement increases as a result of the inability to navigate a gap on Wilson Street, although the number of affected vehicles on Alston Street is limited (no more than two vehicles observed queued on Alston Street).

TABLE 8. WILSON STREET / BAY STREET EASTBOUND QUEUEING FREQUENCY

Time Interval	Incidences of Wilson Street EB Queued to Alston Street		
	Total	Frequency (minutes per incident)	
AM			
7:00 - 8:00	7	8:30	
8:00 - 9:00	**20**	**3:00**	AM Peak Hour
PM			
15:00 - 16:00	**18**	**3:20**	PM Peak Hour
16:00 - 17:00	20	3:00	
17:00 - 18:00	7	8:30	

4.1.3 Intersection Performance

Synchro v10.1 was used to evaluate the traffic operational performance under the existing condition. Key traffic measures including Level of Service (LOS), delay, volume-to-capacity (v/c), and queue length are summarized in **Table 9**. Synchro reports are provided in **Appendix A**.

TABLE 9. BACKGROUND AM (PM) SYNCHRO RESULTS, WILSON STREET + ALSTON STREET

Road	Approach	Control Type	Movement	LOS	V/C	Delay (sec/veh)	95th Queue (m)
Wilson St	EB	Free	L	A (A)	0.01 (0.01)	0.1 (0.1)	0.2 (0.1)
		Free	T	A (A)	0.01 (0.01)	0.3 (0.2)	0.2 (0.1)
	WB	Free	T	A (A)	0.12 (0.22)	0 (0)	0 (0)
		Free	R	A (A)	0.12 (0.22)	0 (0)	0 (0)
Alston St	SB	Stop	L	B (B)	0.03 (0.05)	11.3 (13.4)	0.7 (1.3)
		Stop	R	B (B)	0.03 (0.05)	11.3 (13.4)	0.7 (1.3)
Overall Intersection				**A (A)**	-	**0.5 (0.5)**	-

The model results indicate that under the background scenario, the intersection and individual movements operate at LOS "A/B" in both morning and afternoon peak hours. Wilson Street generally operates at free flow condition with minimal delay and the delay on Alston Street is less than 15 seconds. The 95th percentile queue length on all approaches are minimal.

It is acknowledged that the model is developed without considering the eastbound queue from the Wilson Street / Bay Street intersection and that the actual traffic performance at the study intersection may be worse that the model results suggest.

4.2 Post-Development Conditions

4.2.1 Site Access

Site access will be provided from Alston Street. This is the more minor street, consistent with the requirement of the City's *Highway Access Bylaw*.

4.2.2 Trip Generation + Assignment

Trip generation refers to the number of new trips that will be generated by the proposed land use. Trip generation rates and directional split (% in/out) are based on the Multifamily Housing (Low-Rise) use in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition*. The proposed development is anticipated to generate 16 trips (4 in, 12 out) in the AM peak hour and 19 trips (12 in, 7 out) in the PM peak hour. See **Table 10**.

TABLE 10. SUMMARY OF POST-DEVELOPMENT TRIP GENERATION (WEEKDAY)

	Trip Rate	Quantity	Total Trips	In%	Out%	Trips In	Trips Out
AM	0.46 vehicles per hour	34 units	16	23%	77%	4	12
PM	0.56 vehicles per hour		19	63%	37%	12	7

4.2.3 Trip Distribution + Assignment

The assumed trip distribution has based on observations of the hardware store exit AM and PM peak hour directional split – 88% via Alston Street / Wilson Street intersection (south), 12% via Alston Street to the north. See **Table 11**.

TABLE 11. TRIP DISTRIBUTION

	Distribution %	AM	PM
North via Alston St	12%	2	2
South via Wilson St / Alston St intersection	88%	14	17
Total		**16**	**19**

The current directional traffic volumes on Wilson Street were used in assigning Alston Street southbound trips. It was assumed that development traffic on Alston Street southbound movements will be 60% eastbound and 40% westbound in the AM peak hour, and 45% eastbound and 55% westbound in the PM peak hour. New trips were assigned to the network as shown in **Figure 7**. Total post-development traffic volumes (background + development) are shown in **Figure 8**.

FIGURE 7. DEVELOPMENT AM (PM) PEAK HOUR TRAFFIC VOLUMES

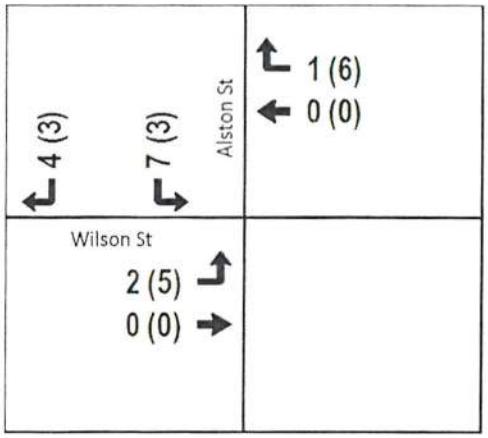
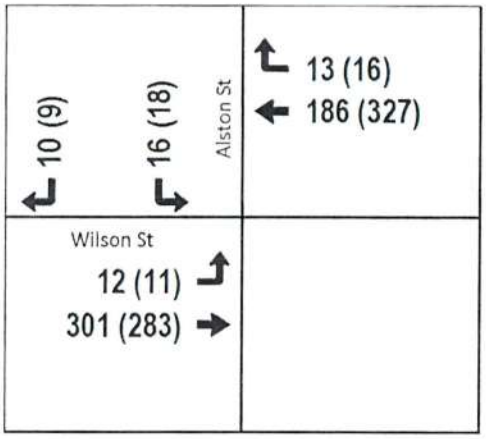


FIGURE 8. TOTAL AM (PM) PEAK HOUR TRAFFIC VOLUMES



4.2.4 Intersection Performance

Table 12 provides a summary of post-development Alston Street intersection performance. The analysis indicates that the intersection is expected to operate at a similar level of service compared to today's condition, with minimal delay on Wilson Street and moderate delay on Alston Street. The 95th percentile queue lengths in all approaches are expected to remain as minimal. Again, these results do not account for conditions at the Wilson Street / Bay Street intersection and the impact of queuing on the Wilson Street / Alston Street intersection.

TABLE 12. POST-DEVELOPMENT AM (PM) SYNCHRO RESULTS, WILSON ST / ALSTON ST

Road	Approach	Control Type	Movement	LOS	V/C	Delay (sec/veh)	95th Queue (m)
Wilson St	EB	Free	L	A (A)	0.01 (0.01)	0.1 (0.1)	0.2 (0.2)
		Free	T	A (A)	0.01 (0.01)	0.4 (0.4)	0.2 (0.2)
	WB	Free	T	A (A)	0.12 (0.23)	0 (0)	0 (0)
		Free	R	A (A)	0.12 (0.23)	0 (0)	0 (0)
Alston St	SB	Stop	L	B (B)	0.05 (0.07)	11.5 (13.5)	1.2 (1.7)
		Stop	R	B (B)	0.05 (0.07)	11.5 (13.5)	1.2 (1.7)
Overall Intersection				**A (A)**	-	**0.7 (0.7)**	-

It is understood that previous studies have indicated that the Skinner Street / Alston Street and Skinner Street / Langford Street intersections may require mitigation in future[19]. An estimated two additional trips are anticipated via Alston Street north of the site hours in the direction of these intersections in each of the AM and PM peak hours. The insignificant increase in traffic resulting from the proposed development will not tangibly impact conditions at these intersections and no additional analysis was completed.

4.2.5 Improvement Options

The traffic analysis concludes that intersection Wilson Street / Alston Street intersection improvements are not required to support the additional traffic generated from the proposed development. However, it is recognized that the eastbound queue from the Wilson Street / Bay Street intersection extends beyond the Wilson Street / Alston Street intersection in peak periods and increases delays on the Alston Street southbound left-turn movement. Two improvement options were identified to address this issue:

1. Restrict the southbound left turn movement
2. "Do Not Block Intersection" Markings + Signs

Option 1. **Restrict the Southbound Left Turn Movement**

The Alston Street southbound left-turn movement could be restricted during peak periods (i.e., when the Wilson Street queue interferes with the Alston Street intersection) to minimize queuing on Alston Street and prevent queued left-turn vehicles from impeding right-turn movements. This option is not recommended as it would increase the travel distance among vehicles forced to proceed north from the site via Alston Street and would introduce more traffic onto nearby local streets.

[19] Identified in discussion with City staff

Option 2. **"Do Not Block Intersection" Markings + Signs**

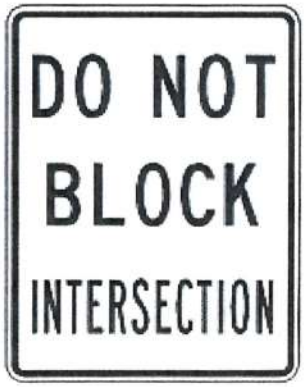
Another improvement option is the application of "Do Not Block Intersection" markings and signs to discourage Wilson Street eastbound queued vehicles from stopping in the Alston Street intersection. This would create gaps in the eastbound queue for Alston Street southbound left-turn vehicles to complete the turn movement.

The most common application of the "Do Not Block Intersection" treatment is adjacent an emergency services building where queued vehicles on an adjacent roadway may interfere with emergency vehicles. There are examples of a "Do Not Block Intersection" treatment where a major intersection creates queues into a nearby intersection. This application most commonly includes the "Do Not Block Intersection" sign (MoTI, R-106) in combination with a stop bar identifying the area within which vehicles should not stop. The standardized "Do Not Block Intersection" sign is shown in **Figure 9**. Alternatively, some locations include an "X" or crosshatch marking in place of the stop bar.

Examples of "Do Not Block Intersection" applications are shown in **Figure 10**.

This is a viable solution to aid Alston Street southbound vehicles experiencing delay and the potential to facilitate vehicles circulating via local streets to avoid delay on Alston Street. The limited sampling of traffic counts on nearby local streets does not indicate an issue with traffic volumes on local streets and the delay incurred on the Alston Street southbound movements is experienced by only a small number of vehicles. Further, the reduction in delay for southbound Alston Street vehicles would be minimal (they would still be part of the Wilson Street eastbound queue) and would come at the expense of Wilson Street eastbound vehicles. It is therefore recommended that no mitigation is undertaken, but that conditions are monitored over time and future consideration given to the "Do Not Block Intersection" treatment if issues of neighbourhood short-cutting are demonstrated.

FIGURE 9. "DO NOT BLOCK INTERSECTION" SIGN[20]



[20] Ministry of Transportation + Infrastructure, Manual of Standard Traffic Signs + Pavement Markings, 2000

FIGURE 10. EXAMPLE "DO NOT BLOCK INTERSECTION" APPLICATIONS[21]

Cook Street northbound at Meares Street, City of Victoria

Willingdon Avenue northbound at Beresford Street, City of Burnaby

[21] Images from Google Earth

5.0 Parking + Traffic Management

5.1 Neighbourhood Parking Management

Utilization rates for the unrestricted parking supplies on Alston Street and Bay Street (south of Wilson St) were high (75% occupancy or greater) during weekday daytime periods and significantly lower during the evening observation. Area residents and City staff have suggested the daytime parking demand is attributed to Dockside Green and Westside Village office / employment uses. The utilization of neighbourhood on-street parking is likely seen as an inconvenience to area residents and adds a small number of non-local trips to local streets, but is not impacting the ability for area residents to access available parking (RPO spaces are approximately two-thirds vacant). Further, a change in the restriction to these areas (i.e., to RPO) would displace daytime employee vehicles and possibly lead to them seeking parking elsewhere in the neighbourhood.

Alston Street between Wilson Street and Edward Street contains approximately 16 on-street parking spaces. This parking supply was observed well utilized during daytime observations (80-90% occupied) but only 12% occupied (2 of 16 spaces occupied) during the evening observation. Visitor parking demand is highest during evenings and weekends when this parking supply is assumed to experience low utilization. It is anticipated that the majority of the site's visitors will seek parking in these parking spaces given their availability rather than navigate into the site's underground parking facility.

The parking observations indicate that RPO spaces are utilized at approximately 35% overall during the weekday daytime and increases to approximately 50% overall in the evening (when residents return home), and that there are no areas experiencing particularly high utilization during the daytime. These findings suggest general adherence to the RPO restriction.

It is understood that the City intends to alter the time restriction on Wilson Street along the site frontage from the current Residential Parking Only (RPO) restriction to a 2 hour maximum (assumed to be Monday to Friday, 8:00am to 6:00pm or similar). This will discourage current area residents and future site residents from parking in this area during weekday daytime periods. Both weekday daytime observations found the 11 spaces on this block 36% occupied (4 vehicles), so the impact of these vehicles being displaced will not be significant. Further consideration may be given to as to why the 2-hour limit is being installed as it is likely to preclude adjacent residents and longer-stay visitors from parking in this area and may be under-utilized during the daytime.

5.2 Neighbourhood Traffic Management

Area residents have indicated that neighbourhood traffic management may be needed to reduce traffic volumes and deter neighbourhood short-cutting. The two streets with greatest potential to be impacted are Alston Street and Edward Street. Both are identified as Local Streets intended to accommodate no more than 1,000 vehicles per day[22]. The estimated two-way daily volumes on these streets are as follows:

- **Alston Street** (Edward St – Wilson St) – 250 vehicles per day[23]
- **Edward Street** (Catherine St – Alston St) - 150 vehicles per day[24]

These figures indicate that the traffic volumes on Alston Street and Edward Street are well within acceptable levels and neighbourhood traffic management is not warranted.

These figures do not identify the proportion of vehicles on Alston Street and Edward Street that are short-cut trips through the neighbourhood. A visual survey or license plate tracking exercise would be required to distinguish local from non-local traffic. If short-cutting is demonstrated, consideration may be given to traffic calming and/or the "Do Not Block Intersection" treatment described in *Section 4.2.5*.

5.3 Transportation Demand Management

Transportation demand management ("TDM") refers to the use of policies, programs, services and products to influence whether, why, when, where and how people travel[25]. Most commonly TDM is employed to encourage walking, cycling, public transit and other sustainable travel modes to reduce parking demand and traffic congestion. The opportunities to reduce the site's parking demand through TDM are considered in the following sections.

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[22] Refer to the City's Road Classification Map, available online at: www.victoria.ca/EN/main/residents/transportation/transportation-reference-documents.html

[23] Alston Street daily traffic volume calculated as 10x the PM peak hour volumes referenced in **Figure 5**, with assumptions for the proportion of Alston Street northbound vehicles accessing the hardware store site.

[24] Based on 2018 traffic count, as viewed on the City of Victoria's online mapping system ("VicMap") on Jan 21 2019. Available online at: www.victoria.ca/EN/main/online-services/maps.html

[25] Transport Canada, Transportation Demand Management for Canadian Communities: A Guide to Understanding, Planning and Delivering TDM Programs, March 2011. Available online: http://publications.gc.ca/collections/collection_2011/tc/T22-206-2011-eng.pdf

5.3.1 Carshare

The most prevalent local two-way carshare service is Modo, with approximately 70 vehicles in Greater Victoria (as of January 2019)[26]. Members may access any vehicle within the fleet and pay based on the length of time and distance of their trip. Three vehicles are located within 5-minutes walk of the subject site - Tyee Road at Wilson Street (400m), Raynor Avenue at Arthur Currie Lane (400m), Raynor Avenue at Craigflower Road (475m).

The applicant has received a letter of support from Modo indicating their interest in operating a carshare vehicle at the site. Modo has recommended that the agreement include the provision of one (1) on-site parking space designated for a carshare vehicle and a one-time contribution of $10,500 to be used in part for the purchase on one (1) vehicle. Modo will in-turn station a carshare vehicle on-site, provide 22carshare memberships (one per strata unit) to be allocated to residents by the strata, and a $100 promotional credit for each resident to promote use of the service.

There is a considerable body of research on the impact of carsharing on vehicle avoidance (i.e., not purchasing a vehicle) and vehicle shedding (i.e., eliminating previously owned vehicles). A 2014 Metro Vancouver study[27] found that Modo carshare members experienced a 27% reduction in vehicles owned per household after joining the carshare, which would reduce resident parking demand to approximately 19 vehicles if applied to the subject site. The study also identifies vehicle ownership among carshare members by housing type - presented in **Table 13** - which applied to the subject site suggest resident parking demand will be approximately 23 vehicles.

TABLE 13. VEHICLE HOLDINGS BY HOUSING TYPE[28]

Housing Type	Vehicle Holdings			
	0	1	2	3
Apartment	63%	32%	4%	1%
Townhouse	33%	53%	12%	2%

The Metro Vancouver study also highlights the City of Vancouver and City of New Westminster, who both reduce the minimum parking requirement for multi-family residential uses by five parking spaces where a carshare vehicle and dedicated parking space are provided (four space net reduction), as well as reductions of up to ten (10) spaces in the City of Toronto determined through negotiation.

Translating these research findings into the impact on site parking demand, this study supports a 10-15% reduction in resident parking demand (i.e., 3-4 vehicles) due to the presence of a carshare vehicle and provision of twenty (20) Modo memberships to be distributed among residents.

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[26] Count based on Modo "Car Map", available online at: www.modo.coop/map

[27] Metro Vancouver, The Metro Vancouver Car Share Study: Technical Report, November 2014. Available online: www.metrovancouver.org/services/regional-planning/PlanningPublications/MetroVancouverCarShareStudyTechnicalReport.pdf

[28] Metro Vancouver, The Metro Vancouver Car Share Study: Technical Report, November 2014, Table 29, page 30.

5.3.2 Bike Share

The applicant is working with a local two-way bikeshare company - TapBike[29] - to establish a bike sharing service as part of the development proposal. The details of the program are yet to be confirmed, but would likely include approximately five (5) bikes permanent stationed on-site and available to residents. A similar program is in-place at the 755 Caledonia Avenue site ("Hudson Walk One"), as well as a number of hotels in Victoria. The intent of the program is to expand the travel options available to residents without access to a vehicle and support reduced parking demand.

5.3.3 Bicycle Parking

The required bicycle parking supply is 40 long-term (i.e., secured, weather protected) and 6 short-term spaces (i.e., racks accessible to visitors), per the City's off-street parking requirements[30]. The development proposal includes a total of 56 long-term bicycle parking spaces, which is expected to meet or exceed the on-site demand for bicycle parking and supports reduced vehicle ownership among residents. An additional 28 short-term bicycle parking spaces are proposed located near the primary building entrance (10) and adjacent the underground parking access (18).

5.3.4 Bus Stops

The many transit routes and bus stops within walking distance of the subject site are introduced in *Section 1.2*. Consideration may be given to contributing to bus stop improvements in the vicinity of the site to support transit use among residents. The following locations lack transit shelters and certain amenities, and may be suitable locations for upgrades:

- Wilson Street west of Bay Street (north side), ID #100176
- Bay Street south of Wilson Street (east side), ID #103724

5.3.5 Summary

The development proposal includes the provision of one carshare vehicle and twenty (20) carshare memberships to be distributed by the strata among the 34 households, as well as an on-site bikeshare service, ample bike parking, and potential contributions to nearby bus stop improvements. A reduction of 15% in resident parking demand is supported for the successful implementation of the above-mentioned initiatives, reducing resident parking demand by approximately four (4) vehicles.

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[29] Information on TapBike available online at: https://tapbike.com

[30] City of Victoria, Zoning Bylaw no.80-159, Schedule C: Off-Street Parking Requirements, Table 2, pg8. Available online at: https://www.victoria.ca/assets/Departments/Planning~Development/Development~Services/Zoning/Bylaws/Schedule%20C.pdf

6.0 Summary

The proposed redevelopment of the 210-230 Wilson Street properties on the northwest corner of the Wilson Street / Alston Street intersection includes a total of 34 multi-family residential units (24 townhouse, 12 apartment) and 24 off-street parking spaces (23 underground, 1 surface).

The site's expected parking demand was calculated using vehicle ownership data from representative sites in the City of Victoria. Data from sites that are designated as Large Urban Village or Town Centre in the Official Community Plan were selected as they best represent the context of the subject site. The expected parking demand for the site was calculated to be 29 vehicles – 26 resident, 3 visitor.

A site carshare initiative is identified as an opportunity to reduce parking demand among residents, supported by a significant bike parking supply, an on-site bike share program, and potential upgrades to nearby bus stops. The successful implementation of these measures is expected to reduce parking demand among residents by approximately four (4) vehicles.

A review of neighbourhood on-street parking utilization concluded that a number of vehicles (assumed to be related to nearby employment uses) occupy unrestricted parking during the daytime, but that generally Residential Parking Only parking spaces experience moderate utilization and area residents can generally access available parking at all times.

Pre- and post-development traffic conditions were assessed for the Alston Street / Wilson Street intersection. The results indicate that the intersection will continue to operate at a good level of service with the additional traffic generated by the proposed redevelopment and mitigation is not required.

Neighbourhood residents have indicated that eastbound queues at the Wilson Street / Bay Street intersection extend beyond Alston Street during certain periods, negatively impacting Alston Street southbound traffic. This issue was confirmed through field observations. Although not needed as a result of the proposed development, the City may consider a "Do Not Block Intersection" treatment in the Alston Street / Wilson Street intersection to prevent eastbound vehicles from queuing within the intersection and to reduce delay on the Alston Street southbound movements.

6.1 Recommendations

1. The proposed parking supply is expected to meet resident parking demand provided that:
    a. A carshare program and supporting TDM initiatives are pursued; and
    b. All parking spaces in the underground facility (23) are assigned as resident parking and visitors are accommodated on-street.
2. No road network improvements are required as a result of the site redevelopment.

APPENDIX A.

Synchro Traffic Model Reports

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	10	301	186	12	9	6
Future Volume (Veh/h)	10	301	186	12	9	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	11	320	198	13	10	6
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	211				546	204
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	211				546	204
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				98	99
cM capacity (veh/h)	1360				494	836

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	331	211	16
Volume Left	11	0	10
Volume Right	0	13	6
cSH	1360	1700	584
Volume to Capacity	0.01	0.12	0.03
Queue Length 95th (m)	0.2	0.0	0.7
Control Delay (s)	0.3	0.0	11.3
Lane LOS	A		B
Approach Delay (s)	0.3	0.0	11.3
Approach LOS			B

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		33.9%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	283	327	10	15	6
Future Volume (Veh/h)	6	283	327	10	15	6
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	7	318	367	11	17	7
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	378				704	372
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	378				704	372
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				96	99
cM capacity (veh/h)	1180				401	673

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	325	378	24
Volume Left	7	0	17
Volume Right	0	11	7
cSH	1180	1700	454
Volume to Capacity	0.01	0.22	0.05
Queue Length 95th (m)	0.1	0.0	1.3
Control Delay (s)	0.2	0.0	13.4
Lane LOS	A		B
Approach Delay (s)	0.2	0.0	13.4
Approach LOS			B

Intersection Summary			
Average Delay		0.5	
Intersection Capacity Utilization		29.7%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	301	186	13	16	10
Future Volume (Veh/h)	12	301	186	13	16	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	13	320	198	14	17	11
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	212				551	205
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	212				551	205
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				97	99
cM capacity (veh/h)	1358				491	836

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	333	212	28
Volume Left	13	0	17
Volume Right	0	14	11
cSH	1358	1700	586
Volume to Capacity	0.01	0.12	0.05
Queue Length 95th (m)	0.2	0.0	1.2
Control Delay (s)	0.4	0.0	11.5
Lane LOS	A		B
Approach Delay (s)	0.4	0.0	11.5
Approach LOS			B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	35.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	11	283	327	16	18	9
Future Volume (Veh/h)	11	283	327	16	18	9
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	12	318	367	18	20	10
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	385				718	376
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	385				718	376
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				95	99
cM capacity (veh/h)	1173				392	670

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	330	385	30
Volume Left	12	0	20
Volume Right	0	18	10
cSH	1173	1700	455
Volume to Capacity	0.01	0.23	0.07
Queue Length 95th (m)	0.2	0.0	1.7
Control Delay (s)	0.4	0.0	13.5
Lane LOS	A		B
Approach Delay (s)	0.4	0.0	13.5
Approach LOS			B

Intersection Summary			
Average Delay		0.7	
Intersection Capacity Utilization		33.8%	ICU Level of Service A
Analysis Period (min)		15	

URBAN systems

July 5, 2019

City of Victoria
1 Centennial Square
Victoria BC V8W 1P6

Attention: Jim Handy, Senior Planner

RE: Wilson Street / Alston Street Development Transportation Study, Update Letter

The following is an update to the Wilson Street / Alston Street Development Transportation Study dated February 05 2019. The development proposal has changed since the initial study was produced so that all units will be townhouse or condominium units subject to strata ownership (the previous proposal included a portion as rental apartment units). The purpose of this update letter is to understand the change in the parking requirement and anticipated parking demand resulting from the new development proposal.

Parking Requirement

The updated required off-street parking supply is 40 spaces, as shown in **Table 1**. This is two fewer spaces than was identified in the February 2019 study.

TABLE 1. SUMMMARY OF OFF-STREET PARKING REQUIREMENT ("OTHER AREA")

Land Use		Quantity	Minimum Parking Supply	
			Supply Rate	Total
Attached Dwelling Units		10 units	1.0 space per unit	10
Condominium	70m² +	12 units	1.45 spaces per unit	17
	< 45m²	12 units	0.85 spaces per unit	10
Visitor		34 units	0.1 spaces per unit	3
Total				**40**

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Anticipated Parking Demand

The anticipated parking demand calculations in the February 2019 study for two- and three-bedroom units (22 units) were based on vehicle ownership data from condominium sites. That information is still relevant to the updated development proposal and results in a resident parking demand of 22 vehicles among townhouse units. See **Table 2.**

The anticipated parking demand calculations in the February 2019 study for bachelor suites (12 units) were based on vehicle ownership data specific to rental apartment uses. Research undertaken in support of the City's off-street parking regulations in 2018 found that parking demand is approximately 40% greater in condominium units as compared to apartment units[1]. As a result, the proposed change in bachelor suites from rental apartment to condominium is expected to increase resident parking demand among bachelor units from four to five vehicles. The results are summarized in **Table 2.**

TABLE 2. SUMMMARY OF ANTICIPATED PARKING DEMAND

Land Use	Quantity	Anticipated Parking Demand	
		Rate	Total
Townhouses, 3-Bedroom	7 units	1.10 vehicles per unit	7.70
Townhouses, 2-Bedroom	15 units	0.95 vehicles per unit	14.25
Condominiums, Bachelor	12 units	0.43 vehicles per unit	5.16[2]
Visitors	34 units	0.10 vehicles per Townhouse unit	2.20
		0.05 vehicles per Bachelor unit	0.60
Total			**30**

[1] Based on data from Review of Zoning Regulations Bylaw Off-Street Parking Requirements (Schedule C), Working Paper No.3: Parking Demand Assessment, prepared by Boulevard Transportation / Watt Consulting Group, September 2016, Appendix A.

[2] Calculated in the February 2019 study to be 0.31 vehicles per unit and 3.70 total vehicles

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Summary

The updated development proposal results in an increase in anticipated resident parking demand by approximately one vehicle. The proposed parking supply is 26 spaces (23 residents, 3 visitors). The updated anticipated parking demand is 30 vehicles (27 residents, 3 visitors). The recommended carshare provision and supporting TDM programs are expected to reduce resident parking demand by approximately four vehicles, and result in overall parking demand consistent with the proposed parking supply. Therefore, the recommendations of the February 2019 study are still supported.

- - - - - - -

Please contact the undersigned at dcasey@urbansystems.ca or 250 220 7060 with questions related to this letter.

Sincerely,

URBAN SYSTEMS LTD.

Dan Casey, RPP MCIP
Sr Transportation Planner

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