ATTACHMENT G

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Speed & Frances
Market and Affordable Housing
Transportation Impact Assessment

Version 5

Prepared for

Mike Geric Construction

Date

May 15, 2019

Project No.

04-18-0490

May 15, 2019
04-18-0490

Ed Geric
Mike Geric Construction
4250 West Saanich Road
Victoria, BC, V8Z 3G4

Dear Mr. Geric:

Re: Speed & Frances Market and Affordable Housing Development
Transportation Impact Assessment – Draft Report

Please find attached our Transportation Impact Assessment final report, for circulation to the City of Victoria. The purpose of this study was to assess the on- and off-site transportation considerations for the redevelopment of Speed & Frances site containing both market strata and affordable rental residences buildings. A particular focus of the study was to assess the suitability of the proposed vehicle parking supply. We are supportive of the proposed vehicle parking supply as it is anticipated to accommodate the anticipated demand as well as facilitating the economics of constructing an affordable housing building.

Please contact us if we can be of any further assistance.

Yours truly,
Bunt & Associates

Jason Potter, PTP
Associate, Senior Transportation Planner

Simon Button, P.Eng.
Transportation Engineer

CORPORATE AUTHORIZATION

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Date: 2019-05-15
Project No. 04-18-0490
Status: Draft

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1. INTRODUCTION

1.1 Study Purpose & Objectives

Mike Geric Construction is seeking approval to develop the properties at 605, 607, 609, 615, and 629 Speed Avenue as well as 606, 612, and 618 Frances Avenue within the existing R-81 zoning in the City of Victoria (City). The property currently contains four single-family houses and vehicle storage for car dealerships. The developer wishes to construct two multi-family residential buildings; one market strata, one affordable / market. The development will include surface and underground vehicle parking. The surface parking will be accessible from both Speed Avenue and Frances Avenue, whereas the underground parking will only be accessible from Speed Avenue. The proposed vehicle parking supply is less than the requirement stated in the R-81 zoning regulations.

Mike Geric Construction has retained Bunt & Associates Engineering Limited (Bunt) to prepare a Transportation Impact Assessment (TIA) to assess the suitability of the proposed vehicle parking supply and review the current and future vehicle traffic operations at project build-out.

1.2 Study Scope & Area

The site location and study area are illustrated in **Exhibit 1.1**. The site is located west of Douglas Street and the Mayfair Shopping Centre.

There are two primary objectives of this study. The first objective is to assess the suitability of the proposed vehicle parking supply given that it is less than the requirement for R-81 zoning. The second objective is to review the existing street network to determine if off-site roadway and/or intersection control upgrades are required at the Douglas Street & Speed Avenue intersection to accommodate the proposed development. In addition to this, the report also reviews the site's design.

1.3 Proposed Development

The development's site plan is shown in **Exhibit 1.2.** The development contains two buildings with a total of 247 residential units. The western building will contain a market residential tower with 179 market condo units. The eastern building will contain 68 housing units. The 10 affordable rental units will be available in the eastern building.

The development includes 168 vehicle parking spaces: 41 at surface level and 127 underground. The surface parking lot connects to both Speed Avenue and Frances Avenue. The entrance to the underground parkade is located directly off of Speed Avenue at the east end of the site.

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Exhibit 1.1

Site Location

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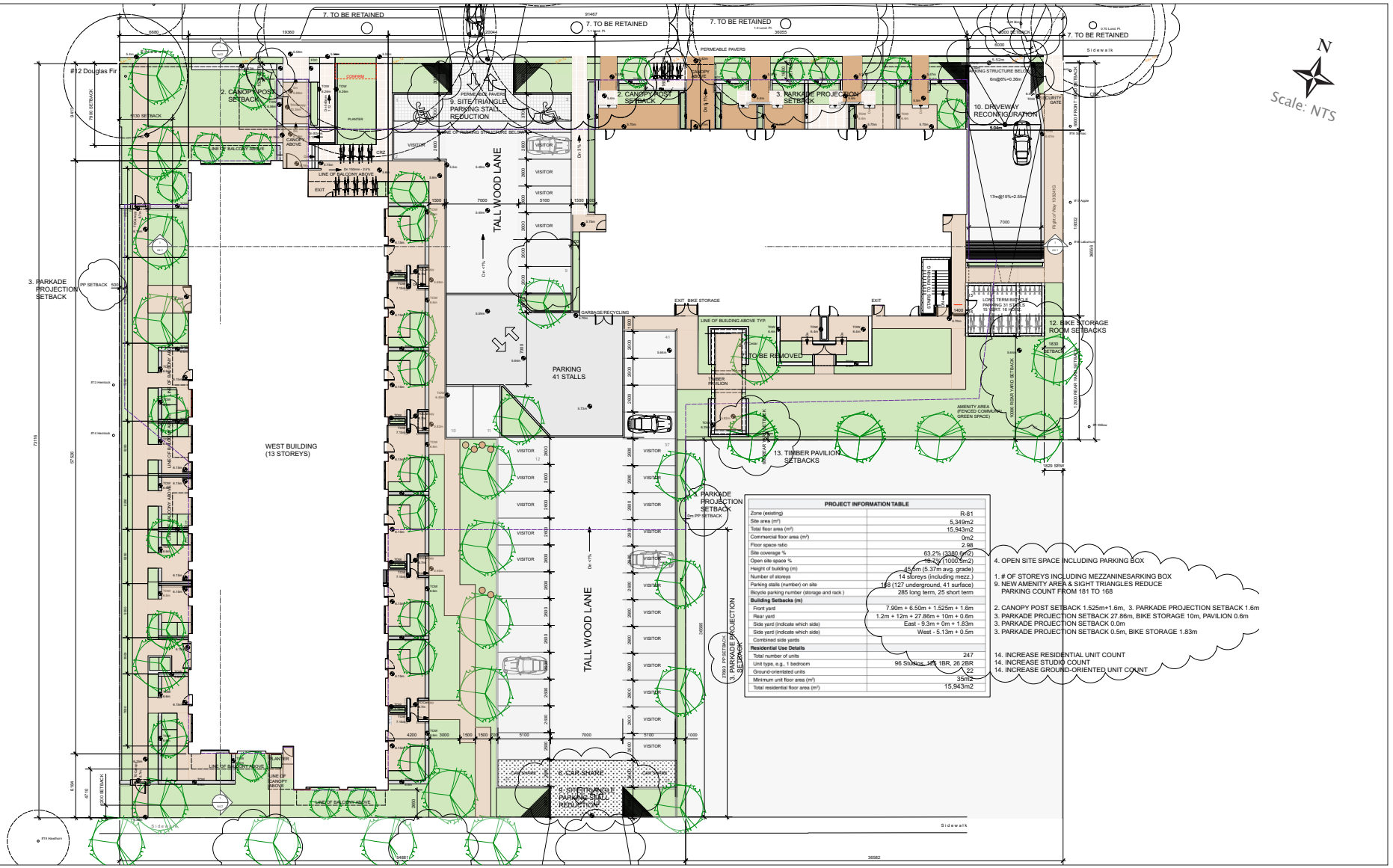

PROJECT INFORMATION TABLE	
Zone (existing)	R-81
Site area (m²)	5,349m2
Total floor area (m²)	15,943m2
Commercial floor area (m²)	0m2
Floor space ratio	2.98
Site coverage %	63.2% (3380.6m2)
Open site space %	18.7% (1000.5m2)
Height of building (m)	45.6m (5.37m avg. grade)
Number of storeys	14 storeys (including mezz.)
Parking stalls (number) on site	168 (127 underground, 41 surface)
Bicycle parking number (storage and rack)	285 long term, 25 short term
Building Setbacks (m)	
Front yard	7.90m + 6.50m + 1.525m + 1.6m
Rear yard	1.2m + 12m + 27.86m + 10m + 0.6m
Side yard (indicate which side)	East - 9.3m + 0m + 1.83m
Side yard (indicate which side)	West - 5.13m + 0.5m
Combined side yards	
Residential Use Details	
Total number of units	247
Unit type, e.g., 1 bedroom	96 Studios, 125 1BR, 26 2BR
Ground-orientated units	22
Minimum unit floor area (m²)	35m2
Total residential floor area (m²)	15,943m2

4. OPEN SITE SPACE INCLUDING PARKING BOX

1. # OF STOREYS INCLUDING MEZZANINESARKING BOX
9. NEW AMENITY AREA & SIGHT TRIANGLES REDUCE PARKING COUNT FROM 181 TO 168

2. CANOPY POST SETBACK 1.525m+1.6m, 3. PARKADE PROJECTION SETBACK 1.6m
3. PARKADE PROJECTION SETBACK Z7.86m, BIKE STORAGE 10m, PAVILION 0.6m
3. PARKADE PROJECTION SETBACK 0.0m
3. PARKADE PROJECTION SETBACK 0.5m, BIKE STORAGE 1.83m

14. INCREASE RESIDENTIAL UNIT COUNT
14. INCREASE STUDIO COUNT
14. INCREASE GROUND-ORIENTED UNIT COUNT

Exhibit 1.2
Site Plan

04-18-0490

Speed & Frances
May 2019

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2. LOCAL CONTEXT

2.1 Land Use

The site's surrounding land use is a mix of residential, commercial and light-industrial. A number of retail and service businesses are located at Mayfair Shopping Centre (located directly east of Douglas Street) as well as on Douglas Street. The City's Official Community Plan designates the development site as part of the Mayfair Town Centre which allows buildings up to 12 storeys in height and a mix of residential, office, and retail uses.

2.2 Street Network

The proposed development will be located between Speed Avenue and Frances Avenue which are both local streets. Douglas Street, Finlayson Street and Burnside Road are arterial roads, providing regional connectivity. A traffic signal was recently installed at the intersection of Douglas Street and Speed Avenue which greatly improves the vehicle accessible of the proposed development. **Exhibit 2.1** shows the existing street network including the laning of the one study intersection.

2.3 Walking

The development site has a WalkScore[1] of 80, indicating that it is 'Very Walkable' and that 'Most errands can be accomplished on foot'. As previously noted, there are a variety of commercial destinations nearby. Topaz Park is the largest park in the area is located 550 metres from the development site. All nearby streets have sidewalks on both sides and crosswalks are provided at all signalized intersections. Frequent marked crossings are provided on Douglas Street and Finlayson Street in the proximity of the development site, however, the distance between crossings on Burnside Road tend to be farther apart. For example, the nearest crossings surrounding Finlayson Street are 300 metres to the north (near Alpha Street) and 400 metres to the south (at Douglas Street).

2.4 Cycling

The site is in close proximity to the existing bike/bus lanes on Douglas Street, painted bike lanes on Blanshard Street and Finlayson Street, as well as the multi-use Galloping Goose Regional Trail. The closest access point to the Galloping Goose is located on Alpha Street, approximately 400 metres from the site.

2.5 Transit

The site is well connected to the BC Transit network. Bus routes operate on Douglas Street, Finlayson Street, and Burnside Road, providing access to 18 bus routes within a 300 metre walk of the site. BC

[1] WalkScore is a walkability index based on the distance to the closest amenity in each category. If the closest amenity in a category is within 400 metres, the location receives the maximum number of points.

Transit intends to implement a rapid bus route on Douglas Street and Highway 1 which would likely include a stop between Tolmie Avenue and Finlayson Street.

2.6 On-street Vehicle Parking

Speed Avenue is limited to Residential Parking Only (i.e. parking for residents and their guests) on both sides. Frances Avenue provides a mix of time-limited parking and unrestricted parking between Douglas Street and Burnside Road. There is no on-street parking on Douglas Street.

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Exhibit 2.1

Existing Street Network

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3. DEVELOPMENT PLAN REVIEW

3.1 Bicycle Parking

Well managed, secure, accessible and covered bicycle parking will be provided as part of the development plan. The development will satisfy the bylaw bicycle parking requirements. Schedule C of the City's Zoning Regulation Bylaw states that multi-family buildings must provide at least 1 long-term space for units less than 45 m^2 and 1.25 long-terms spaces for units 45 m^2 or more. The proposed development contains 96 units less than 45 m^2 and 151 units 45 m^2 or more which equates to a minimum requirement of 285 long-term spaces. The greater of 6 short-term spaces per building or 0.1 short-term spaces per unit is also required which equates 18 short-term spaces for the market building and 7 short-term spaces for the affordable housing building.

3.2 Vehicle Parking

3.2.1 Bylaw Requirement & Proposed Supply

Table 3.1 summarizes the development's bylaw required vehicle parking supply and proposed supply. The site's existing R-81 zoning requires developments to provide 0.96 vehicle spaces per dwelling unit for residential parking as well as 0.1 vehicle spaces per dwelling unit for visitors (as per Schedule C of the Zoning Regulation Bylaw). The development intends to supply 168 vehicle spaces in order to facilitate the economic feasibility of providing affordable housing.

Table 3.1: Off-Street Parking Requirement

LAND USE	QUANTITY	BYLAW RATE	BYLAW REQUIREMENT
Residents	247	0.96	237
Visitor	247	0.10	25
		TOTAL	262

3.2.2 Variance Rationale

The development is seeking a variance to supply a total of 168 vehicle parking spaces which is 94 spaces below the bylaw requirement of 262 spaces. We support the requested variance due to the following four reasons:

1. Affordable Housing

The development will be providing affordable housing. The homes will be sold below market value and their resale values will be limited. The affordable housing units will be reserved for people with lower incomes which would result in them being less likely to own a vehicle. This causation is accounted for in Schedule C of Victoria's Zoning Regulation Bylaw which requires fewer parking spaces for affordable housing units compared to market housing units.

Table 3.2 summarizes the Schedule C parking requirement which the development would follow if it was not in a zone such as R-81 which has a specific parking requirement (regardless of the housing being affordable or market). Assuming the affordable housing units achieved the Zoning Regulation Bylaw's affordable housing definition[2], the revised requirement is 220 spaces. In addition to affordable housing residents owning fewer vehicles, in order to facilitate the economics of building affordable housing, construction costs need to be lower than market housing through initiatives such as constructing fewer parking spaces which can cost on average $50,000 per space to build underground.

Table 3.2: Schedule C Parking Requirement

LAND USE	DWELLING SIZE	QUANTITY	BYLAW RATE	BYLAW REQUIREMENT
Condominium	< 45 m^2	89	0.70 spaces per dwelling	62
	> 45 m^2, < 70 m^2	137	0.85 spaces per dwelling	116
	>70 m^2	11	1.30 spaces per dwelling	14
Affordable Housing	< 45 m^2	7	0.20 spaces per dwelling	1
	> 45 m^2, < 70 m^2	3	0.50 spaces per dwelling	2
	>70 m^2	0	0.75 spaces per dwelling	0
Visitor	-	247	0.10 spaces per dwelling	25
			TOTAL	220

2. Reduced Visitor Parking

The City of Victoria requires 0.1 parking spaces per dwelling unit to be reserved for visitors. However, based on Bunt's previous experience for similar village centres in municipalities across Greater Victoria and Metro Vancouver, a visitor parking supply rate of 0.06 spaces per unit is considered appropriate which results in 15 visitor parking spaces. This recommendation is supported by the Metro Vancouver Residential Apartment Parking Study[3] which found that visitor parking demand never exceeded 0.06 vehicles per dwelling unit during the study period.

3. Car Share Provisions

The development has offered two parking spaces and will purchase and provide two car-share vehicles to Modo which will allow Modo to grow its presence in the local area. It will also allow the future residents of the proposed development to have very convenient access to car share vehicles and will, therefore, be less reliant on private vehicle ownership and parking. The Metro Vancouver Car Share Study found that residents who joined a two-way car-sharing service (where car reservations begin and end at the car's

[2] The Bylaw definition of "Affordable" is "Total costs for rent or mortgage plus taxes (including a 10% down payment), insurance and utilities must equal 30% or less of a household's annual income". Even though the development aims to meet this target, since the total mortgage costs is unknown due to varying interest rates, it is difficult to guarantee.

[3] The visitor parking demand results from the Metro Vancouver Residential Parking Study were obtained from suburban sites in Burnaby, Port Coquitlam and Richmond which had varying levels of transit service. The visitor parking demand was not correlated with proximity to the Frequent Transit Network; in fact the site with the worst transit service had the lowest peak visitor parking demand of 0.02 visitor vehicles per dwelling. Therefore the results from the Metro Vancouver Residential Parking Study are seen as applicable to the proposed development.

'home location') such as Modo reduced their vehicle ownership by 27%. This indicates that people are willing to join a two-way car-sharing service such as Modo and own fewer vehicles.

All units that do not have a parking space will be given lifetime Modo membership, which will be tied to the strata unit.

4. Parking Management Strategy

The development is proposing 168 parking spaces, of which 15 are recommended to be reserved for visitors and two will be for car share vehicles. Therefore, 151 parking spaces remain for residents. Residents buying a 1-bedroom or 2-bedroom (151 units available) will be given the first right of refusal to purchase one parking space. All residential parking spaces not purchased by 1-bedroom and 2-bedroom home owners will be made available for purchase by studio home owners. At first, the developer will limit the number of parking spaces purchased by each household (regardless of size) to one and only allow households to purchase a second parking space if there are unsold spaces.

The development will separate the cost of vehicle parking by selling parking spaces separate from the dwelling units. This will have two impacts on the parking demand. First, residents will understand the full cost of vehicle ownership and may choose to own fewer vehicles. Second, the development will be attractive for non-vehicle owners since the purchase cost will be lower (since parking costs are excluded). Twenty percent of Victoria households do not own a vehicle[4], so there is a substantial portion of the population that would be attracted to purchase a condo at a reduced cost from not having a parking space.

3.2.3 Summary

We recommend that the Schedule C parking requirement summarized in Table 3.2 (220 spaces) be used as the 'base' requirement for this development since it is providing affordable housing and the R-81 Zone vehicle parking requirement does not account for this characteristic. We also recommend that the development provide 0.06 visitor spaces per unit (15 visitor spaces) which meets our anticipated peak visitor parking demand. This adjusts the parking requirement to a total of 210 spaces. The development is proposing to supply 168 spaces which we believe is reasonable due to its commitment to reducing vehicle ownership through an effective parking management strategy and providing two spaces to a car share operator.

3.3 Design Review

Bunt worked with the project architect to ensure the design was accessible to appropriately sized vehicles. The development's drive aisle connecting Frances Avenue and Speed Avenue provides easy access for large vehicles such as waste collection vehicles.

[4] Obtained from the Capital Regional District Origin-Destination 2017 Household Travel Survey.

4. TRAFFIC OPERATIONS ASSESSMENT

4.1 Traffic Operations Assessment Methodology

The traffic operations were assessed at the Douglas Street & Speed Avenue intersection during the weekday AM and PM peak hours. The operations were assessed using the methods outlined in the 2010 Highway Capacity Manual (HCM), using the Synchro 9 analysis software. The traffic operations were assessed using the performance measures of Level of Service (LOS) and volume-to-capacity (V/C) ratios.

The LOS rating is based on average vehicle delay and ranges from "A" to "F" based on the quality of operation at the intersection. LOS "A" represents minimal queuing time conditions while a LOS "F" represents an over-capacity condition with considerable congestion and/or queuing time. A queuing time of fewer than 10 seconds receives a LOS A whereas queuing times greater than 50 seconds receive a LOS F. In downtown and Town Centre contexts, during peak demand periods, queuing times greater than 50 seconds (LOS F) are common.

The volume to capacity (V/C) ratio of an intersection represents the ratio between the demand volume and the available capacity. A V/C ratio less than 0.85 indicates that there is sufficient capacity to accommodate demands and generally represents reasonable traffic conditions in suburban settings. A V/C value between 0.85 and 0.95 indicates an intersection is approaching practical capacity; a V/C ratio over 0.95 indicates that traffic demands are close to exceeding the available capacity, resulting in saturated conditions. A V/C ratio over 1.0 indicates a congested intersection where drivers may have to wait through multiple signal cycles. In urban downtown and town centre contexts, during peak demand periods, V/C ratios over 0.90 and even 1.0 are common.

4.2 Existing Conditions

Bunt collected the AM peak period traffic data on Thursday, January 24, 2019, and the PM peak period traffic data on Wednesday, January 23, 2019. 8:00 to 9:00 am was identified as the AM peak hour and 4:15 – 5:15 pm was identified as the PM peak hour.

Bunt observed approximately 2,000 vehicles (two-way) on Douglas Street during the AM peak hour and 2,400 vehicles during the PM peak hour. Bunt observed 30 vehicles on Speed Avenue during the AM peak hour and 50 vehicles during the PM peak hour. No vehicles entered/exited the Mayfair Mall underground parkade located off of the east leg of the intersection during the AM peak hour since it is closed during this time.

Exhibit 4.1 illustrates **t**he vehicle volumes and traffic operations for the two peak hours. There are no traffic operations concerns with the existing conditions. All movements operate within their capacity and have reasonable queuing times and lengths. Some movements, including the minor leg approaches and the left turns off of Douglas Street operate at LOS E with a low V/C ratio. This indicates that although there is additional capacity (low V/C ratio) these movements have moderate delays in order to reduce delays for the intersection's primary movements (northbound and southbound on Douglas Street).

4.3 Future Conditions

4.3.1 Development Generated Traffic

The vehicle trip generation for the proposed development was estimated using the ITE Trip Generation Manual, 10th Edition. **Table 4.1** shows the utilized trip rates. Bunt utilized the average ITE trip rate for high-rise multi-family buildings in a 'dense multi-use urban' for both the market and affordable housing buildings. Although the site location is beyond the geographic area that would be considered to be categorized as 'dense multi-use urban' in Victoria, the development's affordable housing component and low vehicle parking supply will cause its vehicle trip generation to be lower than if the development was all market housing and provided vehicle parking in line with the Zoning Bylaw. The resulting vehicle trip generation for the 247 dwelling units is approximately 50 total vehicle trips per peak hour (less than one vehicle per minute).

Table 4.1: Peak Hour Vehicle Trip Rates and Trip Generation

LAND USE	AM PEAK HOUR			PM PEAK HOUR		
	TOTAL	IN	OUT	TOTAL	IN	OUT
Trip Rate (vehicles per dwelling)	0.21	12%	88%	0.19	70%	39%
Trip Generation (vehicles)	52	6	46	47	33	14

The trips were assigned to the network based on existing travel patterns and the assumed trip distribution is shown in **Table 4.2**. In order to complete a 'worst-case analysis', all vehicle trips were assumed to go through the Douglas Street & Speed Avenue intersection. In reality, some vehicle trips will utilize the site's driveway on Frances Avenue and thus the development's impact to the Douglas Street & Speed Avenue intersection will be lower than shown in this study. **Exhibit 4.2** illustrates the resulting site vehicle forecasts.

Table 4.2: Trip Distribution

ORIGIN/DESTINATION	AM PEAK HOUR		PM PEAK HOUR	
	IN (%)	OUT (%)	IN (%)	OUT (%)
Douglas Street – North	70	50	35	50
Douglas Street – South	30	50	65	50
TOTAL	100%	100%	100%	100%

4.3.2 Traffic Operations Results

Exhibit 4.3 demonstrates the future (with development) vehicle volumes and operations. There are no traffic operational concerns at the study intersection and the development does not significantly impact the intersection. The development's impact is estimated to cause vehicles queues to increase by no more than one vehicle and vehicle delays to increase by less than two seconds.

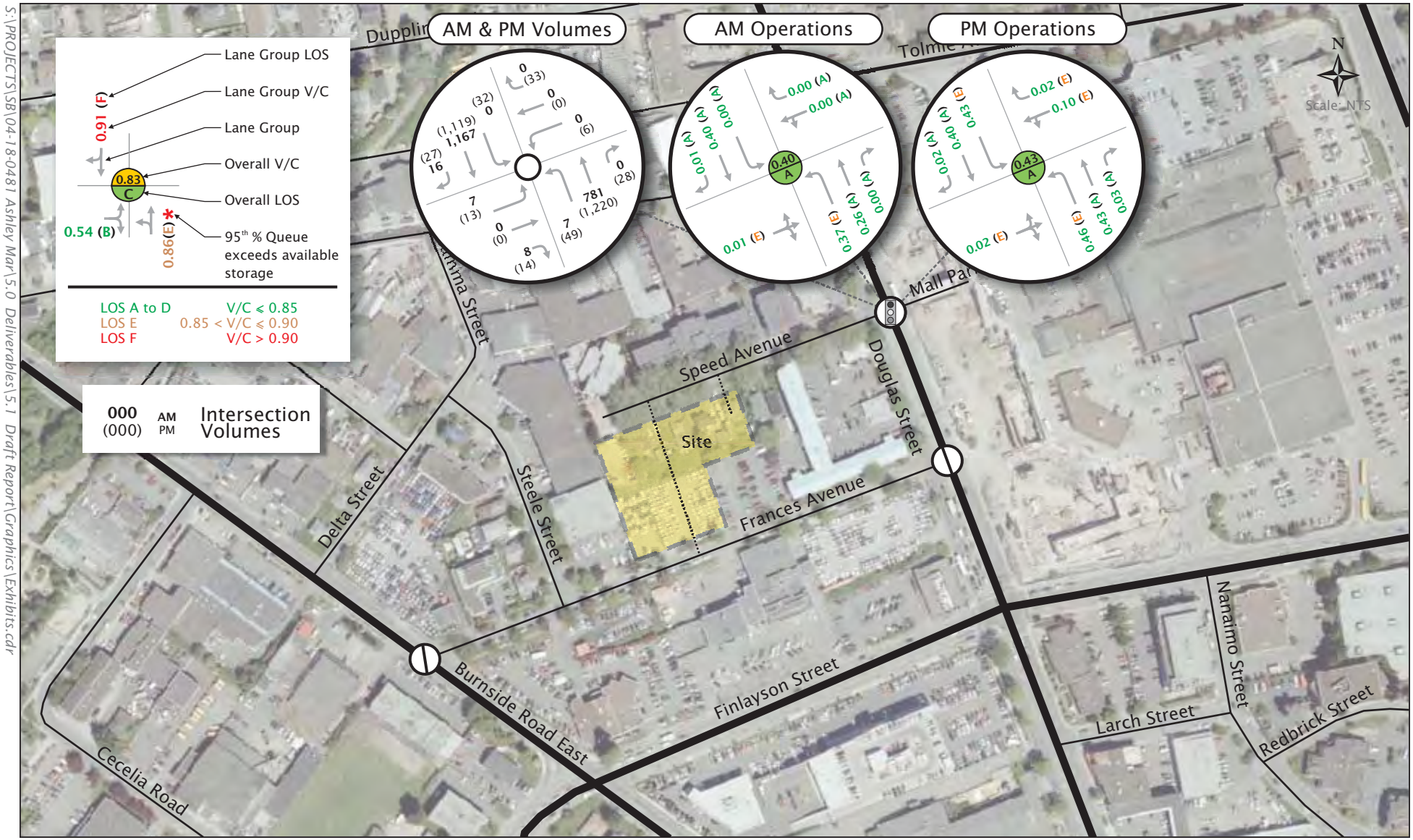

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Exhibit 4.1

Existing Volumes and Traffic Operations

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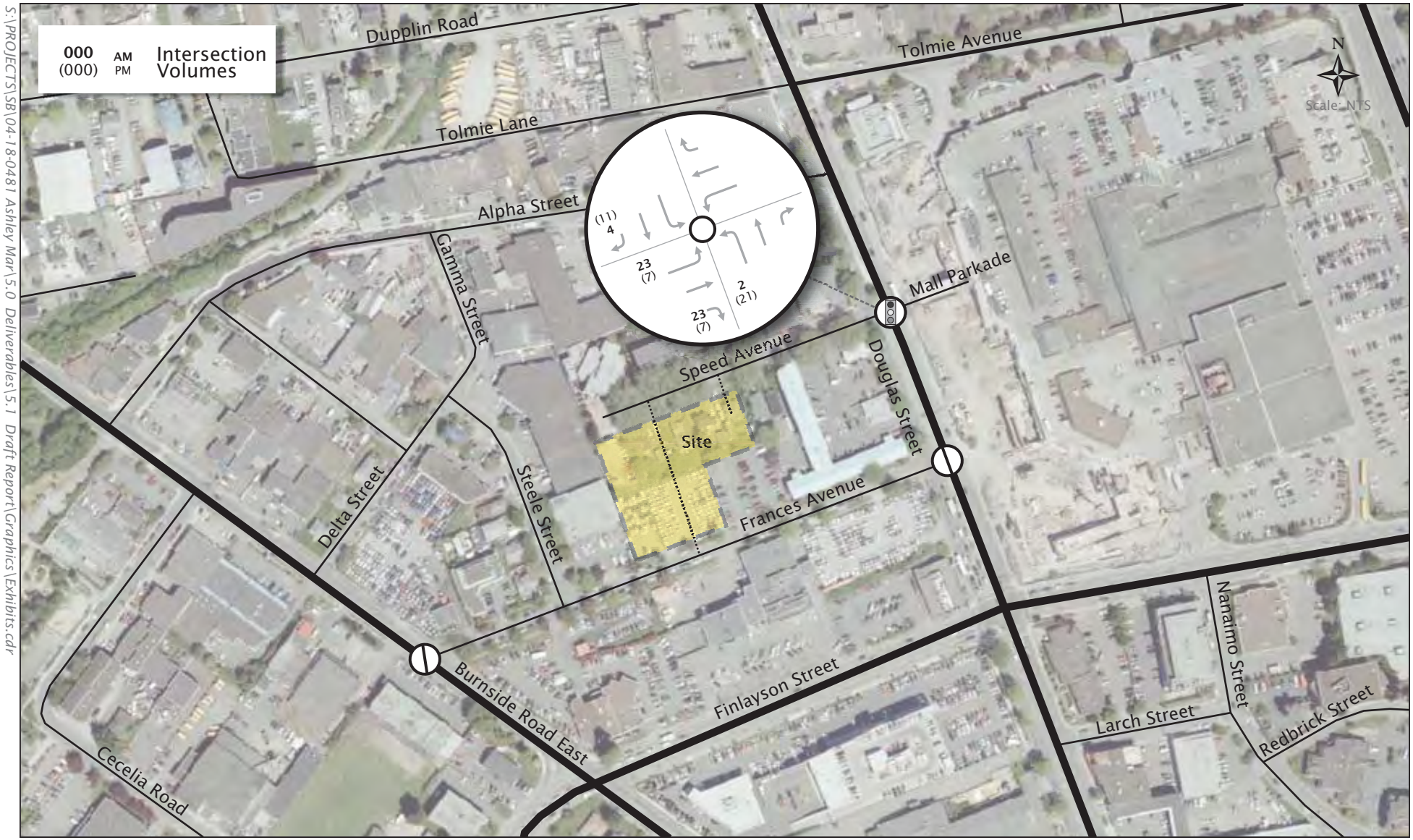

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Exhibit 4.2

Site Vehicle Volumes

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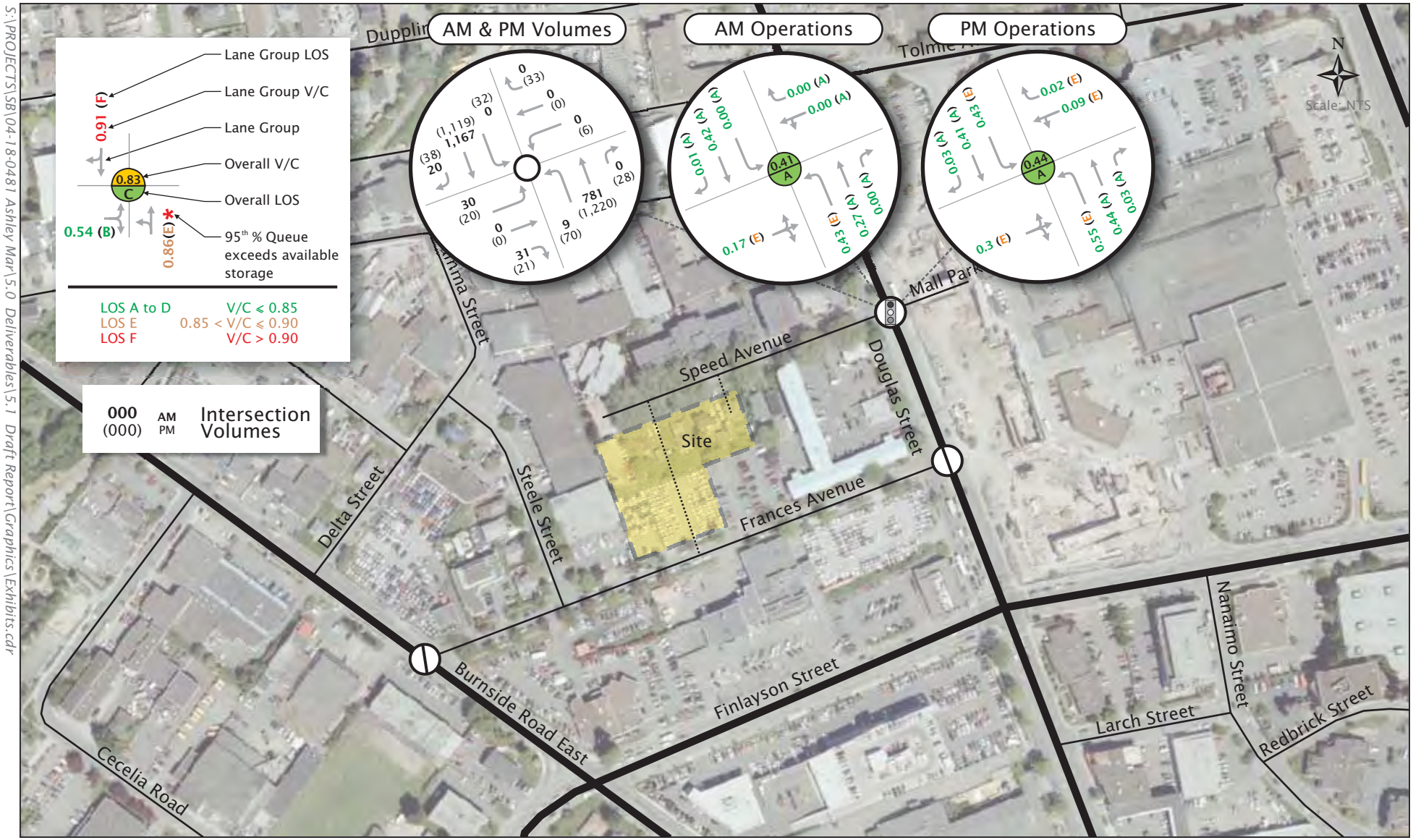

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Exhibit 4.3

Future (with Development) Vehicle Volumes & Operations

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5. SUMMARY & RECOMMENDATIONS

Development Details

1) The proposed development will consist of two buildings with a total of 247 residential units. The western building will contain a market residential tower with 179 market condo units. The eastern building will contain 10 affordable units and 58 market condo units.

2) The entrance to the underground parkade is located directly off of Speed Avenue at the east end of the site. The surface parking area will connect to both Speed Avenue and Frances Avenue.

3) The development is seeking to reduce its vehicle parking supply to make the affordable units economically feasible. The development proposes to supply 168 parking spaces.

4) The development will meet or exceed bicycle parking Bylaw requirements.

Vehicle Parking Variance Rationale

5) The proposed vehicle parking supply is anticipated to meet the anticipated demand. Bunt supports the proposed vehicle parking variance since:

   a) The Bylaw requirement does not consider the affordable nature of one of the buildings.

   b) The Bylaw requirement for visitor parking is higher than needed.

   c) The development's commitment to providing Modo car-share memberships to unit owners who do not purchase a parking space. In addition the developer will provide two parking spaces and two vehicles to Modo.

   d) The development's commitment to reducing vehicle ownership through a parking management strategy, including unbundling parking costs from home costs.

Traffic Operations

6) The Douglas Street & Speed Avenue intersection currently operates well, with minimal delays for through vehicles on Douglas Street and modest delays for turning movements.

7) The proposed development is anticipated to generate up to 50 vehicle trips per weekday peak hour. The additional traffic will minimally impact the Douglas Street & Speed Avenue intersection.