TRANSPORTATION PLANNERS AND ENGINEERS

bunt & associates

1340 Sussex Street / 1337 Saunders Street

Transportation Impact Assessment (TIA)

Version 05

Prepared for

Intracorp Projects Ltd.

Date

May 30, 2025

Project No.

08-23-0038

Bunt & Associates acknowledges and respects the Traditional Territories upon which our work spans, and from which we benefit. We are grateful for the unique cultures and histories of Indigenous Peoples that enrich our understanding and connection to the lands we call home. We honour learning, listening, and truth in our journey to reconciliation.

May 30, 2025
08-23-0038

Matt Kolec
Senior Development Manager
Intracorp Projects Ltd.
600-550 Burrard Street
Vancouver BC
V6C 2B5

Dear Mr. Kolec:

Re: 1340 Sussex Street & 1337 Saunders Street TIA – Esquimalt, BC
Transportation Impact Assessment – Version 04

Please find attached the Traffic Impact Assessment (TIA) for the proposed development at 1340 Sussex Street & 1337 Saunders Street, in the Township of Esquimalt, BC. This study was done in support of the project's Rezoning Application.

We trust that the findings and recommendations of this study will be of assistance to you throughout the project approval process. If you have any questions regarding this study, please do not hesitate to contact us.

Yours truly,
Bunt & Associates

Roxana Sorkhi, EIT
Transportation Analyst

Kyle Brandstaetter, MCIP RPP
Senior Transportation Planner & Team Lead

cc: Richard Syrett, Township of Esquimalt (Engineering)

CORPORATE AUTHORIZATION

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		Project No. 08-23-0038
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	Principal, Regional Manager BC	

Permit No. 1000468

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
Y. P. LIEM
35685

2025-05-30

Written with respect and gratitude for the Traditional Territories upon which we work and live.

TABLE OF CONTENTS

EXHIBITS

TABLES

1. INTRODUCTION

Intracorp Projects Ltd. (Intracorp) is planning to rezone the properties at 1340 Sussex Street and 1337 Saunders Street to build a mixed-use development. The site is located along Nelson Street between Sussex and Saunders Street as shown on **Exhibit 1.1**. The site is currently zoned RM-4 (multi-family residential) with two (2) existing apartment buildings. The proposal is for CD zoning which will allow for increased residential building height and density.

To support the project approval process, the Township of Esquimalt (Township) requires that a Transportation Impact Assessment (TIA) be conducted to analyze the traffic and parking impact of the development.

At the outset of the study, Bunt & Associates (Bunt) developed the study scope in consultation with Township of Esquimalt staff and the agreed upon Terms of Reference (ToR) can be found in **Appendix A**. Bunt's findings and recommendations are documented in this report.

Study Update

This version of the report serves as an update to the previous submission dated October 18, 2024, reflecting minor updates in response to the City's comments received via email on May 28, 2025.

1.1 Organization of Report

The report sections of the study have been organized as follows:

- **Section 1** presents the study background, site location, and details of the proposed development.
- **Section 2** presents the existing conditions, including land use, road network, transit, and active transportation facilities. In addition, the existing traffic conditions in the study area are analyzed.
- **Section 3** presents the estimated site trip generation and future traffic operations results.
- **Section 4** provides a review of the planned parking, bicycle, loading, and Transportation Demand Management (TDM) measures
- **Section 5** reviews the proposed site design as it relates to vehicle access, parking layout and circulation, loading, and waste collection
- **Section 6** summarizes the conclusions of the study.

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Exhibit 1.1

Site Location

1340 Sussex & 1337 Saunders TIA
08-23-0038 June 2024

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1.2 Proposed Development

The proposed development features a 21-storey tower with three (3) levels of underground parking. The development site plan is illustrated in **Exhibit 1.2** and details of the proposed land use statistics are summarized here in **Table 1.1**.

Table 1.1: Proposed Land Uses

LAND USE	DENSITY	UNITS
Residential	17,678 sq.m saleable area	335 units
Retail	240 sq.m	-

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Exhibit 1.2
Site Plan

1340 Sussex & 1337 Saunders TIA
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2. EXISTING CONDITIONS

2.1 Land Use

The site is bounded by Nelson Street to the west, Sussex Street to the south, and Saunders Street to the north. The surrounding area features a mix of residential land uses, including single-family and multi-family residential buildings – some of which are currently in construction. Additionally, the area features a mix of commercial buildings that house a variety of retail stores, restaurants, and other daily services.

2.2 Existing Transportation Network

2.2.1 Road Network

The site is bounded by Saunders Street to the north, Nelson Street to the east, and Sussex Street to the south, all of which are classified as Local Streets. Admirals Road and Esquimalt Road, classified as Major Roads, are located east and south of the site, respectively, and provide broader north/south and east/west connectivity across Esquimalt.

Exhibit 2.1 presents the study area street network, indicating the existing laning and traffic control for the study intersections. It is noted that the Township plans to upgrade the existing unsignalized intersection at Nelson Street & Esquimalt Road to a traffic signal.

2.2.2 Transit Network

BC Transit route 25 (Maplewood/Admirals Walk) services the site with northbound and southbound stops on Admirals Road at the Esquimalt Road intersection. Route 25 connects Esquimalt with Victoria-West and Downtown Victoria.

BC Transit route 15 (Esquimalt/UVic) and 26 (Dockyard/UVic) services the site with westbound and eastbound stops on Esquimalt Road at Admirals Road and Sturdee Street. Bus shelters and benches are provided at both stops. Route 15 connects Esquimalt with Victoria-West, Downtown Victoria and the University of Victoria. Route 26 connects Esquimalt with Gorge-Tillicum Area, Uptown Mall, Lake Hill Area and the University of Victoria.

Additionally, BC Transit route 46 (Dockyard/Westhills) services the site with the closest stops located on Esquimalt Road. The stop for Route 46 towards Westhills Exchange is approximately 350 meters from the site at Esquimalt Road and Sturdee Street, which features a shelter, bench, and waste bin. The stop in the opposite direction, coming from Westhills Exchange, is approximately 350 meters away at Esquimalt Road and Foster Street, equipped with a small waste bin. Route 46 connects Esquimalt with the communities of Westhills, Langford, Colwood, and serves key transit hubs including HMC Dockyard and Colwood Exchange, with its western terminus at Westhills Exchange.

2.2.3 Cycling & Pedestrian Networks

Most nearby local streets do not have sidewalks on either side whereas the major roads (Admirals Road and Esquimalt Road) have sidewalks on both sides. Crosswalks are provided on all four legs of the Admirals Road & Esquimalt Road intersection. Admirals Road has limited pedestrian crossing opportunities; however, Esquimalt Road has crosswalks every 100 to 200 metres in Esquimalt Village in addition to the pedestrian crossing at Constance Avenue for increased pedestrian permeability.

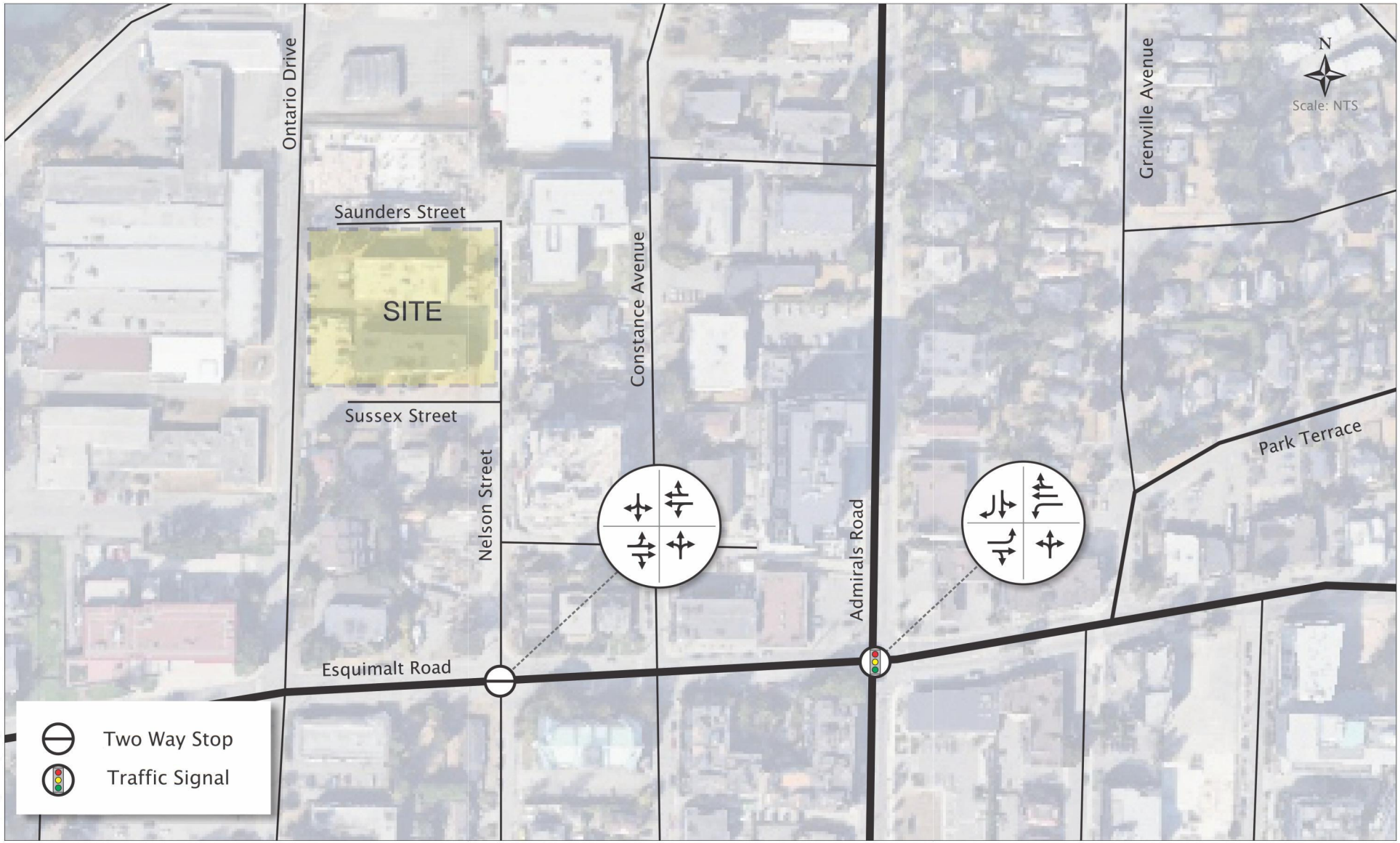

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Exhibit 2.1

Existing Laning & Traffic Control

1340 Sussex & 1337 Saunders TIA
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Admirals Road has painted bike lanes in both directions in the vicinity of the development site. Esquimalt Road has painted bike lanes in both directions beginning 200 metres east of Admirals Road, continuing eastwards to the Johnson Street Bridge in the City of Victoria and westwards approximately 3.5 kilometres.

The site is approximately 750 metres from the E&N Regional Trail, which currently extends from Esquimalt Road in the east to the Old Island Highway at the junction joining with the Galloping Goose Regional Trail.

Exhibit 2.2 illustrates the existing transportation network in the vicinity of the site.

2.3 Current Relevant Policies & Plans

2.3.1 Township of Esquimalt Official Community Plan

The Township's Official Community Plan (OCP) states a policy to prioritize medium/high density residential developments that reduce single occupancy vehicle use. Esquimalt's OCP notes that the Township should consider a parking reduction when a parking study is provided which supports the variance. The Township also has substantial goals of reducing greenhouse gas emissions by 38% below 2007 levels by 2030 and to become a net-zero emission community by 2050 (OCP).

As such, right-sizing vehicle parking for new developments is a key tool in achieving these environmental goals. A reduced parking supply is directly linked to reduced vehicle ownership, which is directly linked to lowered vehicle distances traveled. Therefore, when other forms of transportation are considered viable and are supported by the development, reducing the parking supply can positively impact private vehicle use while also reduce housing costs by providing fewer costly parking spaces.

2.4 Existing Traffic Volumes

2.4.1 Traffic Data Collection Program

Bunt conducted traffic counts (all modes) on Thursday, May 23, 2024, covering the weekday morning (7:00 am to 8:00 am) and afternoon (3:00 pm to 5:00 pm) peak traffic periods of the study area network. A site visit was also conducted at this time. **Table 2.1** provides a summary of the traffic count data of study intersections.

Table 2.1: Summary of Available and Counted Traffic Data

INTERSECTION	DATE OF COUNT	PEAK HOURS	
		AM	PM
Esquimalt Road & Nelson Street	Thursday, May 23, 2024	7:00-8:00	15:30-16:30
Esquimalt Road & Admirals Road	Thursday, May 23, 2024	7:00-8:00	15:30-16:30
OVERALL STUDY AREA PEAK HOUR		7:00-8:00	15:30-16:30

The existing peak hour vehicle traffic volumes within the study area are presented in **Exhibit 2.3**

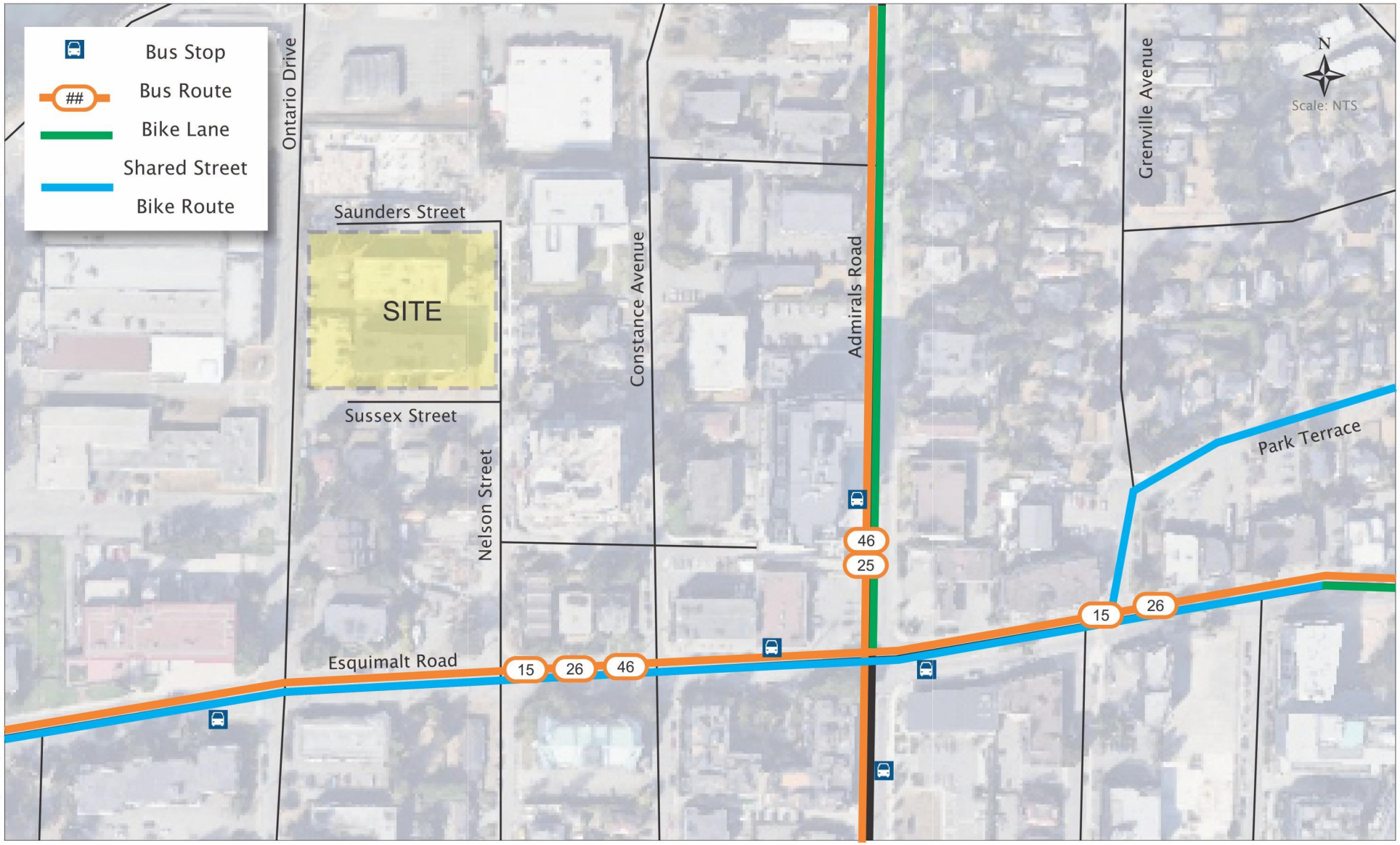

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Exhibit 2.2

Existing Transportation Context

1340 Sussex & 1337 Saunders TIA
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Exhibit 2.3

Existing Peak Hour Vehicle Traffic Volumes

1340 Sussex & 1337 Saunders TIA
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2.5 Existing Operations

2.5.1 Performance Thresholds

The existing operations of study area intersections and access points were assessed using the methods outlined in the 2000 Highway Capacity Manual (HCM), using the Synchro 11 analysis software. The traffic operations were assessed using the performance measures of Level of Service (LOS) and volume-to-capacity (V/C) ratio.

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 optimal, minimal delay conditions while a LOS "F" represents an over-capacity condition with considerable congestion and/or delay. Delay is calculated in seconds and is based on the average intersection delay per vehicle.

Table 2.5 below summarizes the LOS thresholds for the six Levels of Service, for both signalized and unsignalized intersections.

Table 2.5: Intersection Level of Service Thresholds

LEVEL OF SERVICE	AVERAGE CONTROL DELAY PER VEHICLE (SECONDS)	
	SIGNALIZED	UNSIGNALIZED
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

Source: Highway Capacity Manual

The volume to capacity (V/C) ratio of an intersection represents 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 very congested intersection where drivers may have to wait through several signal cycles. In downtown and Town Centre contexts, during peak demand periods, V/C ratios over 0.90 and even 1.0 are common.

As directed by the Township of Esquimalt, the performance thresholds that were used to trigger consideration of roadway or traffic control improvements to support roadway or traffic control improvements employed in this study are listed below:

Signalized Intersections:

- Overall intersection Level of Service = LOS D or better;
- Overall intersection V/C ratio = 0.85 or less;
- Individual movement Level of Service = LOS E or better; and,
- Individual movement V/C ratio = 0.90 or less.

Unsignalized Intersections and Roundabouts:

- Individual movement Level of Service = LOS E or better, unless the volume is very low in which case LOS F is acceptable.

In interpreting of the analysis results, note that the HCM methodology reports performance differently for various types of intersection traffic control. In this report, the performance reporting convention is as follows:

- For unsignalized two-way stop-controlled intersections: HCM 2000 LOS and V/C output is reported just for individual lanes as the HCM methodology does not report overall performance. SimTraffic estimated queues and delays have also been reported, as the HCM 2000 methodology does not directly take into account the gaps afforded by adjacent signalized intersections;

- For unsignalized All-way Stop controlled intersections: HCM 2000 unsignalized LOS is reported for the overall intersection as well as by intersection approach LOS. The HCM 2000 methodology does not report an overall V/C ratio for All Way Stop controlled intersections. Degree of Utilization calculated with the HCM 2000 methodology is reported for individual movements in place of V/C, which is not part of the HCM 2000 report.

The performance reporting conventions noted above have been consistently applied throughout this document and the detailed outputs are provided in **Appendix B**.

2.5.2 Existing Conditions Analysis Assumptions

In our analysis, default Synchro parameters were used in the analysis, except:

- Overall intersection Peak Hour Factor (PHF) was applied to each movement.
- Heavy vehicle percentage was set for each movement as observed in the field.
- Pedestrian volumes and conflicting bicycles were entered as observed in the field.

2.5.3 Existing Operational Analysis Results

Table 2.6 summarizes the existing traffic operational results for the AM and PM peak hours.

Table 2.6: Existing Traffic Operations

INTERSECTION/ TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
Admirals Rd @ Esquimalt Rd *(Signalized)*	*OVERALL*	*B*	*0.47*	-	*B*	*0.76*	-
	EBL	A	0.21	13	B	0.48	31
	EBTR	A	0.15	17	B	0.51	52
	WBL	B	0.05	6	C	0.29	13
	WBTR	B	0.50	39	C	0.30	16
	NBLTR	B	0.30	32	B	0.25	34
	SBLT	B	0.45	39	C	0.85	**#128**
	SBR	B	0.37	22	B	0.03	5
Nelson Street @ Esquimalt Rd *(Unsignalized)*	EBLT	*A*	0.01	*0*	*A*	0.00	*1*
	EBTR	A	0.05	0	A	0.21	0
	WBLT	A	0.00	0	A	0.02	4
	WBTR	A	0.28	1	A	0.06	2
	NBLTR	A	0.01	3	A	0.02	7
	SBLTR	A	0.15	9	A	0.02	5

'# 'Indicates that 95th percentile volume exceeds capacity, and therefore queues may be longer

Under existing conditions, all movements were found to operate within acceptable thresholds. However, the 95th percentile queue length for the southbound left-through movements at Admirals Road was found to exceed the available storage.

3. FUTURE TRAFFIC CONDITIONS

3.1 Traffic Forecasts

3.1.1 Background Traffic Forecasts

Background traffic is traffic that would be present on the road network if the site did not redevelop. Consistent with previous Bunt studies in the Township of Esquimalt, a linear growth rate of 1% per year was applied to the Opening Day (2028) horizon to establish Background traffic volume estimates.

The Township specifically requested that the traffic analysis also take into consideration the trips associated with the nearby developments. Future traffic associated with the other nearby developments as listed in **Table 3.1** is accounted for in this study.

Note on 612 Constance Avenue:

The initial background traffic estimates for 612 Constance Avenue were based on a previously assumed unit count of 157 residential units. The correct number of units is 129, as confirmed by the Township. Tables 3.1 and 3.3 have been updated accordingly. As the original analysis assumed a higher unit count, the resulting traffic forecasts are conservatively high. Therefore, no updates to the operations analysis were required.

Table 3.1: Future 'Other' Neighbouring Development Assumptions

DEVELOPMENT LOCATION	LAND USE	FLOOR AREA	UNITS
622 Admirals Road (The Vista)	Senior Housing	-	181 units
	Retail	111 m² (1,200 ft²)	-
638 Constance Avenue	Multi-Family Residential	-	71 units
612 Constance Avenue (Shoaling Heights)	Multi-Family Residential	-	129 units
	Retail	319 m² (3,434 ft²)	-
	Daycare	331 m² (3,563 ft²)	-
1310 Saunders Street	Multi-Family Residential	-	72 units
1347 Sussex Street & 602 Nelson Street	Multi-Family Residential	-	297 units
	Office	231 m² (2,491 ft²)	-
	Retail	187 m² (2,008 ft²)	-

The trips associated with each of the potential future developments were estimated using the rates published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Ed), as summarized in **Table 3.2.**

Table 3.2: Vehicle Trip Generation Rates

LAND USE	INDEPENDENT VARIABLE	ITE LAND USE CODE	AM PEAK HOUR			PM PEAK HOUR		
			IN	OUT	TOTAL	IN	OUT	TOTAL
Multi-Family (High-Rise)	Dwelling units	222	26%	74%	0.27	62%	38%	0.32
Multi-Family (Low-Rise)	Dwelling units	220	24%	76%	0.40	63%	37%	0.51
Senior Residential	Units	255	65%	35%	0.15	39%	61%	0.19
Commercial Retail*	1,000 ft²	820	62%	38%	0.84	48%	52%	3.40
Daycare	1,000 ft²	565	53%	47%	11	47%	53%	11.12
Office	1,000 ft²	710	88%	12%	1.52	17%	83%	1.44

Using the rates shown in Table 3.2, the trips associated with each of the potential future developments were estimated and are summarized in **Table 3.3**. Traffic associated with existing dwellings on the redevelopment sites are removed using ITE low-rise multi-family rates.

Table 3.3: Background Trip Generation Estimates (Other Developments)

DEVELOPMENT	LAND USE (ITE CODE)	DENSITY	AM PEAK HOUR			PM PEAK HOUR		
			IN	OUT	TOTAL	IN	OUT	TOTAL
622 Admirals Road (The Vista)	Senior Housing (255)	181 units	18	9	27	13	21	34
	Retail (820)	1,200 ft²	1	0	1	2	2	4
	Sub-Total	-	***19***	***9***	***28***	***15***	***23***	***38***
638 Constance Avenue	Residential (222)	71 units	5	14	19	14	9	23
	Existing	0	0	0	0	0	0	0
	Sub-Total	-	***5***	***14***	***19***	***14***	***9***	***23***
612 Constance Avenue (Shoaling Heights)	Residential (222)	129 units	9	26	35	25	16	41
	Retail (820)	3,434 ft²	2	1	3	6	6	12
	Daycare (565)	3,563 ft²	21	18	39	19	21	40
	Existing	-8	-1	-2	-3	-3	-1	-4
	Sub-Total	-	***31***	***43***	***74***	***47***	***42***	***89***
1310 Saunders Street	Residential (222)	72 units	5	14	19	14	9	23
	Existing	-6	0	-2	-2	-2	-1	-3
	Sub-Total	-	***5***	***12***	***17***	***12***	***8***	***20***
1347 Sussex Street & 602 Nelson Street	Residential (222)	297 units	21	59	80	59	36	95
	Office (710)	2,491 ft²	4	0	4	1	3	4
	Retail (820)	2,008 ft²	1	1	2	3	4	7
	Existing	-17	-2	-5	-7	-6	-3	-9
	Sub-Total	-	***24***	***55***	***79***	***57***	***40***	***97***
TOTAL	-	-	84	133	217	145	122	267

Note: The unit count for 612 Constance Avenue has been updated to reflect the correct total of 129 residential units. However, the analysis presented in the following sections is based on the previously assumed higher unit count (157 units). As such, the analysis is considered conservative and has not been updated

The distribution of these trips along the study area intersections was directly taken *from Sussex Street Mixed-Use Development TIA* (Bunt, June 22, 2023), and is illustrated in **Exhibit 3.1**.

Background traffic forecasts therefore include the background growth in traffic based on the existing volumes, plus the nearby development site trips shown in Exhibit 3.1. The Opening Day (2028) and Opening Day + 5 Years (2033) background traffic forecasts are presented in **Exhibit 3.2** and **3.3,** respectively.

3.1.2 Estimated Site Traffic

Trip Generation

To estimate vehicle trip generation associated with the development, Bunt used rates published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Ed). **Table 3.4** summarizes ITE vehicle trip rates for the project's land uses and the associated estimated weekday peak hour trips.

Table 3.4: Peak Hour Vehicle Trip Rates and Estimated Vehicle Trips

LAND USE	SIZE*	DESCRIPTION	AM PEAK HOUR			PM PEAK HOUR		
			IN	OUT	TOTAL	IN	OUT	TOTAL
Residential	335 Dwelling units	*Vehicle Trip Rates*[1]	*26%*	*74%*	*0.27*	*62%*	*38%*	*0.32*
		Vehicle Trips	23	67	**90**	66	41	**107**
Retail	2,583 sq.ft GFA	*Vehicle Trip Rates*[2]	*60%*	*40%*	*2.36*	*50%*	*50%*	*6.59*
		Vehicle Trips	4	2	**6**	9	9	**18**
TOTAL			27	69	96	75	50	125

Note: All trip rates are for General Urban/Suburban (not close to rail transit) setting.

1. ITE Land use code 222 Multifamily Housing Mid-Rise vehicle trip rates per dwelling unit.
2. ITE Land use code 822 Strip Retail Plaza <40k vehicle trip rates per 1,000 sq.ft GFA.

The new trip generation for the proposed development is expected to be approximately 96 and 125 vehicle trips during the weekday AM and PM peak hour periods, respectively.

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Exhibit 3.1

Other Future Neighbouring Development Trip Estimates (AM/PM)

1340 Sussex & 1337 Saunders TIA
08-23-0038 June 2024

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Exhibit 3.2

Opening Day (2028) Background Peak Hour Traffic Forecasts (AM/PM)

1340 Sussex & 1337 Saunders TIA
08-23-0038 June 2024

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Exhibit 3.3

Opening Day + 5 (2033) Background Peak Hour Traffic Forecasts (AM/PM)

1340 Sussex & 1337 Saunders TIA
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Note, this overall trip estimate represents the "gross" vehicle trip generation. To project the number of "net" new vehicle trips generated by the development, the existing site trips generated by the existing residential buildings that currently occupy the site would first be removed. Therefore, to estimate the "net" trip generation for the development, Bunt estimated the vehicle trip generation for the existing residential buildings, which feature a combined total of 67 units, using ITE low-rise multi-family rates, and subtracted the existing trips from the new site trips. The net trip generation for the site is summarized in **Table 3.5**.

Table 3.5: Estimated Peak Hour Net Vehicle Trips

SCENARIO	AM PEAK HOUR			PM PEAK HOUR		
	IN	OUT	TOTAL	IN	OUT	TOTAL
Proposed Development Vehicle Trips	27	69	96	75	50	125
Existing Site Vehicle Trips	6	21	27	21	13	34
NET TRIP GENERATION	21	48	69	54	37	91

As shown above, the projected net vehicle trips for the future development are expected to be approximately 70 and 90 vehicle trips during the weekday AM and PM peak hour periods, respectively. This translates to just over one (1) vehicle added onto the road network every minute, on average, during the peak hour periods.

Trip Distribution & Assignment

Vehicular trips were distributed to the road network based on existing traffic patterns and assigned to the development accesses based on logical routing. **Table 3.6** below summarizes the anticipated directional distribution.

Table 3.6: Estimated Site Vehicle Trip Distribution

ORIGIN/DESTINATION	AM PEAK HOUR		PM PEAK HOUR	
	IN (%)	OUT (%)	IN (%)	OUT (%)
Admirals Rd – North	45%	25%	35%	30%
Admirals Rd – South	5%	5%	5%	5%
Esquimalt Rd – East	35%	30%	25%	45%
Esquimalt Rd – West	15%	40%	35%	20%
TOTAL	100%	100%	100%	100%

Applying these distributions to the site traffic volumes, the estimated development site traffic on the study area road network is shown on **Exhibit 3.4**. The net changes in traffic volumes to the study intersections due to the addition of site traffic on Opening Day (2028) of the development are summarized in **Table 3.7**, below.

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Exhibit 3.4

Weekday Peak Hour Net Vehicle Site Trips (AM/PM)

1340 Sussex & 1337 Saunders TIA
08-23-0038 June 2024

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Table 3.7: Net Change in Future Intersection Vehicle Volumes with Net New Site Trips

INTERSECTION	AM PEAK HOUR VOLUMES			PM PEAK HOUR VOLUMES		
	BACK-GROUND	SITE	% CHANGE	BACK-GROUND	SITE	% CHANGE
Esquimalt Road & Nelson Street	1,188	70	6%	939	90	10%
Esquimalt Road & Admirals Road	1,843	47	3%	1,744	64	4%

3.1.1 Total Traffic

Total traffic on the study area road network was forecasted by combining background traffic volumes and the estimated net new site trips. The Opening Day (2028) and Opening Day + 5 Years (2033) total traffic forecasts are presented in **Exhibit 3.5** and **3.6,** respectively.

3.2 Future 'Opening Day' and 'Opening Day + 5 years' Traffic Operations

3.2.1 Future Background Weekday Peak Hour Operations

In the future background and total scenarios, the intersection of Nelson Street and Esquimalt Road was modeled as signalized based on the Township's request. Staff indicated that they plan to signalize the intersection, with installation scheduled for 2025. While specific details of the signal type are not yet known, the Township provided high-level guidance on the expected signal type.

Bunt assumed an actuated-uncoordinated signal with a 60-second cycle length and a resting red for Nelson Street. The signal was optimized in the future scenarios to enhance overall performance. Additionally, the existing lane configuration was assumed to remain unchanged, with only minor alignment adjustments on Nelson Street's south leg to tie into the north leg.

Table 3.5 and **3.6** summarize future background (without site) peak hour traffic operations in the study area

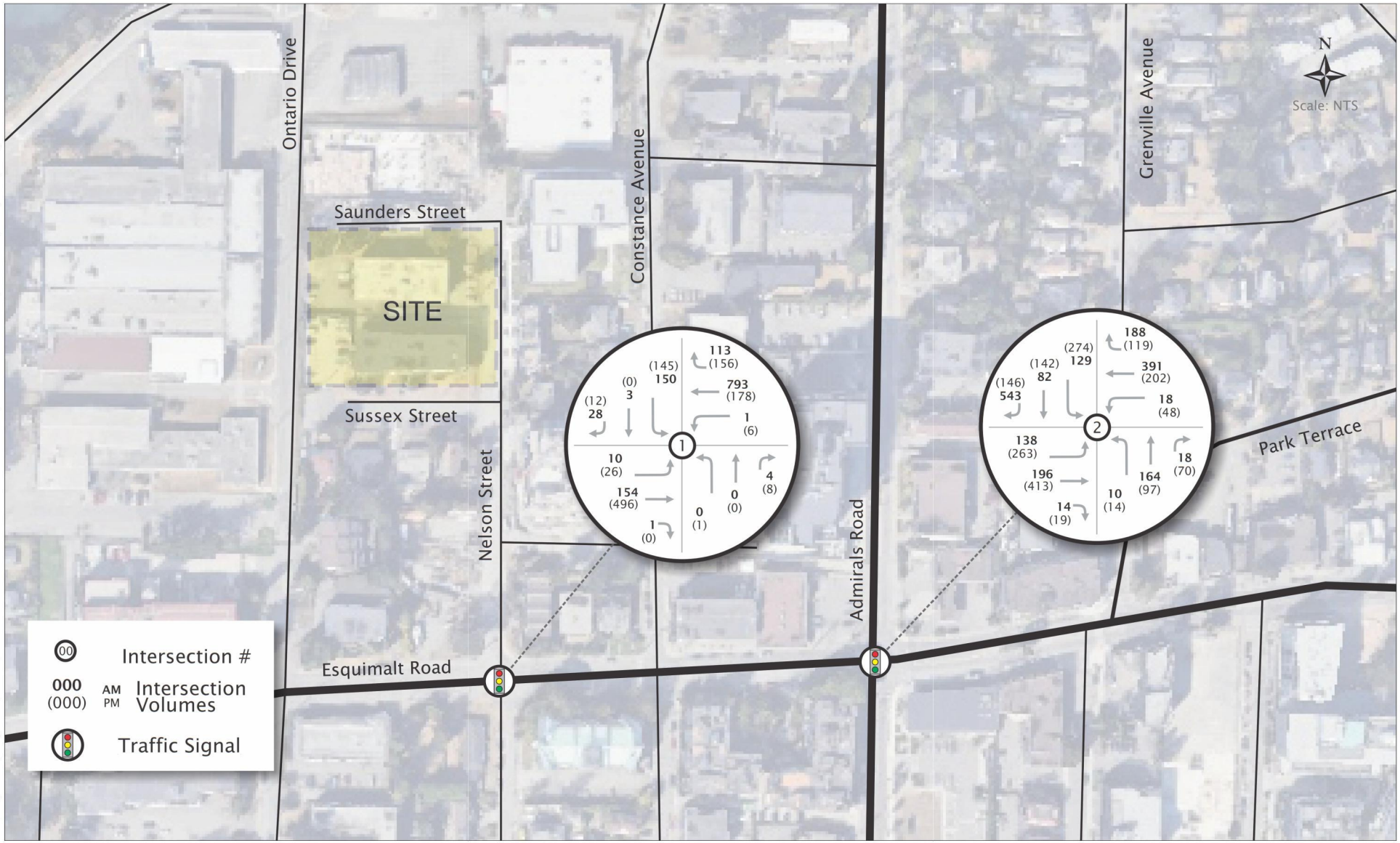

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Exhibit 3.5

Opening Day (2028) Total Peak Hour Traffic Forecasts (AM/PM)

1340 Sussex & 1337 Saunders TIA
08-23-0038 June 2024

bunt & associates

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Exhibit 3.6

Opening Day + 5 (2033) Total Peak Hour Traffic Forecasts (AM/PM)

1340 Sussex & 1337 Saunders TIA
08-23-0038 June 2024

bunt & associates

Table 3.5: Opening Day (2028) Background Vehicle Operations

INTERSECTION/ TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
Admirals Rd @ Esquimalt Rd *(Signalized)*	*OVERALL*	*B*	*0.57*	-	*B*	*0.77*	-
	EBLT	A	0.34	21	B	0.62	45
	EBTR	A	0.26	32	B	0.62	80
	WBL	B	0.06	7	C	0.27	15
	WBTR	B	0.55	50	C	0.36	24
	NBLTR	B	0.31	33	B	0.22	27
	SBLT	B	0.47	41	C	0.75	**#108**
	SBR	B	0.58	51	B	0.11	11
Nelson Street @ Esquimalt Rd *(Future Signalization)*	*OVERALL*	*A*	0.55	-	*A*	0.41	-
	EBLTR	A	0.11	8	A	0.39	20
	WBLTR	A	0.55	43	A	0.21	8
	NBLTR	B	0.00	0	B	0.01	1
	SBLTR	B	0.56	24	B	0.45	14

'# 'Indicates that 95th percentile volume exceeds capacity, and therefore queues may be longer

Table 3.6: Opening Day + 5 (2033) Background Vehicle Operations

INTERSECTION/ TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
Admirals Rd @ Esquimalt Rd *(Signalized)*	*OVERALL*	*B*	*0.61*	-	*B*	*0.81*	-
	EBLT	B	0.37	23	B	0.70	48
	EBTR	A	0.27	36	B	0.67	86
	WBL	B	0.06	7	C	0.29	16
	WBTR	B	0.58	55	C	0.38	25
	NBLTR	B	0.31	34	B	0.22	28
	SBLT	B	0.48	42	D	0.76	**#116**
	SBR	B	0.62	57	B	0.11	12
Nelson Street @ Esquimalt Rd *(Future Signalization)*	*OVERALL*	*A*	0.58	-	*A*	0.42	-
	EBLTR	A	0.12	7	A	0.40	21
	WBLTR	A	0.58	44	A	0.22	9
	NBLTR	B	0.00	0	B	0.01	1
	SBLTR	B	0.56	19	B	0.46	14

'# 'Indicates that 95th percentile volume exceeds capacity, and therefore queues may be longer

As indicated above, the future background traffic operations are anticipated to remain within acceptable thresholds for both horizons. However, the southbound left-through movement at Admirals Road was found to have a 95th percentile queue exceeding the available storage length for both background horizon years. This issue is primarily due to the heavy volume of left-turning traffic on the southbound leg at Admirals Road.

Please note that the signal cycle length and phase splits were optimized for both scenarios before generating the HCM reports. This optimization was done to ensure efficient traffic flow and minimize delays, thereby enhancing overall intersection performance.

3.2.2 Future 2033 Total Weekday Peak Hour Operations

Table 3.7 and **3.8** summarize the future total (with site) peak hour traffic operations at the study area intersections.

Table 3.7: Opening Day (2028) Total Vehicle Operations

INTERSECTION/ TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
Admirals Rd @ Esquimalt Rd *(Signalized)*	*OVERALL*	*B*	*0.59*	-	*B*	*0.79*	-
	EBLT	A	0.37	24	B	0.66	47
	EBTR	A	0.28	37	B	0.64	84
	WBL	B	0.06	7	C	0.28	15
	WBTR	B	0.56	53	C	0.38	25
	NBLTR	B	0.31	33	B	0.23	28
	SBLT	B	0.47	41	C	0.75	**#108**
	SBR	B	0.60	53	B	0.12	12
Nelson Street @ Esquimalt Rd *(Future Signalization)*	*OVERALL*	*A*	0.61	-	*A*	*0.46*	-
	EBLTR	A	0.13	8	A	0.43	23
	WBLTR	A	0.61	48	A	0.24	9
	NBLTR	B	0.00	0	B	0.01	1
	SBLTR	B	0.62	24	B	0.54	16

'# 'Indicates that 95th percentile volume exceeds capacity, and therefore queues may be longer

Table 3.8: Opening Day + 5 (2033) Total Vehicle Operations

INTERSECTION/ TRAFFIC CONTROL	MOVEMENT	AM			PM		
		LOS	V/C	95TH Q (M)	LOS	V/C	95TH Q (M)
Admirals Rd @ Esquimalt Rd *(Signalized)*	*OVERALL*	*B*	*0.63*	-	*C*	*0.83*	-
	EBLT	B	0.40	24	C	0.73	**#50**
	EBTR	B	0.29	38	C	0.69	89
	WBL	B	0.06	7	C	0.30	16
	WBTR	B	0.59	56	C	0.40	26
	NBLTR	B	0.31	35	B	0.23	29
	SBLT	B	0.48	43	C	0.77	**#118**
Nelson Street @ Esquimalt Rd *(Future Signalization)*	SBR		*0.64*	*62*	*B*	*0.13*	*13*
	OVERALL	A	0.63	-	A	*0.47*	-
	EBLTR	A	0.13	9	A	0.44	24
	WBLTR	A	0.63	52	A	0.24	9
	NBLTR	B	0.00	0	B	0.01	1
	SBLTR	B	0.63	24	B	0.54	17

'# 'Indicates that 95th percentile volume exceeds capacity, and therefore queues may be longer

Compared to the future background traffic operations, the additional site traffic volumes were confirmed to have a marginal impact on operations.

It's worth noting that the signal cycle length and phase splits were optimized to improve the intersection's performance.

Compared to the future background traffic operations, the additional site traffic volumes were confirmed to have a marginal impact on operations. Notably, the signal cycle length and phase splits were optimized to enhance the intersection's efficiency.

3.2.3 Summary of Traffic Impacts

In summary, the introduction of site traffic is not expected to create any new performance issues beyond those already anticipated for the future background scenarios. Moreover, the planned signalization of Nelson Street and Admirals Road intersection is expected to help mitigate any potential operational issues that could arise once all developments are fully completed in the study area.

4. OFF-STREET SUPPLY REVIEW & TDM

4.1 Parking Supply

4.1.1 Bylaw Requirement

The Township of Esquimalt is developing a new draft parking bylaw. While it is not yet been adopted, Bunt has applied the requirements from the draft bylaw, similar to other Bunt projects in the Township.

The new draft zoning bylaw stipulates that multi-family apartment developments that are in frequent transit areas provide 0.5 vehicle parking spaces per unit for studios, 0.6 spaces per unit for 1-bedroom units, and 0.8 spaces per unit for dwelling units greater than one bedroom.

In addition, the bylaw mandates the provision of residential visitor parking of 0.1 spaces per unit, along with a requirement of 1 space per 40 square meters of gross floor area (GFA) for the commercial/retail segment. **Table 4.1** presents the draft bylaw off-street parking requirements compared with the project's proposed supply.

Table 4.1: Bylaw Vehicle Parking Space Requirement Compared to Proposed Supply

LAND USE	TYPE OF UNIT	DENSITY	BYLAW RATE	BYLAW REQUIRED SPACES	SHARED USE REQUIREMENT [1]	PROPOSED SPACES	DIFFERENCE	
							SPACES	%
Multi-Family Apartment	Studio	42 units	0.5 spaces per unit	227	227	205	-22	-10%
	1 Bedroom	141 units	0.6 spaces per unit					
	More than 1 Bedroom	152 units	0.8 spaces per unit					
Residential Visitors	All Units	335 units	0.1 spaces per unit	34	37	37	0	-
Retail	-	240 sq.m	1 space per 40 sq.m (GFA).	6				
TOTAL	-	-	-	267	264	242	-22	-10%

Note 1: Based on the Township's bylaw, in a mixed residential and commercial development, required visitor parking spaces may be assigned to commercial use but shall not comprise more than 50% of the spaces required for the commercial use.

As shown above, the total number of parking spaces required by the draft bylaw is calculated to be 267 spaces, which includes 34 parking spaces for residential visitors and 6 spaces for the site's retail portion. However, in mixed-use developments, residential visitor parking spaces may be shared with 50% of the commercial parking. Therefore, for this project the minimum parking requirement is decreased by three (3) physical spaces, to a total adjusted requirement of 264 spaces.

The project is proposing to provide a total of 242 parking spaces, which includes 205 spaces for residential use and 37 spaces shared between the residential visitor and retail uses. The proposed parking supply meets the minimum requirement for residential visitor and retail spaces, however it falls 22 spaces short of the residential parking.

Given the parking supply shortfall, the developer proposes to utilize Transportation Demand Management (TDM) measures, consistent with the Township's draft zoning bylaw. The TDM will achieve the relaxation needed from the minimum parking requirement. TDM strategies proposed are discussed in the following section.

4.1.2 Transportation Demand Management (TDM)

TDM measures are intended to support the reduced parking supply by promoting the use of non-private vehicle transportation modes and therefore reducing the site's reliance on private vehicle ownership.

The measures identified by Bunt are considered to be suitable for the size, location, and requested parking variance requested by of the proposed development. These measures have also been agreed to by the developer. **Table 4.2** summarizes the proposed list of TDM measures for the project and the achieved parking variance for each measure.

Table 4.2: TDM Strategies with Eligible Vehicle Parking Supply Reductions

TDM MEASURE	BYLAW PARKING REDUCTION	PROJECT PROPOSAL	ACHIEVED PARKING REDUCTION	
			(%)	# OF SPACES
Carshare Vehicle On-Site	5% of total vehicle parking supply per provided car share vehicle and spaces; up to a maximum of 10%	1 car share space and vehicle	5%	11
Car Share Memberships	10% of total required vehicle parking supply if car share membership is provided for all units	Provide car share membership for 74 of the residential units	2.2%	5
TOTAL	-	-	7.2%	16

As shown above, the proposed TDM measures achieve a 7.2% parking reduction, equivalent to a reduction of 16 parking spaces. Given that the proposed residential parking supply falls short of the bylaw requirement by 22 spaces, an additional reduction of six (6) spaces (2.5%) is required. To achieve this, the developer is proposing to provide enhanced bicycle parking facilities and provide bicycle maintenance tools for the use of residents on-site.

Although these measures are not outlined in the Township's TDM measures, they are recognized as effective TDM strategies by other municipalities' bylaws across Metro Vancouver, given their potential to increase and encourage cycling as a transportation mode. Therefore, the developer is seeking approval from the Township to accept this measure and grant the project the remaining TDM parking reduction of six (6) spaces.

4.2 Bicycle Parking

Table 4.3 summarizes the minimum required off-street bicycle storage and mobility scooter parking supply rates, as outlined in the draft bylaw. **Table 4.4** provides a summary of bicycle space requirement and provision.

Table 4.3: Bicycle Parking Supply Requirement Rates

LAND USE	LONG-TERM	SHORT-TERM	MOBILITY SCOOTER
Residential	1.0 per dwelling unit with one bedroom or less 1.5 per dwelling unit with two or more bedrooms	6 spaces per building	-
Retail	1 per 150 sq.m of GFA	6 spaces per public building entrance	1 space per building

Table 4.4: Bicycle Parking Supply Requirement & Provision

LAND USE	SIZE	# OF UNITS	REQUIREMENT (SPACES)			PROVISION (SPACES)		
			LONG-TERM	SHORT-TERM	SCOOTER	LONG-TERM	SHORT-TERM	SCOOTER
Residential	1 bedroom or less	183	411	6	-	413	6	-
	2 or more bedrooms	152						
Retail	240 sq.m. GFA	-	2	6	1	2	6	1
TOTAL			413	12	1			

As shown above, the proposed long-term bicycle space supply exceeds the minimum requirement for residential use by two (2) spaces and meets this requirement for the retail component. The proposed mobility scooter and short-term bicycle spaces meet the minimum requirement.

4.3 Loading

Table 4.5 summarizes the minimum required loading rates, loading space requirement and project provision.

Table 4.5: Loading Supply Requirement & Provision

LAND USE	DENSITY	BYLAW RATE	BYLAW SUPPLY REQUIREMENT	PROVIDED
Residential	335 Units	2 Spaces for more than 100 units	2	2
Retail	240 sq.m. GFA	1 Space for 700-1,500 sq.m GFA	0	0
TOTAL	-	-	2	2

As shown above, the proposed loading supply meets the minimum bylaw requirement.

5. SITE PLAN DESIGN REVIEW

Bunt has conducted an on-site swept path analysis using AutoTURN software to ensure the feasibility of passenger car, single unit loading trucks, and waste collection vehicle maneuvers. The results and key finding of this analysis are discussed below while detailed drawings illustrating the analysis can be found in **Appendix C**.

Vehicular Site Access

Vehicle access is proposed to be provided from Nelson Street. **Exhibit C.1** shows the maneuvers of two passenger vehicles as they simultaneously enter and exit the site access concurrently. As the exhibit indicates, no maneuvering issues were identified.

Vehicle Circulation

Exhibit C.2 shows two passenger vehicles concurrently travelling through the P1 parkade ramp in opposing directions. As shown on the exhibits, no maneuvering issues were found.

Loading Operations

Exhibits C.3 and **C.4** show the Class B loading maneuvers. As indicated, standard SU9 (single unit truck) design vehicle will be able to successfully access the loading space without any issues.

Waste Collection Operations

For the residential use, a garbage staging area is proposed at the northwest corner of the building, behind the proposed loading stalls. **Exhibits C.5** demonstrates a heavy single unit (HSU) truck, representative of full-sized municipal waste collection vehicle, entering and exiting the cul-de-sac to service the site with overhead bin and totes tripping.

As noted on the exhibit, Bunt recommends bin tipping to occur on-street due to the height requirements, and on-street operations is supported due to the end of street condition. A waste staging area for retail use is proposed north of the parkade ramp. **Exhibits C.6** demonstrates an HSU truck travelling on Nelson Street to collect on-street.

6. CONCLUSIONS & RECOMMENDATIONS

6.1 Conclusions

- The proposed development includes a 21-storey tower consisting of 335 multi-family market rental dwelling units with approximately 240 sq.m. of ground-floor retail space.
- Access to the project's three (3) levels of underground parking is proposed to be from Nelson Street.
- Township plans to upgrade the existing unsignalized intersection at Nelson Street & Esquimalt Road to a traffic signal.
- The proposed development is anticipated to generate approximately 70 and 90 net new vehicle trips during the weekday AM and PM peak hours, respectively. This represents an increase from the current vehicle trip generation by the existing residential buildings, equivalent to just over one (1) additional vehicle per minute, on average, In either peak hour.
- In terms of vehicle parking, based on the draft bylaw, the development would require 267 parking spaces, including 34 parking spaces for residential visitors and 6 spaces for the site's retail portion. Based on the Township's draft bylaw, in mixed-use developments, residential visitor parking spaces may be shared with a proportion of the commercial parking, decreasing the minimum parking requirement by three (3) physical spaces, to a total adjusted requirement of 264 spaces including 37 spaces for residential visitor and retail combined.
- The developer is proposing to provide a total of 242 parking spaces, including 37 spaces for the residential visitor and retail components of the project, meeting the minimum parking requirement for these uses. For the residential portion, the proposed supply is 205 parking spaces, which falls 22 spaces short of the base requirement.
- Given the parking supply shortfall, the developer proposes to implement TDM measures to achieve parking supply reductions. The proposed TDM measures achieve a 7.2% parking reduction, equivalent to a reduction of 16 parking spaces. To achieve the remaining 6-space parking reduction, the developer plans to enhance the project's sustainability by providing improved bicycle parking facilities and maintenance tools. These measures, while not specified in the Township's TDM measures, are recognized as effective strategies across Metro Vancouver municipalities for promoting cycling as a transportation mode. The developer is seeking approval from the Township to integrate these measures, which would allow for the remaining 6-space reduction in parking requirements.
- In terms of bicycling parking, the development requires 413 long-term and 12 short-term bicycle spaces. The proposed bicycle parking supply includes 415 long-term and 12 short-term spaces, which slightly exceeds the long-term requirement and meets the short-term bicycle space requirement.

- In terms of loading, the project requires two (2) loading spaces. The developer proposes to provide the required loading spaces at the northeast corner of the site to meet this requirement.
- Vehicle circulation and parking/loading/waste collection maneuvers were reviewed using AutoTURN turning path analysis software. The results indicated that no maneuvering issues or conflicts are anticipated based on the site design.
- No significant operational challenges were identified in the existing conditions; however, longer queues were observed on the southbound approach at Admirals and Esquimalt.
- The analysis incorporated the planned signalization of the Nelson and Admirals intersection into the model for future scenarios to better reflect anticipated operational performance.
- The future background and total scenarios were found to operate within acceptable performance thresholds, and the additional site trips did not introduce any new operational challenges to the network.

6.2 Recommendations

Bunt recommends the Township to grant the proposed bicycle maintenance facility as a Transportation Demand Management measure to support further reduction of the vehicle parking supply and encourage more cycling. The developer is seeking approval from the Township to integrate these measures, which would allow for the remaining 6-space reduction in parking requirements.