

Shoaling Heights Mixed-use Development Transportation Impact Assessment

Final Report

Prepared for
Joint Works Inc.

Date
May 15, 2020

Project No.
04-19-0440



May 15, 2020
04-19-0440

Troy Grant
Joint Works Inc.
5320 89th Street NW
Edmonton, Alberta
T8N 1H4

Dear Mr. Grant:

**Re: Shoaling Heights
Final TIA Report**

Joint Works Inc. is proposing to redevelop the properties at 616 & 620 Constance Avenue, 619 & 623 Nelson Street, and 1326 Miles Street in Esquimalt, BC. The development is providing residential housing, ground floor retail and a daycare. Please find attached our transportation study which supports the proposed parking supply and found that the development does not have any significant traffic impacts.

We trust this information will be helpful for your application approval. Please let us know if you have any questions or comments on the enclosed report.

Yours truly,
Bunt & Associates



Simon Button, P.Eng.
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Date: 2020-05-15

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EXECUTIVE SUMMARY

Joint Works Inc. (the developer) is proposing to redevelop the properties at 616 & 620 Constance Avenue, 619 & 623 Nelson Street, and 1326 Miles Street in Esquimalt, BC. The development provides 129 rental residential units, approximately 3,100 square feet of retail space, 2,300 square feet of general office space and approximately 2,500 square feet of daycare space.

The development is located on Constance Avenue, north of Miles Street, which is less than 100 metres of Esquimalt Village which is one of the four mixed-use commercial clusters identified in the Township of Esquimalt's Official Community Plan. The site is well serviced with transit, quality cycling infrastructure and has a variety of commercial and service amenities within walking distance.

The development has shown the initiative to encourage non-vehicle travel. The development will be providing at least one secure bicycle storage space per dwelling and is considering a variety of other transportation demand management measures related to cycling and transit.

The Esquimalt Parking Bylaw (Bylaw 2011) requires the proposed building to provide 1.3 vehicle parking spaces per multi-family dwelling unit for a total of 169 parking spaces for the residential component and 190 parking spaces for the entire mixed-use development.

The development is seeking a parking variance to provide 126 spaces given the site's location, the Township's high Bylaw requirement for residential visitor parking and the development's ability to share parking between the multiple land uses. In addition, the Bylaw does not consider the tenure of residential units (rental versus strata) even though rental tenants have a lower vehicle ownership rate than strata tenants. The proposed parking supply is appropriate given the large number of key destinations that can be reached from the development site by walking, cycling and transit and the development is committed to providing a variety of transportation demand management measures to reduce parking demand and traffic generation.

The intersections of Esquimalt Road with Admirals Road and Nelson Street intersection currently operate within acceptable capacity thresholds during the PM peak hour. The intersections are forecasted to continue operating well for the 2030 horizon year including increases in background traffic and traffic generated by the proposed development.

1. INTRODUCTION

1.1 Study Scope and Objectives

Joint Works Inc. is proposing to redevelop the properties at 616 & 620 Constance Avenue, 619 & 623 Nelson Street, and 1326 Miles Street in Esquimalt, BC. The site location is shown in **Exhibit 1.1**.

The development is located less than 100 metres northwest of the Esquimalt Village, which is one of four commercial mixed-use clusters in Esquimalt. The existing properties are zoned as multi-unit residential. The development will comprise of market and non-market rental residential units as well as ground-floor commercial and a daycare.

The purpose of this study is to:

- Review the development's parking strategy and determine its suitability; and,
- Evaluate the transportation impacts the proposed development has on the nearby road network;

1.2 Development Details

The development proposes to have 129 rental residential units. The unit mix is summarized in **Table 1.1** while **Table 1.2** summarizes the floor area of the three non-residential land uses.

Table 1.1: Residential Unit Mix

RESIDENTIAL UNIT SIZE	QUANTITY	PERCENT OF UNITS
Studio	18 units	14%
One-bedroom	64 units	50%
Two-bedroom	41 units	31%
Townhouses	6 units	5%
TOTALS	129 UNITS	100%

Table 1.2: Non-residential Land Uses

LAND USE	QUANTITY	
Retail	496 m ²	5,339 ft ²
Daycare	231 m ²	2,487 ft ²
TOTAL	717 M²	7,823 FT²

The driveway to the underground parkade will be located on Nelson Street. To minimize traffic impacts on Constance Avenue, the development is proposing to convert Miles Street into a one-way street westbound from Constance Avenue and Nelson Street. In addition, a drop-off area is proposed on Miles Street to support the daycare.

The development is committed to limit vehicle use and encourage residents to walk, cycle and use transit. The development plans on providing a car share opportunities to residents, enhanced bicycle parking facilities and/or bus passes. Electric car charging stations will also be provided to enable more sustainable vehicle use.

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Exhibit 1.1 Site Location

Shoaling Heights (616 Constance Avenue)
04-19-0440 November 2019



2. LOCAL CONTEXT

2.1 Land Use

The site is located near the southern end of Constance Avenue, which is less than 100 metres northwest of Esquimalt Village. Esquimalt Village has a series of commercial buildings with a variety of retail stores and restaurants and other daily services. Increased densification has occurred in Esquimalt Village recently with several ongoing development projects helping to make it a more compact, walkable community.

2.2 Street Network

Constance Avenue and Nelson Street are classified as local streets whereas the nearby Admirals Road and Esquimalt Road are classified as Major Roads. Since Nelson Street terminates with a cul-de-sac, it primarily serves local residents. Admirals Road and Esquimalt Road provide north/south and east/west connectivity across Esquimalt.

2.3 Walking and Cycling

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.

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.

2.4 Transit

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. Bus shelters are not provided at either northbound or southbound bus stops at Esquimalt Road.

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 Constance Avenue. 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. Bus shelters are not provided at either bus stop.

3. DEVELOPMENT PLAN REVIEW

3.1 Vehicle Parking

3.1.1 Bylaw Requirement

The total required parking supply based on the Esquimalt Parking (Bylaw 2011) is shown in **Table 3.1**. The Bylaw requires 1.3 parking spaces per dwelling unit in medium and high-density buildings such as the proposed development. The Parking Bylaw also stipulates that 25% of the required parking spaces should be for visitors. The commercial vehicle parking requirement calculation is based on the assumed tenants at this time. The Parking Bylaw requires the development to provide 190 parking spaces.

Table 3.1: Bylaw Vehicle Parking Requirement

LAND USE	QUANTITY	BYLAW RATE	BYLAW REQUIREMENT
Residential – Residents	129 units	$1.3 \times 0.75 = 0.98$ per unit	126 spaces
Residential – Visitors	129 units	$1.3 \times 0.25 = 0.32$ per unit	41 spaces
Retail/Services	284 m ²	1 space per 25 m ²	11 spaces
Daycare	231 m ² (assumed 3 classrooms)	1.5 spaces per classroom	5 spaces
Commercial Office	212 m ²	1 space per 30 m ²	7 spaces
TOTAL			190 SPACES

3.1.2 Proposed Supply

The development intends to right-size its parking supply to align itself with current parking patterns and progressive transportation planning principles. The development proposes a supply of 124 parking spaces in order to minimize traffic generated by the site and to facilitate more sustainable modes of transportation. **Table 3.2** summarizes the Bylaw required parking and the proposed parking supply. The proposed parking supply is a total of 126 spaces, of which 97 spaces are reserved for residents and 29 spaces shared by the residential visitors, daycare and commercial. In addition, a drop-off area is proposed on Miles Street to facilitate the inclusion of a daycare. Two loading stalls are also proposed in the parkade.

Table 3.2: Bylaw Vehicle Parking Requirement vs. Proposed Supply

LAND USE	BYLAW		PROPOSED	
	RATE	REQUIREMENT	RATE	SUPPLY
Residential – Residents	0.98 per unit	126 spaces	0.75 per unit	97 spaces
Residential – Visitors	0.32 per unit	41 spaces	0.1 per unit	29 spaces
Retail	1 space per 25 m ²	12 spaces	1 space per 25 m ²	
Daycare	1.5 spaces per classroom	5 spaces	1.5 spaces per classroom	
Office	1 space per 30 m ²	7 spaces	1 space per 30 m ²	
TOTALS		190 SPACES	-	126 SPACES

The development is applying for a parking variance based on five factors:

1. Local context
2. A parking supply rate appropriate for rental housing.
3. An appropriate residential visitor parking supply rate.
4. Shared parking synergies between the residential visitors and non-residential land uses.
5. Transportation demand management.

Local Context

As described in Section 2, the development site is in a walkable location within the Town core, near a variety of shops, services and other amenities and is in close proximity to cycling and transit routes.

Rental Housing

The Parking Bylaw requires approximately one parking space per residential unit regardless of tenant tenure or building location. However, rental tenants typically have a lower rate of vehicle ownership than strata tenants and an urban location with many amenities nearby reduces the need for vehicle ownership.

Bunt reviewed previous studies to identify vehicle ownership rates at comparable buildings in similar neighbourhoods. Comparable multi-family strata and rental buildings are listed below, with their estimated vehicle ownership rate:

- James Bay– **0.60 to 0.70 vehicles/unit** (rental only)
- Fairfield – **0.60 to 0.70 vehicles/unit** (rental only)
- Quadra Street (between Tattersall Drive and McKenzie Avenue) – **0.80 to 0.85 vehicles/unit** (strata only)
- Cloverdale Triangle (between Cloverdale Avenue, Quadra Street, Tolmie Avenue and Alder Street) – **0.75 to 0.85 vehicles/unit** (strata and rental)

The two neighbourhoods closest to Downtown Victoria have the lowest vehicle ownership at 0.6 to 0.7 vehicles per unit while the two neighbourhoods in Saanich which have fewer nearby amenities and the dataset contains strata buildings have a higher vehicle ownership rate of around 0.8 vehicles/unit. The number of nearby amenities to the proposed development is between these two general areas. Based on this data, the proposed 0.75 spaces/unit appears to be reasonable but should be supported by a comprehensive TDM plan.

Visitor Parking

The Township of Esquimalt Parking Bylaw requires a high level of residential visitor parking at 0.32 spaces per unit for multi-unit residential uses. 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 0.05 to 0.10 spaces per unit is more appropriate for the proposed development.

This recommendation stems from the Metro Vancouver Residential Apartment Parking Study¹ which found that visitor parking demand never exceeded 0.06 vehicles per dwelling unit during the study period. These rates have been further substantiated by previous Bunt studies for similar projects. Visitor parking observations conducted by Bunt have never indicated a parking demand of greater than 0.1 vehicles/unit.

Shared Parking

There is an opportunity for the daycare and medical/retail space to share parking spaces with the residential visitors since daycares and medical/retail have their highest parking demands during the daytime on weekdays whereas demand for residential visitor parking peaks during evenings and weekends which are offset from one another.

Bunt completed a shared parking analysis to estimate the time-of-day parking demand for residential visitors, retail, daycare and office which can share a single parking pool. **Figure 3.1** illustrates the time-of-day profile for these uses. The analysis was completed assuming the peak parking demand for each use was equal to the proposed parking rate in **Table 3.2**. The proposed parking rates are identical to the Bylaw rates except for residential visitors. Time-of-day parking rates were obtained from the Institute of Transportation Engineers Parking Generation Manual.

The shared parking analysis indicates that the proposed 29 spaces can accommodate the peak parking demand of 28 vehicles. Since the shared parking analysis incorporates the Bylaw parking rates (except for residential visitors), the analysis indicates that the Bylaw parking rates are accommodated within the shared parking supply of 29 spaces.

¹ 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 applicable to the proposed development.

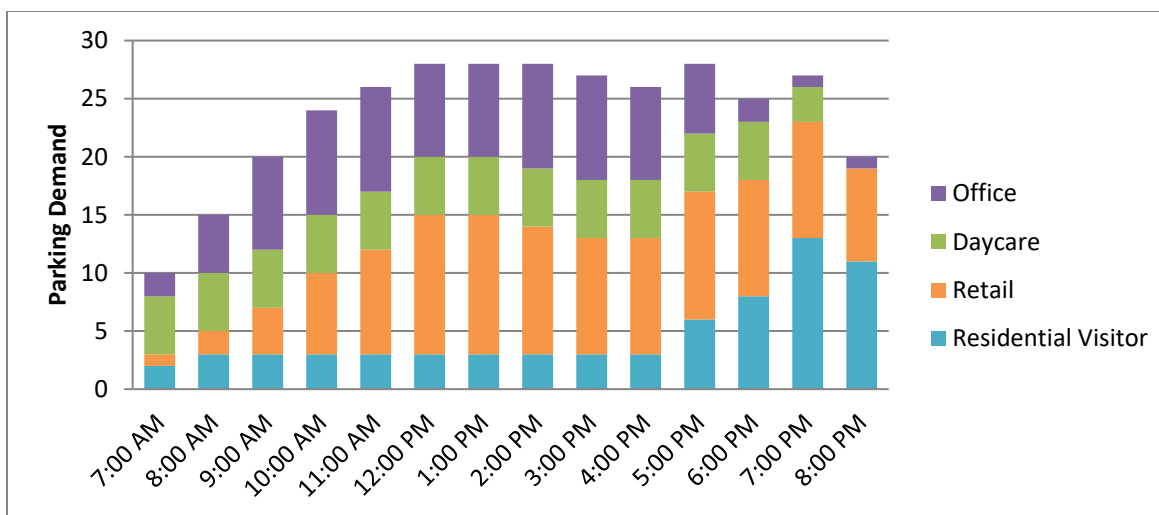


Figure 3.1: Weekday Parking Demand

Transportation Demand Management

The development is committed to providing a range of transportation demand management measures to facilitate more sustainable modes of transportation, potentially including:

- A car-share vehicle for use by residents and the general public
- Car share memberships to residents
- Transit pass subsidies for residents
- High-quality bicycle parking facilities and maintenance tools
- Electric vehicle charging

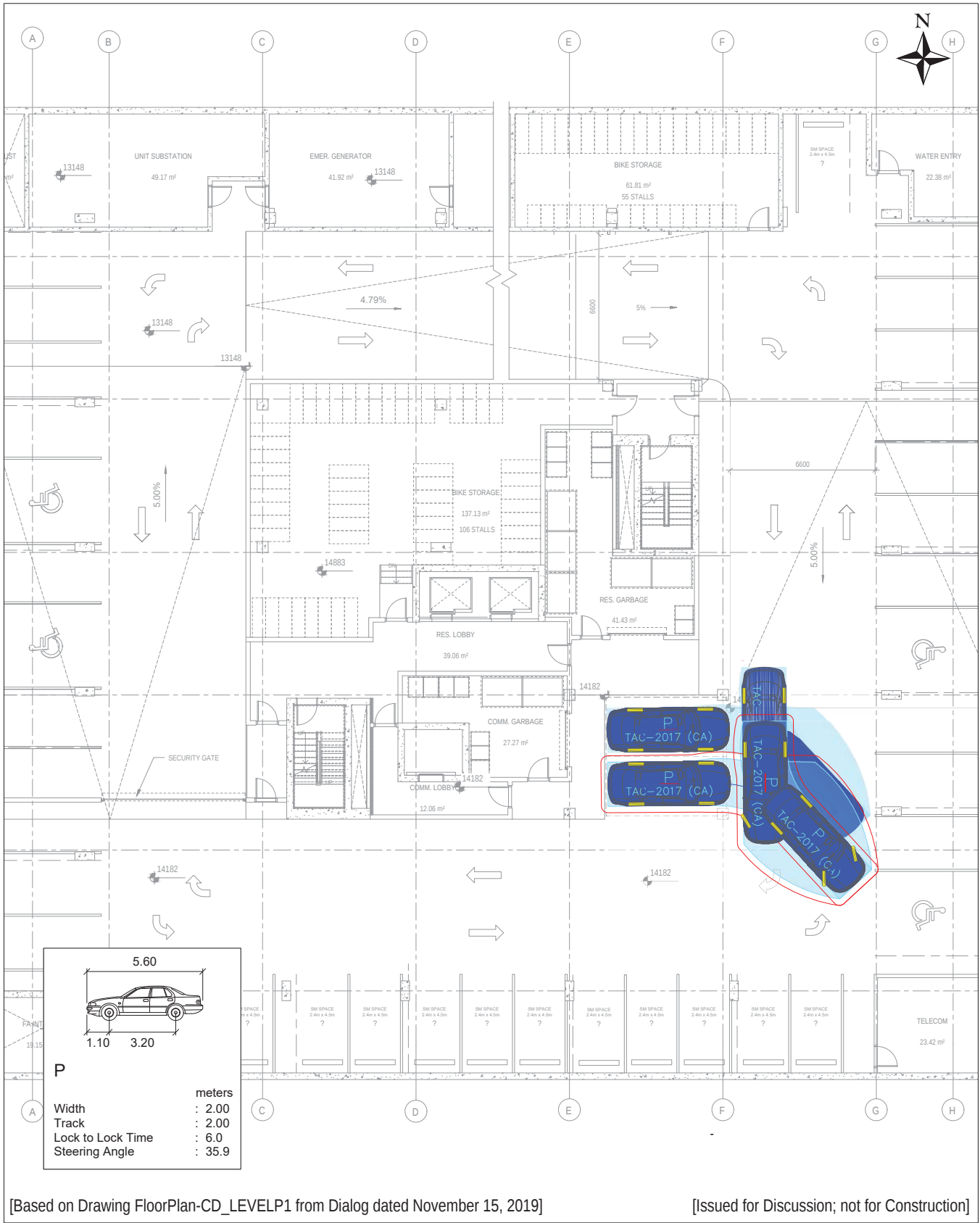
3.2 Bicycle Parking

The Parking Bylaw does not have any requirements for bicycle parking for multi-family dwellings. However, the development is planning on providing secure bicycle parking in the parkade and potentially providing a bicycle maintenance stand with tools. The development will be providing 129 bicycle spaces for residents (1 space per unit) and 10 short-term spaces for visitors. Short-term bicycle parking should be provided near building entrances with weather protection.

3.3 Loading

The development will be providing two Class A loading spaces on the P1 level which will be suitable for courier vans. Bunt's swept-path analyses confirming the functionality of the two loading spaces are provided in **Exhibits 3.1** and **3.2**.

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[Based on Drawing FloorPlan-CD_LEVELP1 from Dialog dated November 15, 2019]

[Issued for Discussion; not for Construction]

Exhibit 3.1 Inbound Loading Movements

[Issued for Discussion; not for Construction]

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4. TRAFFIC OPERATIONS REVIEW

4.1 Traffic Operations Assessment Methodology

The traffic operations were assessed at the Admirals Road / Esquimalt Road and the Esquimalt Road / Nelson Street intersections for the PM peak hour. The analysis was completed for the existing conditions (2018) and for the 2030 horizon year (ten years after development completion). The 2030 analysis includes the vehicle trips generated by the proposed development and background traffic (i.e. existing traffic plus growth on the network).

The operation of the study intersection was assessed using the methods outlined in the 2000 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) 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 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 receive 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 of 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 conducted PM peak period traffic counts at the Esquimalt Road / Nelson Street intersection on Tuesday, October 2, 2018. During this time period, 3:30 to 4:30 pm was identified as the peak hour. Vehicle volumes for the Esquimalt Road / Admirals Road intersection were obtained from the Esquimalt Town Centre Traffic Impact Assessment from 2016. The vehicle volumes for these two intersections are shown in **Exhibit 4.1**.

Bunt observed approximately 900 vehicles (two-way) on Admirals Road during the weekday PM peak hour with approximately three quarters travelling to the east and one quarter to the west which is consistent with the travel patterns caused by CFB Esquimalt. Minimal vehicles were observed turning to/from Nelson Street at the intersection.

As shown in **Exhibit 4.2**, there are no traffic operations concerns with the existing conditions. All movements operate within their capacity and have reasonable queuing times.

4.3 Future Conditions

4.3.1 Background Traffic

Background traffic is the traffic that would exist without the proposed development and considering any increase in traffic due to other developments in the area that would add to the road network. Background traffic was estimated by growing the existing vehicle volumes by 1% per year (consistent with the Esquimalt Town Centre TIA) as well as adding the traffic forecasts from the Esquimalt Town Centre project.

These assumptions likely overestimate the amount of traffic growth as the number of vehicles on Esquimalt Road, west of Admirals Road has not changed considerably over the last decade. The daily vehicle volumes on Esquimalt Road west of Admirals Road slightly decreased from 8,460 to 8,310 between 2007 and 2017.

4.3.2 Development Generated Vehicle Trips

The Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition) was used to estimate the number of vehicle trips generated from the proposed building. The vehicle trips rates as per the ITE Trip Generation Manual for a 'General Urban/Suburban' location and the resulting trip generation is presented in **Table 4.1**.

Table 4.1: Afternoon Peak Hour Vehicle Trip Generation

LAND USE				TRIP RATES			TRIP GENERATION		
ITE Land Use Code	Title	Size	variable	In	Out	Total	In	Out	Total
222	High-rise Residential	129	Units	61%	39%	0.36	28	18	46
820	Retail	3.1	1000 ft ²	48%	52%	3.81	6	6	12
565	Daycare	2.5	1000 ft ²	47%	53%	11.12	13	15	28
710	General office	2.3	1000 ft ²	16%	84%	1.15	1	2	3
TOTALS							48	41	89

As shown in Table 4.1, the ITE trip rates result in 89 vehicle trips (48 in and 41 out) during a typical weekday afternoon peak hour period, which is equivalent to one to two vehicles per minute. The ITE trip rates are obtained from suburban locations with almost all travel completed by vehicle. It is anticipated that a number of residents and visitors of the proposed development will walk, bike and use transit. Thus the trip volumes shown in Table 4.1 are likely an overestimate of the actual vehicle trips generated by the proposed development.

The new vehicle trips were assigned travel directions based on the existing travel patterns. **Exhibit 4.2** shows the assumed travel pattern for the 89 new vehicle trips minus the estimated 6 vehicle trips per afternoon peak hour associated with the existing residences on the development site. It was assumed that most vehicles would access the development site from the Esquimalt Road & Nelson Street intersection, except the inbound daycare vehicles would utilize Constance Avenue to access the pick-up/drop-off area. These assumptions are consistent with the potential conversion of Miles Street into a one-way street westbound.

4.3.3 Traffic Operations Results

Exhibit 4.3 demonstrates the traffic operation results for the year 2030 with growth in background traffic and the traffic generated by the proposed development. As Exhibit 4.3 demonstrates, there are no traffic operational concerns either of the two study intersections with all movements operating within their capacity. The queuing time for vehicles turning left from Nelson Street onto Esquimalt Road is anticipated to stay within 15 seconds. At the Esquimalt Road / Admirals Road intersection, the most congested movement is the southbound through/left movement, which operates at LOS C during the PM peak hour, which is still considered reasonable. The proposed development does not add any vehicles to this movement.

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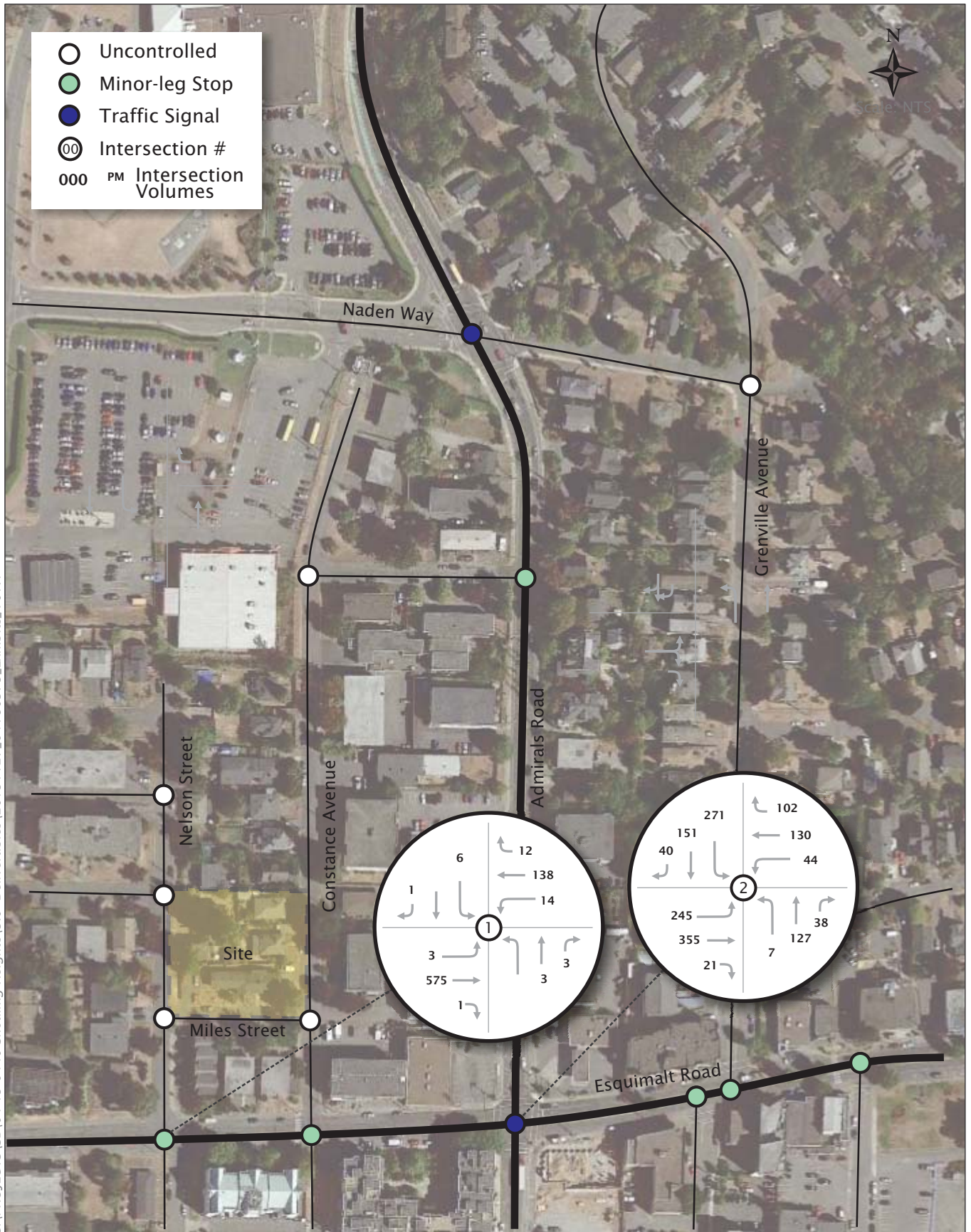


Exhibit 4.1 Existing Vehicle Volumes PM Peak Hour

Shoaling Heights (616 Constance Avenue)
04-19-0440 November 2019

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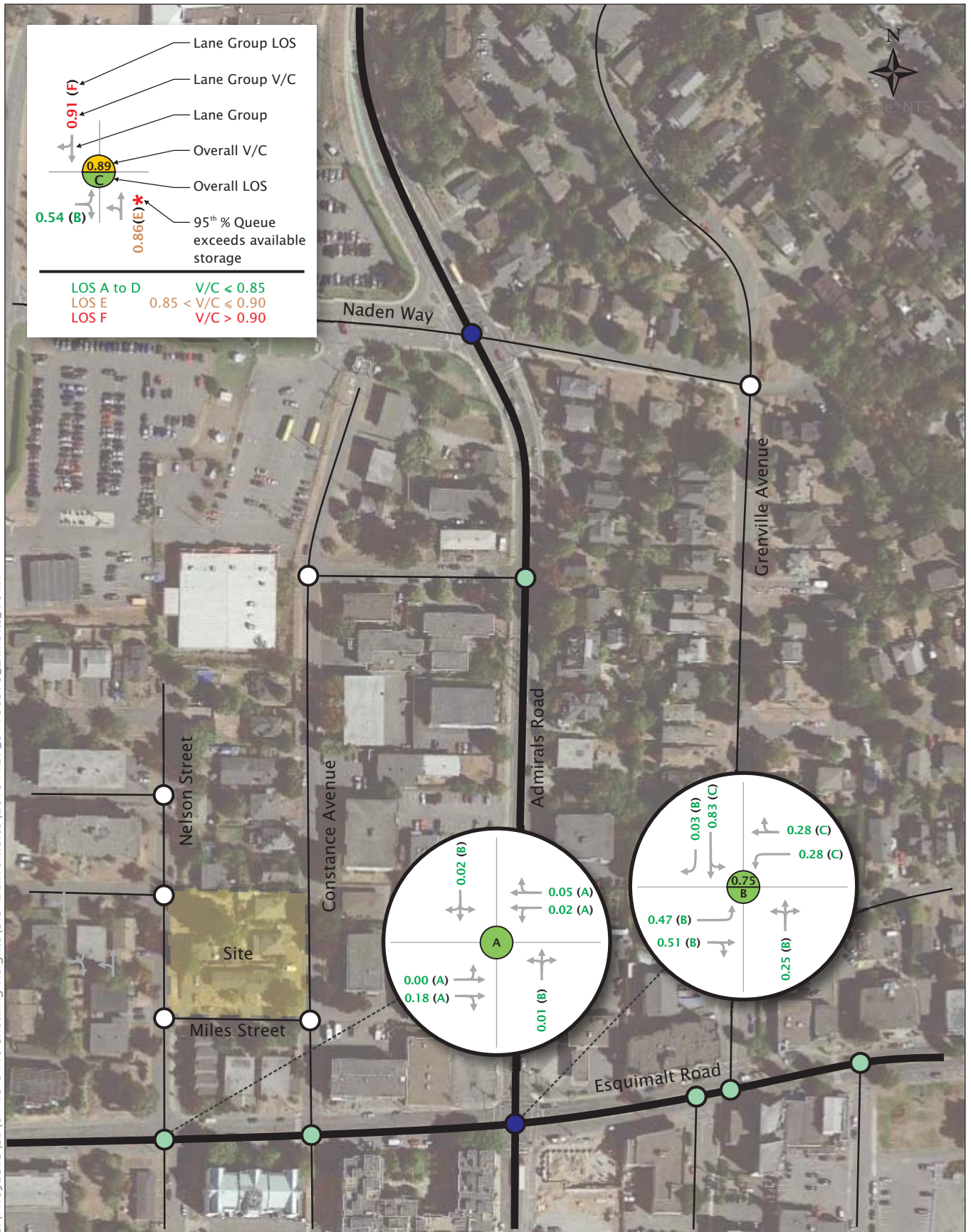


Exhibit 4.2 Existing Traffic Operations PM Peak Hour

Shoaling Heights (616 Constance Avenue)
04-19-0440 November 2019

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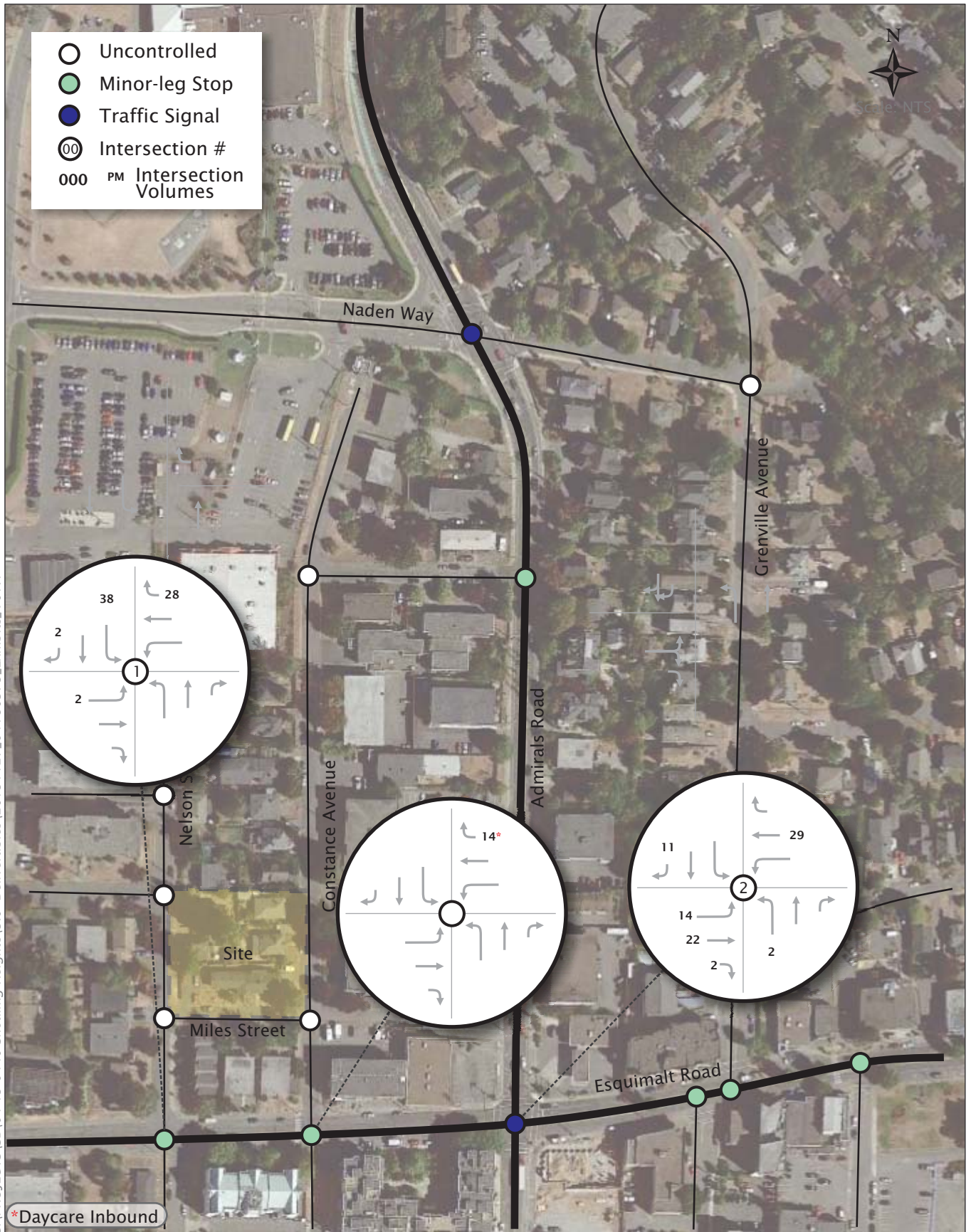


Exhibit 4.3 Site Volumes PM Peak Hour

Shoaling Heights (616 Constance Avenue)
04-19-0440 November 2019

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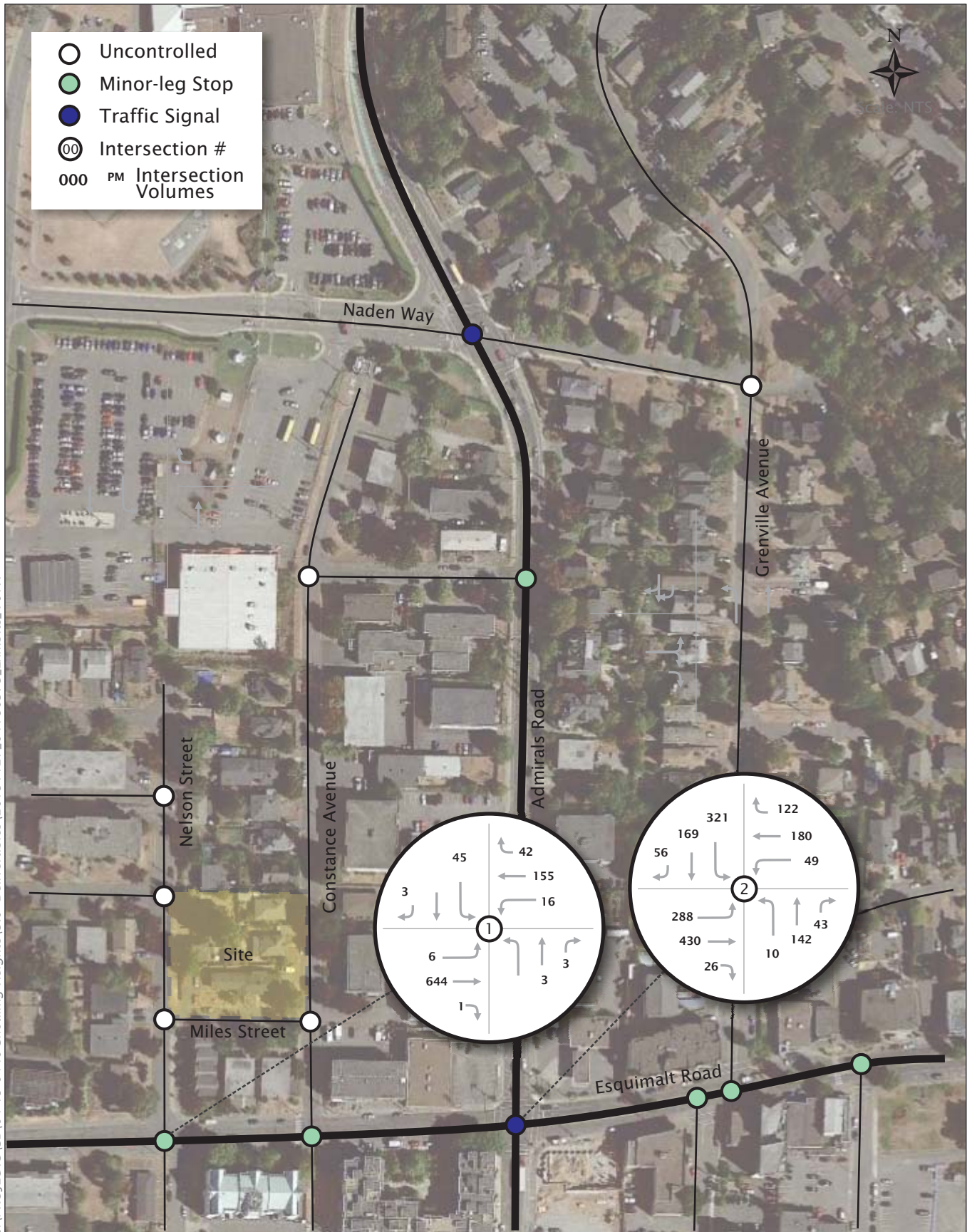


Exhibit 4.4 2030 Total Traffic Forecast PM Peak Hour

Shoaling Heights (616 Constance Avenue)
04-19-0440 November 2019

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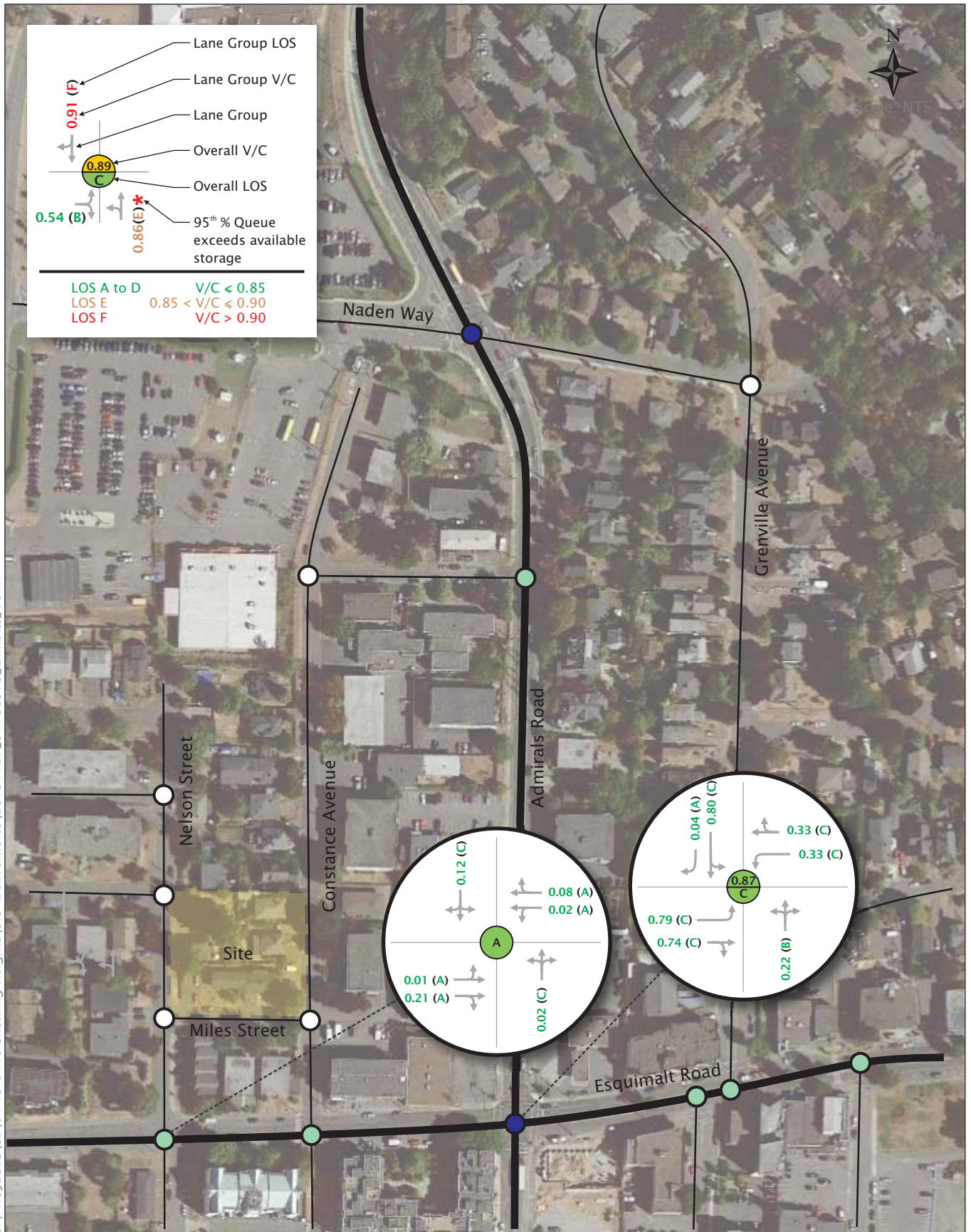


Exhibit 4.5 2030 Future Traffic Operations PM Peak Hour

Shoaling Heights (616 Constance Avenue)
04-19-0440 November 2019

5. SUMMARY AND RECOMMENDATIONS

5.1 Summary

- The proposed mixed-use development includes 129 residential rental units, approximately 5,300 square feet of ground-floor commercial space (including an office) and a 2,500 square foot daycare on the second floor. Vehicle access will be from Nelson Street.
- The development is proposing that Miles Street become a one-way street in order to minimize traffic impacts on Constance Avenue. The development also plans to provide a suite of transportation demand management measures (i.e. car-share memberships for residents) to reduce parking demand and traffic generation.
- The site is well serviced with transit and is within walking range to a wide variety of commercial and service amenities.
- The Parking Bylaw requires 1.3 parking spaces per residential unit. The development is proposing 0.75 spaces/unit for residents and 0.1 spaces/unit for residential visitors. A parking variance is requested since the Parking Bylaw requires significantly more than is needed to accommodate the anticipated demand. The development plans on having a shared parking pool for residential visitors and the commercial land uses.
- The site is expected to generate approximately 90 total vehicle trips per weekday PM peak hour. This is a nominal amount of traffic considering Esquimalt Road currently has approximately 800 vehicles during the PM peak hour.
- The intersections of Esquimalt Road with Nelson Street and Admirals Road currently operate within capacity and are forecasted to continue operating within their capacity with the proposed development and background traffic growth.

5.2 Recommendations

- Converting Miles Street into a one-way street will minimize traffic impacts on Constance Avenue.
- The proposed parking supply is reasonable. The residential visitor parking should be shared with the commercial land uses to take advantage of their differing time-of-day parking demands. A transportation demand management plan should be finalized which demonstrates the applicant's initiative towards progressive transportation planning principles.
- The provision of a pick-up/drop-off area on Miles Street is supported.
- Short-term bicycle parking should be provided onsite near building entrances with weather protection.