TRANSPORTATION PLANNERS AND ENGINEERS

bunt & associates

767 Douglas Street

Transportation Impact Assessment

Final Report

Prepared for

Telus Corporate Real Estate

Date

January 28, 2021

Project No.

04-20-0068

January 28, 2021
04-20-0068

Manasweeta Bhatia
Senior Program Manager
Telus Corporate Real Estate
Email: Manasweeta.Bhatia@telus.com

Dear Manasweeta:

Re: 767 Douglas Street, Transportation Impact Assessment
Final Report

Bunt & Associates Engineering Ltd. (Bunt) has completed our Transportation Impact Assessment (TIA) for the proposed office and commercial development at 767 Douglas Street, Victoria, BC. Our report is provided herewith which reviews the development's on- and off-site transportation impacts.

We trust that our input will be of assistance. Please do not hesitate to contact us should you have any questions.

Best regards,
Bunt & Associates

Jason Potter, M.Sc. PTP
Senior Transportation Planner / Associate

CORPORATE AUTHORIZATION

Prepared By: Jason Potter, PTP
Professional Transportation Planner

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Transportation Engineer

Telephone: +1 250 592 6122

Date: January 28, 2021
Project No. 04-20-0068
Status: Final

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EXECUTIVE SUMMARY

Telus Corporate Real Estate is proposing to developm an 11-storey office building with 392 m^2 of ground-level commercial space at 767 Douglas Street in Victoria, BC.

The site is currently occupied with a car rental office and parking lot. The study area intersections currently operate within vehicle capacity thresholds during the weekday AM and PM peak hour periods.

High-end assumptions result in the proposed development generating approximately 51 vehicle trips (inbound and outbound combined) during the weekday AM and 66 trips during the PM peak hour, but likely less than this given its downtown location with shops and services within walking and cycling distance and good transit access.

Our analysis indicates that the proposed development will have minimal impact on the adjacent road network. Most vehicle trips generated by the development will travel through intersections that are currently operating well within operational capacity thresholds. The study area is anticiapted to remain well within operational capacity thresholds after completion and full occupation of the proposed development.

The proposed supply of 127 parking spaces is considered appropriate for this development. Actual parking demand for the building which is dependent on pricing and employed Transportation Demand Management (TDM) initiatives, is anticipated to be below the 127 offered spaces. This presents the opportunity for additional parking spaces beyond building demand to accommodate external building parking demand in Victoria's downtown area.

Telus Corporate Real Estate will be exceeding Victoria Bylaw bicycle parking requirements with 100 Long-term bicycle spaces and 41 Short-term spaces as well as end-of-trip facilities to further enable active transportation.

The development's focus on the surrounding public realm area is a progressive step toward enabling walking in this important public area. The site plan also indicates strong integration with transit with a custom bus stop along the site's Douglas Street frontage and weather protected areas for transit passengers.

Telus Corporate Real Estate will also provide electric charging ability to a portion of the development's vehicle parking spaces as well as the proposed bicycle room with wiring to allow for further electric charging as the demand increases.

1. INTRODUCTION

1.1 Study Purpose & Objectives

Telus Corporate Real Estate is proposing to develop an 11-storey office rental building in downtown Victoria at 767 Douglas Street. The project will feature over 14,122 square meters of office space and approximately 392 square meters of ground level, neighbourhood serving, commercial space. The commercial space is anticipated to include a restaurant.

Bunt & Associates was retained by Telus Corporate Real Estate to assess the transportation and parking implications of the proposed development. This Transportation Impact Assessment (TIA) will accompany Telus Corporate Real Estate's rezoning application. The purpose of this study is to:

- Evaluate the transportation impacts of the proposed development on the adjacent road network;
- Review the development's parking strategy;
- Evaluate the proposed site plan, its proposed access and internal vehicle circulation; and,
- Present Transportation Demand Management (TDM) strategies for lowering the site's vehicle demand.

The location of the proposed development is illustrated in **Exhibit 1.1**.

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Exhibit 1.1
Site Location

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1.2 Proposed Development

The proposed land uses are summarized in **Table 1.1**.

Table 1.1: Proposed Land Uses

LAND USE	SQUARE METERS	SQUARE FEET
Office	12,714	136,852
Medical Office	1,408	15,156
Restaurant	298	3,208
Retail	94	1,012
TOTAL	14,513	156,228

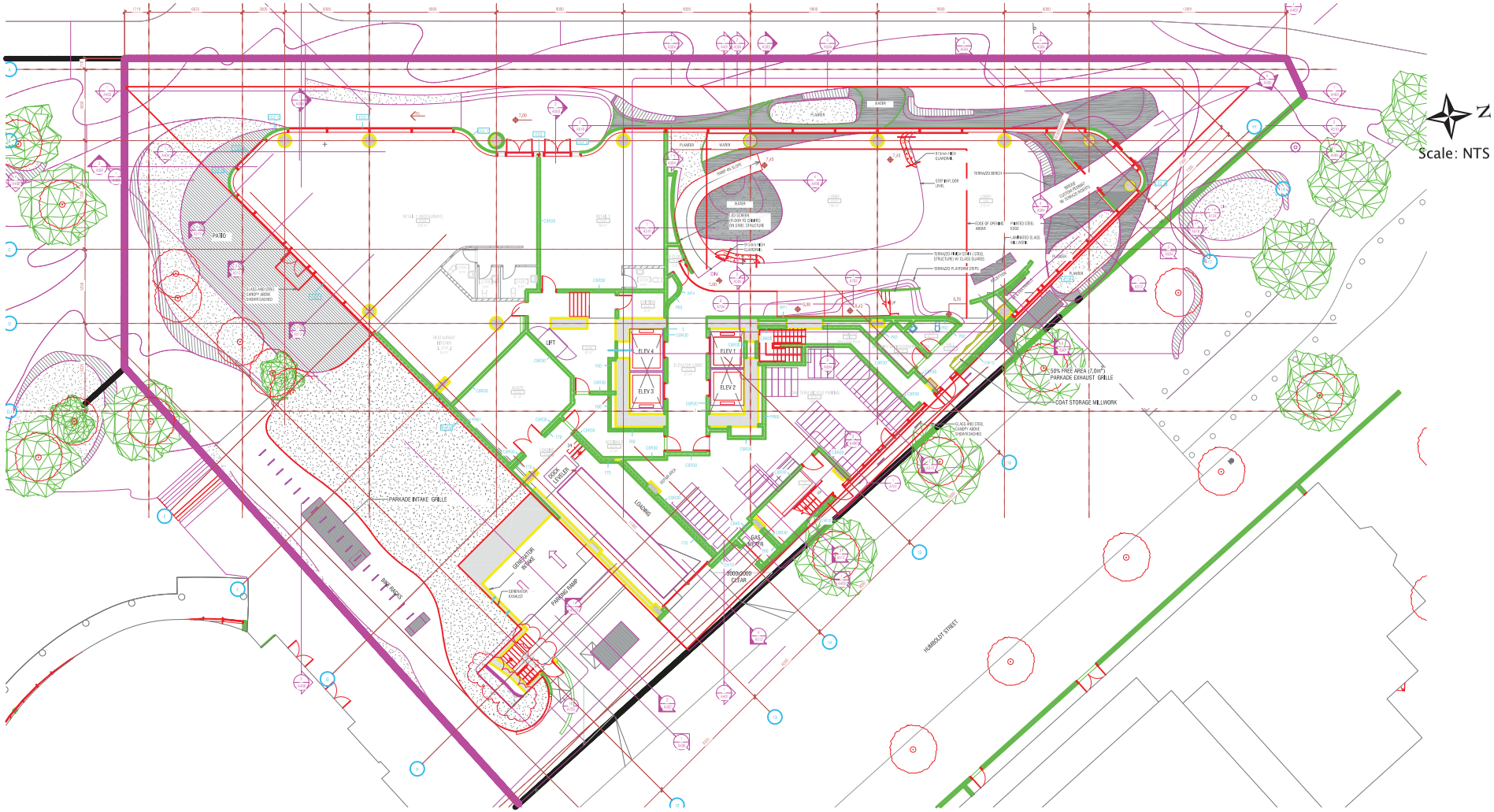
The building's ground-level commercial spaces are intended to consist of two to three neighbourhood-serving retail units, one of which is anticipated to be a restaurant.

The development will be supported with 127 parking spaces located in a three-level underground parkade. The management of the parking spaces is unknown at this time however the proposed parking supply is anticipated to be greater than the building's demand, allowing for parking spaces to be available to people unrelated to the building.

The vehicle access to the parkade is on Humboldt Street, along the north edge of the site.

The site is currently zoned as CA-4 (Central Area Commercial Office District).

The proposed site plan (level 1) is shown in **Exhibit 1.2**.



Source: Diamond Schmitt Architects

Exhibit 1.2
Site Plan

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2. EXISTING CONDITIONS

2.1 Land Use

767 Douglas Street is currently occupied with a car rental office and surface parking lot. It is accessed from two driveways on Humboldt Street with no vehicle access from Douglas Street.

2.2 Existing Transportation Network

2.2.1 Road Network

The site is located in the heart of Victoria's Harbour area. The study area was confirmed in consultation with City of Victoria Engineering Department (Transportation) staff. The adjacent road network and its laning configuration are illustrated in **Exhibit 2.1.**

Douglas Street is a two-way north/south major arterial and transit route. It has two travel lanes in each direction however the curbside lane adjacent to the development site accommodates a BC Transit bus stop. Further to the south, Douglas Street's curbside lane is used by regional buses as Victoria's Bus Terminal is located south of the development site in the Victoria Conference Centre's Crystal Garden building.

Humboldt Street is a two-way local road with connections north to Burdett Avenue along Penwell Street, and east to Blanshard Street. Humboldt Street was disconnected from Douglas Street to vehicles in 2019 as part of Victoria's cycling network program where a buffered bike route now runs along the south side of Humboldt Street to the west of Douglas Street. As Humboldt Street is no longer a through street, it encounters local street levels of vehicle volumes.

Humboldt Street adjacent to the development site extending to Blanshard Street was converted into an advisory bike route in 2020. The advisory bike lane pavement markings act as a traffic calming measure as bike lanes pavement markings cause a narrowed two-way vehicle lane. The narrowed two-way drive aisle forces vehicles to move into the adjacent bike lanes as they drive pass a vehicle traveling in the opposite direction.

2.2.2 Transit Network

The site is well serviced by public transit. There are bus stops on site's Douglas Street frontage that services northbound passengers and a bus stop across Douglas Street for southbound passengers.

The northbound bus stop accommodates seven bus routes. The transit routes and service details are provided in **Table 2.1.** The area's transit network is presented in **Exhibit 2.2**.

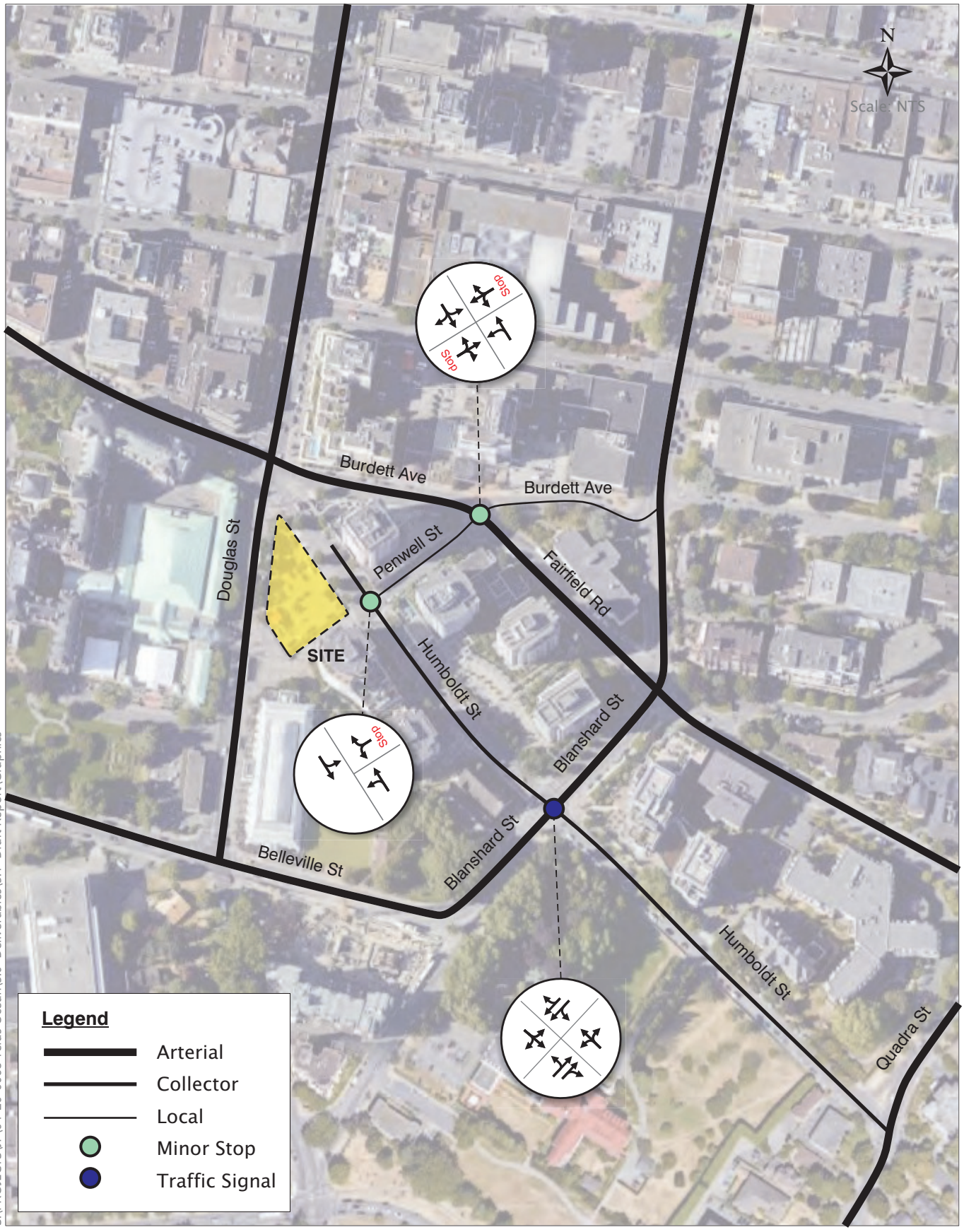

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Exhibit 2.1
Study Area Laning & Traffic Control

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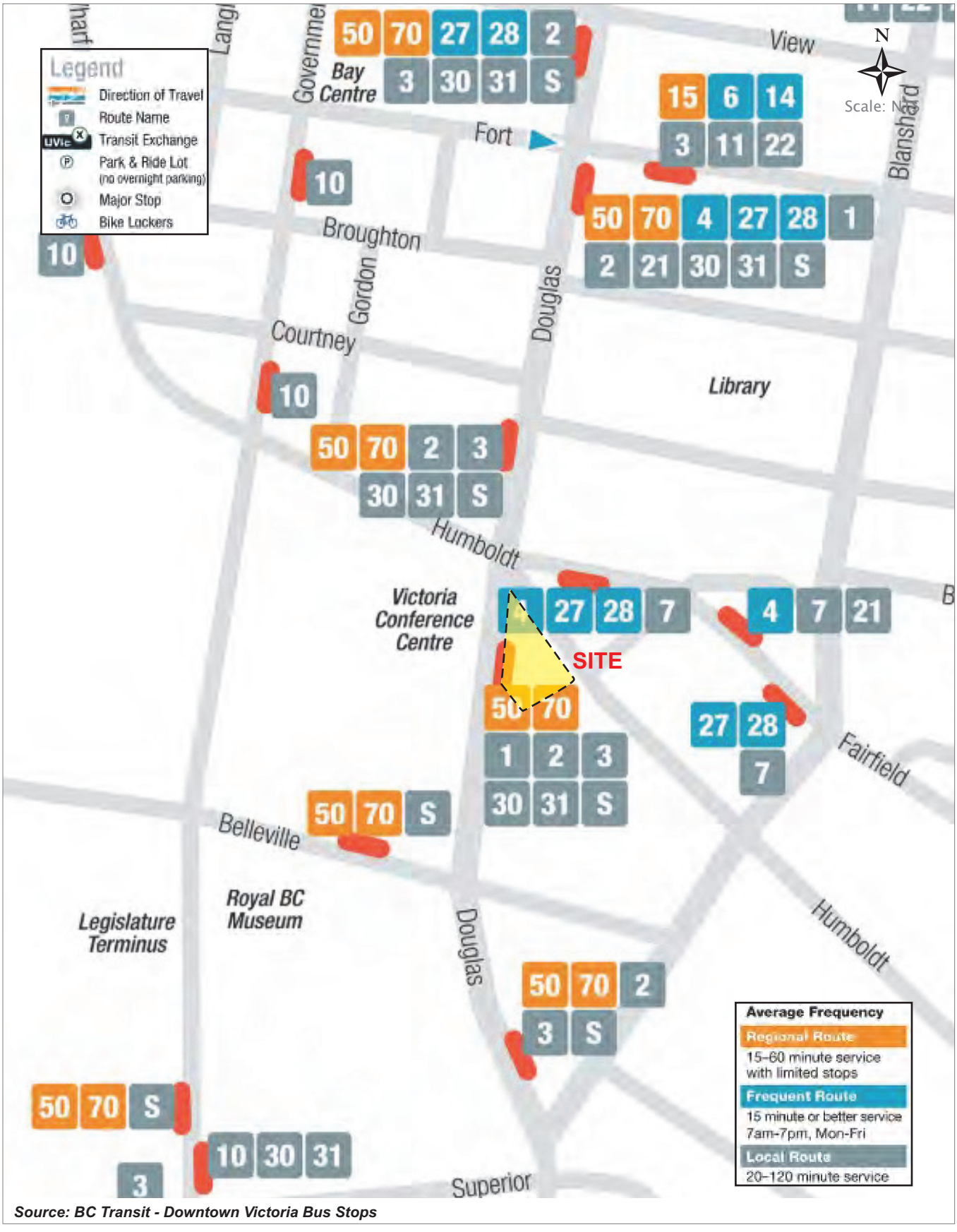

Source: BC Transit - Downtown Victoria Bus Stops

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Exhibit 2.2
Transit Routes & Stops

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Table 2.1: Transit Service at Adjacent Bus Stops

Bus Route No.	Description	Weekday AM Peak Frequency	Weekday PM Peak Frequency	Saturday Mid-Day Peak Frequency
North-South on Douglas Street				
1	South Oak Bay / Downtown	40 min	40 min	n/a
2	James Bay / South Oak Bay / Willows	15-20 min	15-20 min	15 min
3	James Bay / Royal Jubilee	30-35 min	25-35 min	30-35 min
30	Royal Oak Exch / Downtown	10-15 min	10 min	10 min
31	Royal Oak Exch / Downtown	10 min	10 min	10 min
50	Langford / Downtown	15-20 min	15-20 min	15 min
70	Swartz Bay / Downtown	10-30 min	10-30 min	10-30 min
East-West on Burdett Avenue / Fairfield Road				
4	UVic / Downtown	15 min	15 min	15 min
7	Uvic / Downtown	20 min	30 min	10 min
21	Interurban / Downtown	20 min	20 min	30 min
27	Gordon Head / Downtown	5-10 min	10-20 min	15 min
28	Majestic / Downtown	5-10 min	10-20 min	15 min

2.2.3 Cycling & Pedestrian Networks

The site is well connected to both walking and cycling networks. It is connected to Victoria's regional cycling network through the Humboldt Street cycling route adjacent to the site. The City of Victoria's surrounding cycling network is illustrated in **Exhibit 2.3**.

All streets surrounding the development site have sidewalks as well as controlled pedestrian crossings at signalized intersections.

The Humboldt Street & Penwill Street intersection has a pedestrian crosswalk along its east leg.

An existing pathway currently exists east of the development site connecting Humbodlt Street with the Plaza area south of the development site.

The site is within a walking distance of nearly all typical amenities and services, and daily errands do not require a car. The location receives a Walk Score of 96 out of 100, placing it in Walk Score's "walker's paradise" category. Walk Score is an online tool that assesses the walkability of a location-based on distances to a wide variety of amenities and services.

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Scale: NTS

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Source: Vicmap

Exhibit 2.3
Cycling Network

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2.3 Data Collection

Due to COVID-19, it was determined that collecting study area traffic data would not represent typical conditions. Instead of new data, the City of Victoria provided the following weekday AM and PM peak hour datasets:

- Blanshard Street & Humbold Street, Tuesday and Wednesday, June 28, 29, 2017;
- Blanshard Street & Fairfield Street, Tuesday and Wednesday, June 28, 29, 2017;
- Douglas Street & Burdett Avenue, Tuesday and Wednesday, July 31 and August 1, 2018.

Bunt extrapolated data from these datasets to obtain volumes for the Burdett Avenue & Penwell Street and the Humboldt Street & Penwell Street intersections. Humboldt Street volumes were adjusted to account for its closure from Douglas Street.

The weekday AM and PM peak hour traffic volumes obtained through this assembly of intersection traffic count data are presented in **Exhibit 2.4**.

2.4 Existing Traffic Operations

2.4.1 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 10 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 2.2 below summarizes the LOS thresholds for the five Levels of Service, for both signalized and unsignalized intersections.

Table 2.2: 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 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 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 not uncommon.

The performance thresholds that were used to trigger consideration of 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:

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

In interpreting 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 signalized intersections: HCM 2000 output for overall LOS and V/C as well as individual movement LOS and V/C are reported. 95th Percentile Queues are reported as estimated by Synchro; and,

- 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.

The performance reporting conventions noted above have been consistently applied throughout this document.

2.4.2 Existing Operational Analysis Results

As shown in **Exhibits 2.5** and **2.6,** all intersections currently operate within described operational thresholds for the weekday AM and PM peak hour periods. The Synchro model applied obtained signal timing plans and default heavy vehicle and peak hour factors.

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Exhibit 2.4
2020 Peak Hour Vehicle Traffic Volumes

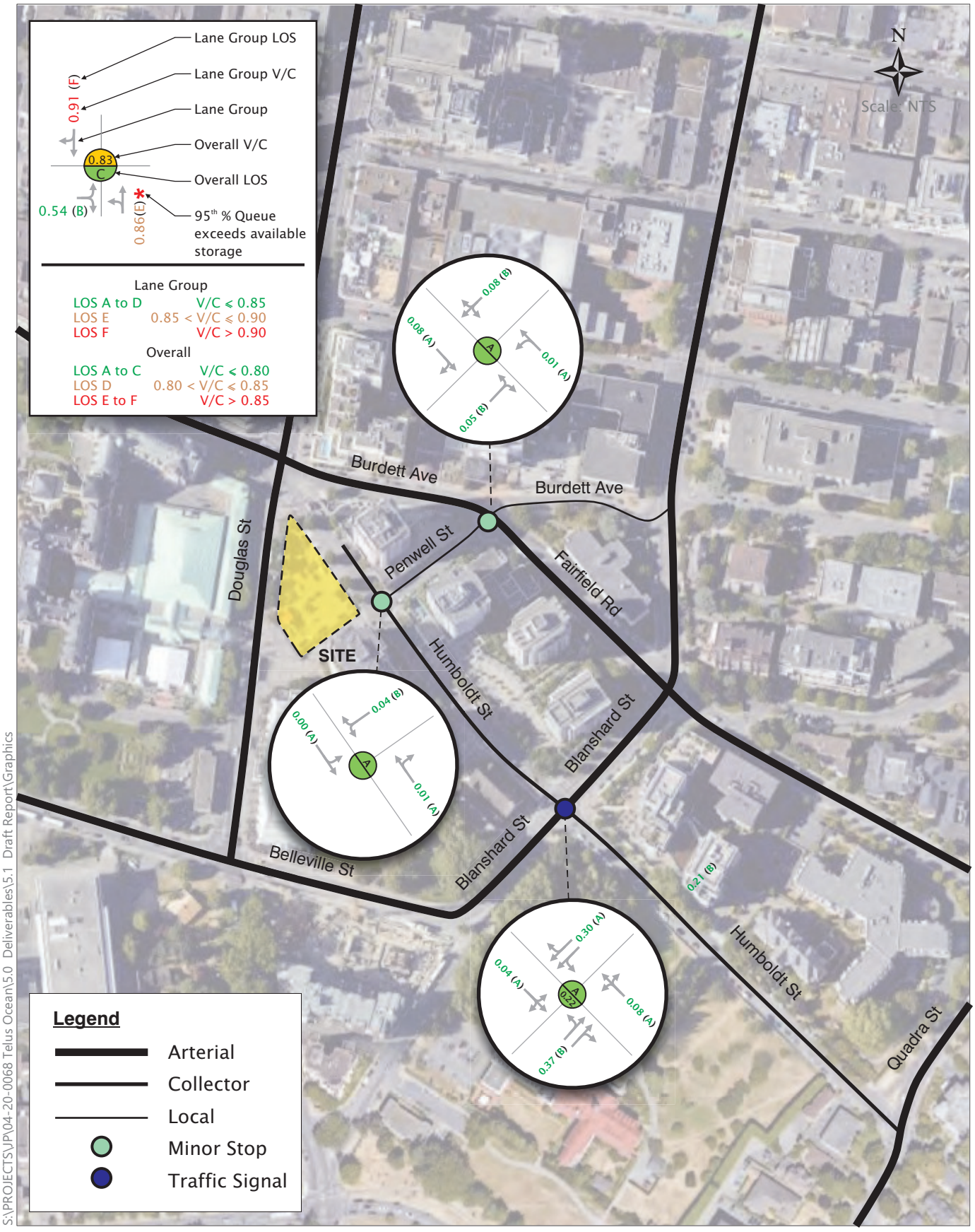

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Exhibit 2.5
2020 AM Peak Hour Traffic Operations

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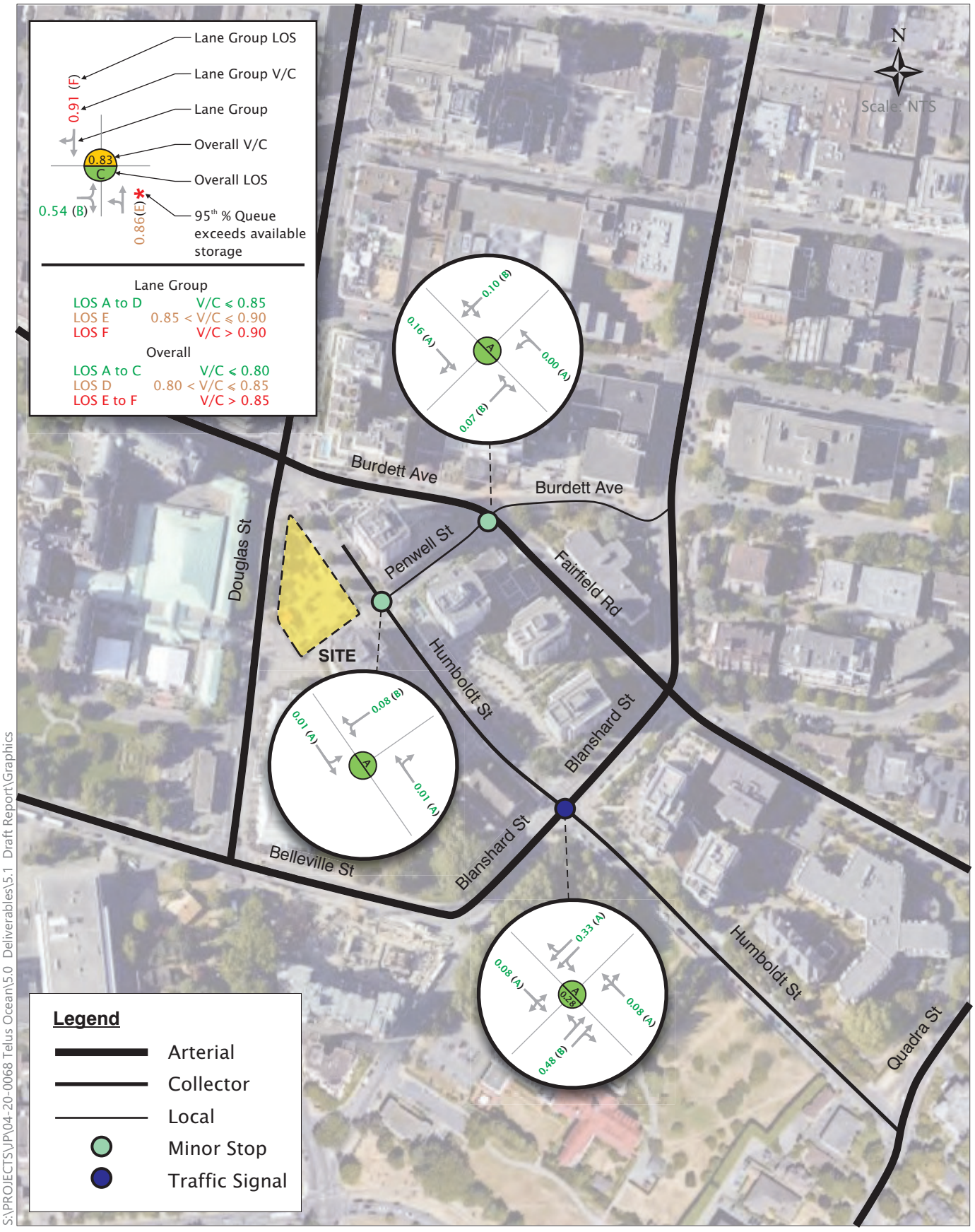

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Exhibit 2.6
2020 PM Peak Hour Traffic Operations

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3. FUTURE TRAFFIC CONDITIONS

3.1 Traffic Forecasts

3.1.1 Site Traffic

Trip Generation

The vehicle trip generation was calculated for each proposed land use. For retail and restaurant land uses, the trip generation was based on trip rates provided in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition.

The office land use has a wide range of potential trip rates which is tied to a building's supply of spaces as well as location factors and applied TDM initiatives. The ITE Manual suggests trip generation rates of 1.16 vehicles per 1000 ft^2 of Gross Floor Area (GFA) in the AM Peak Hour and 1.15 in the PM peak hour for General Urban/ Suburban areas. This rate would imply more office-related vehicles arriving in the morning and leaving in the evening than proposed available parking spaces. As this rate was established by observing office buildings with higher parking supply ratios, this generalized trip rate was not considered appropriate for this specific context. Instead, Bunt applied office trip rate data from its own database where the trip rates for three office buildings in the Downtown Vancouver area were calculated based on available parking spaces. This data provides arrival and departure flow rates based on supplied parking spaces and is therefore considered transferable to this study despite the subject site being in Victoria. These rates result in approximately half of the available spaces being accessed or departed during the AM and PM peak hours.

To be conservative it is assumed that 120 of the site's 127 spaces would be used to service the office components of the development. To account for the remaining seven retail parking spaces accounting for up to 29 vehicle trips per peak hour, is noted that some of the office parking spaces may be shared for restaurant or retail use as peak periods for the office and restaurant land uses do not coincide.

The vehicle trip generation for the proposed development is summarized in **Table 3.1** below.

Table 3.1: Peak Hour Site Trip Generation

		AM				PM			
Use	Size (sf or parking spaces)	Rate (per 1k sf or unit)	Trips In	Trips Out	Total Trips	Rate (per 1k sf or unit)	Trips In	Trips Out	Total Trips
Office	120 parking spaces	0.39	45	2	47	0.31	4	33	37
Restaurant (ITE 931)	3,208 square feet	0.73	3	0	3	7.80	17	8	25
Retail (ITE 820)	1,012 square feet	0.94	1	0	1	3.81	2	2	4
		Total	49	2	51	Total	24	44	66

For more urban context locations with office and commercial uses within convenient walking and cycling distance and good public transit access, our experience at Bunt has been that the proportion of vehicle trips is reduced in favour of increase walking/cycling and transit trips. As mentioned previously, the 767 Douglas Street site in Downtown Victoria achieves a Walk Score of 96 "Walker's Paradise" rating. However, as a conservative measure for the traffic impact assessment component of this report, no downward adjustment has been applied to the vehicle trip estimates to account for reduced vehicle use or internal trip reductions to account for the site's mixed land uses.

Trip Distribution & Assignment

Trips generated by the proposed development were assigned to the study area based primarily on existing travel patterns observed for the area as well as patterns obtained from the obtained volume datasets.

Access to the site will come from Humboldt Street which is located along the site's north edge. The assumed site traffic distribution on the area street system is presented in **Table 3.2** and illustrated in **Exhibit 3.1**.

Table 3.2: Assumed Trip Distribution

	AM		PM	
ROUTE	IN	OUT	IN	OUT
Douglas Street to/from North	20%	15%	25%	15%
Douglas Street to/from South	0%	15%	0%	10%
Fairfield Road to/from East	15%	10%	10%	10%
Humboldt Street to/from East	5%	5%	5%	5%
Humboldt Street to/from West	0%	5%	0%	5%
Blanshard Street to/from North	45%	30%	35%	40%
Blanshard Street to/from South	15%	20%	25%	15%
TOTAL	**100%**	**100%**	**100%**	**100%**

3.1.2 Total Traffic

Total future traffic consists of the proposed development's net new site-generated traffic volumes added to the background traffic volumes. No additional changes to vehicle volumes were assumed as is standard practice for TIA's in Victoria. This is also consistent with the development of the area where the immediate location will essentially be built out regarding vehicle traffic on Humboldt Street.

Exhibit 3.2 presents the forecasted future traffic volumes for the total AM and PM peak hour scenario. Corresponding traffic operations are presented in **Exhibit 3.3** and **3.4**.

As shown in Exhibit 3.3 and 3.4, the additional vehicle trips forecasted to be generated by the proposed development result in study area vehicle operations within performce thresholds. As such, no road infrastructure mitigation is recommended.

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Exhibit 3.1
Site Traffic Forecasts

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Exhibit 3.2
Total Peak Hour Vehicle Traffic Volumes

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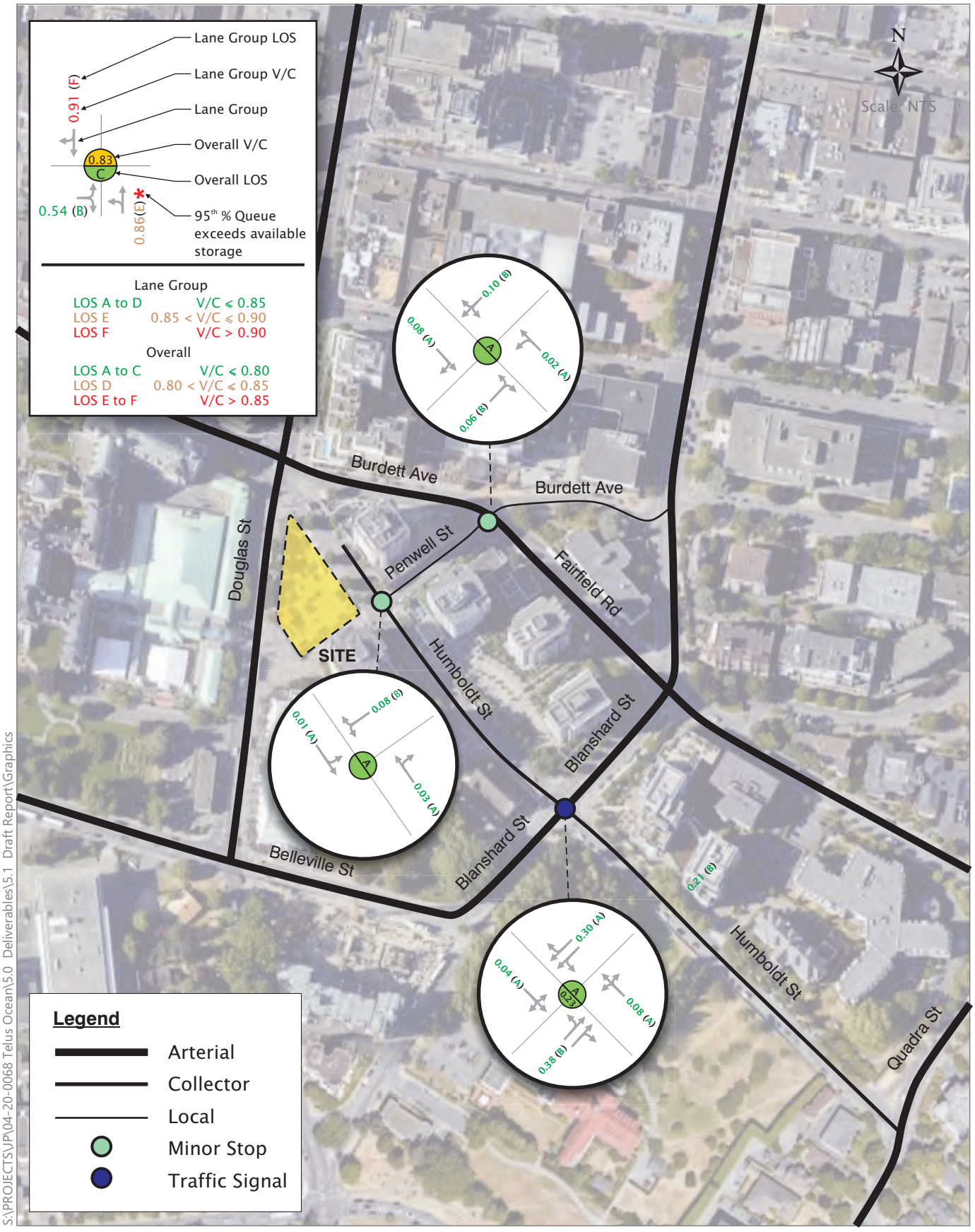

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Exhibit 3.3
Total AM Peak Hour Traffic Operations

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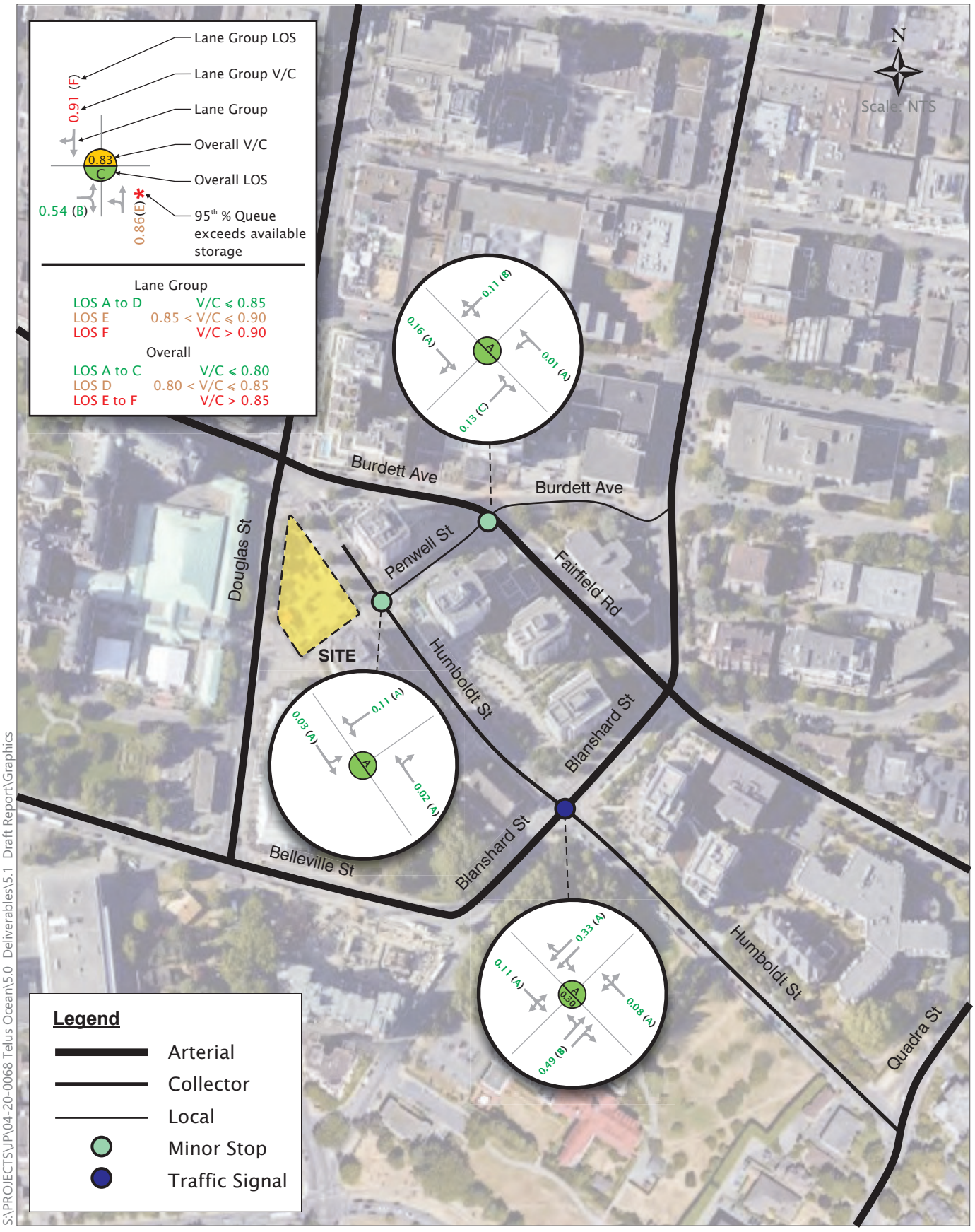

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Exhibit 3.4
Total PM Peak Hour Traffic Operations

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4. DEVELOPMENT PLAN REVIEW

4.1 Site Access Design

The proposed development will have one vehicle access point from Humboldt Street. Loading vehicles will also access the site from Humboldt Street. Pedestrian access to the site's main office entry will be from Douglas Street. The two retail outlets will face Douglas Street and the plaza area to the south of the site.

4.2 Parking Supply

4.2.1 Vehicle Parking

The site is within Victoria's Core Area, and is currently zoned as CA-4. As per City of Victoria zoning requirements (Schedule C, Zoning Regulation Bylaw) the development does not have off-street parking requirements for its CA-4 zone. However, the development is seeking to be rezoned to its own zone.

In lieu of parking rates for the subject zone, Bylaw requirements for Victoria's Core Area (where the development is located) are summarized in **Table 4.1** which may provide a perspective for the site's parking supply.

Table 4.1: Vehicle Parking Supply Bylaw Using Core Area Rate & Proposed Supply

LAND USE	DENSITY (M^2)	BYLAW RATE	SUPPLY REQUIREMENT	PROVIDED
Office	12,714	1 space per 70m^2 floor area	182	-
Medical Office	1,408	1 space per 50m^2 floor area	29	
Restaurant	298	1 space per 40m^2 floor area	8	-
Retail	94	1 space per 80m^2 floor area	2	-
			221	127

As shown in Table 4.1, the proposed parking supply of 127 spaces is 94 spaces below Victoria's Bylaw requirements if the site were to adhere to Victoria's rates for its Core area.

The actual parking demand of the building is anticipated to be lower than that required by Bylaw and the quantity supplied due to the development's downtown location with strong transit service, and bikability depending on management and pricing of the stalls and employed Transportation Demand Management (TDM) initiatives.

The forecasted oversupply of parking spaces may present the opportunity for the additional parking spaces beyond the building's forecasted demand to accommodate external building parking demand in Victoria's downtown area.

It is also noted that the development's proposed mixed land uses can take advantage of the office and restaurant land uses typically having different peak demand times by sharing parking spaces.

4.2.2 Electric Charging

Telus will provide future electric charging abilities to 100% of the development's parking spaces. To ensure the electrical demand of the charging does not exceed the building's capacity, a building demand load management system can be installed. This system monitors the building's spare capacity and distributes that amount to each electric vehicle connected to a charging station.

4.2.3 Bicycle Parking

Well managed, secure, accessible and covered bicycle parking will be provided as part of the development plan. The development includes a total of 100 long-term bicycle spaces in one, priority-located, first-level bicycle storage room.

The development also includes the provision of 41 outside short-term spaces. The short-term cycling racks will be provided near the building's main entry and within sight of the Humboldt cycling route, in well lit and highly visible areas.

The development will supply electric outlets for a portion of the bicycle parking spaces and rough-in electrical to allow for further additional charging ability if demand increases.

The City of Victoria Bylaw requirements for bicycle parking in the Core area is provided in **Table 4.2**.

Table 4.2: Bicycle Parking Supply Requirement & Provision

LAND USE	DENSITY (M^2)	BYLAW RATE	BYLAW SUPPLY REQUIREMENT	PROVIDED	DIFFERENCE
Office	12,714	Long Term: 1 space per 150m^2 of floor area, or part thereof	85 Long Term	Shared between lands uses	-
		Short Term: 1 space per 400m^2 of floor area, or part thereof	32 Short Term		
Medical Office	1,408	Long Term: 1 space per 200m^2 of floor area, or part thereof	8 Long Term		
		Short Term: 1 space per 300m^2 of floor area, or part thereof	5 Short Term		
Restaurant	298	Long Term: 1 space per 400m^2 of floor area, or part thereof	1 Long Term		
		Short Term: 1 space per 100m^2 of floor area, or part thereof	3 Short Term		
Retail	94	Long Term: 1 space per 200m^2 of floor area, or part thereof	1 Long Term		
		Short Term: 1 space per 200m^2 of floor area, or part thereof	1 Short Term		
TOTAL	-	-	95 LONG TERM 41 SHORT TERM 136 TOTAL	100 LONG TERM 41 SHORT TERM 141 TOTAL	+5 LONG TERM 0 SHORT TERM +5 PROVIDED

As summarized in Table 4.2, the proposed bicycle parking supply exceed bylaw minimum requirement by 5 long term space over bylaw requirements.

4.3 Service Vehicle Operations

The City of Victoria Zoning Bylaw does not stipulate a requirement for off-street loading spaces for office land use.

The office area, retail and restaurant spaces are relatively small and are not anticipated to require loading by vehicles larger than a Medium Single Unit (Transportation Association of Canada MSU design vehicle). To accommodate anticipated loading (including garbage and recycling pick-up) activity, one MSU sized loading space is proposed on site, accessed from Humboldt Street.

The loading bay is situated within 10m of the parkade parking ramp due to the unique layout of the site and ramp sloping that render a single, parkade and loading entry difficult to achieve from Humboldt Street. Having two driveways within 10 m of each other requires a variance from Victoria's Highway Access Bylaw. Bunt supports the site plan's proposed vehicle access bylaw variance because:

- The loading bay is anticipated to encounter very low vehicles volumes;
- The accesses are set back from the sidewalk and roadway allowing existing vehicles to see pedestrians on the sidewalk before they cross the sidewalk; and,
- Its location at the east portion of the site on Humboldt Street allows for an expanded pedestrian plaza area on Humboldt Street, between Humboldt Street and Douglas Street.

The ability of a MSU design vehicle to access the loading area was assessed with AutoTURN turn path analysis. The turn path is illustrated in **Exhibit 4.1** and **4.2**.

Maneuverability within the parkade structure for a passenger vehicle was also examined by Bunt using AutoTURN turn path analysis. Example turn paths are provided in **Exhibit 4.3** and **4.4**.

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January 2021, Plotted by Kieran Quan

[Based on Drawing L1 from Diamond Schmitt Architects received on January 22, 2021]

[Issued for Discussion; not for Construction]

Exhibit 4.1

MSU Loading Vehicle Turn Path - Inbound

04-20-0068 January 2021 NOT TO SCALE Prepared by JP/KQ

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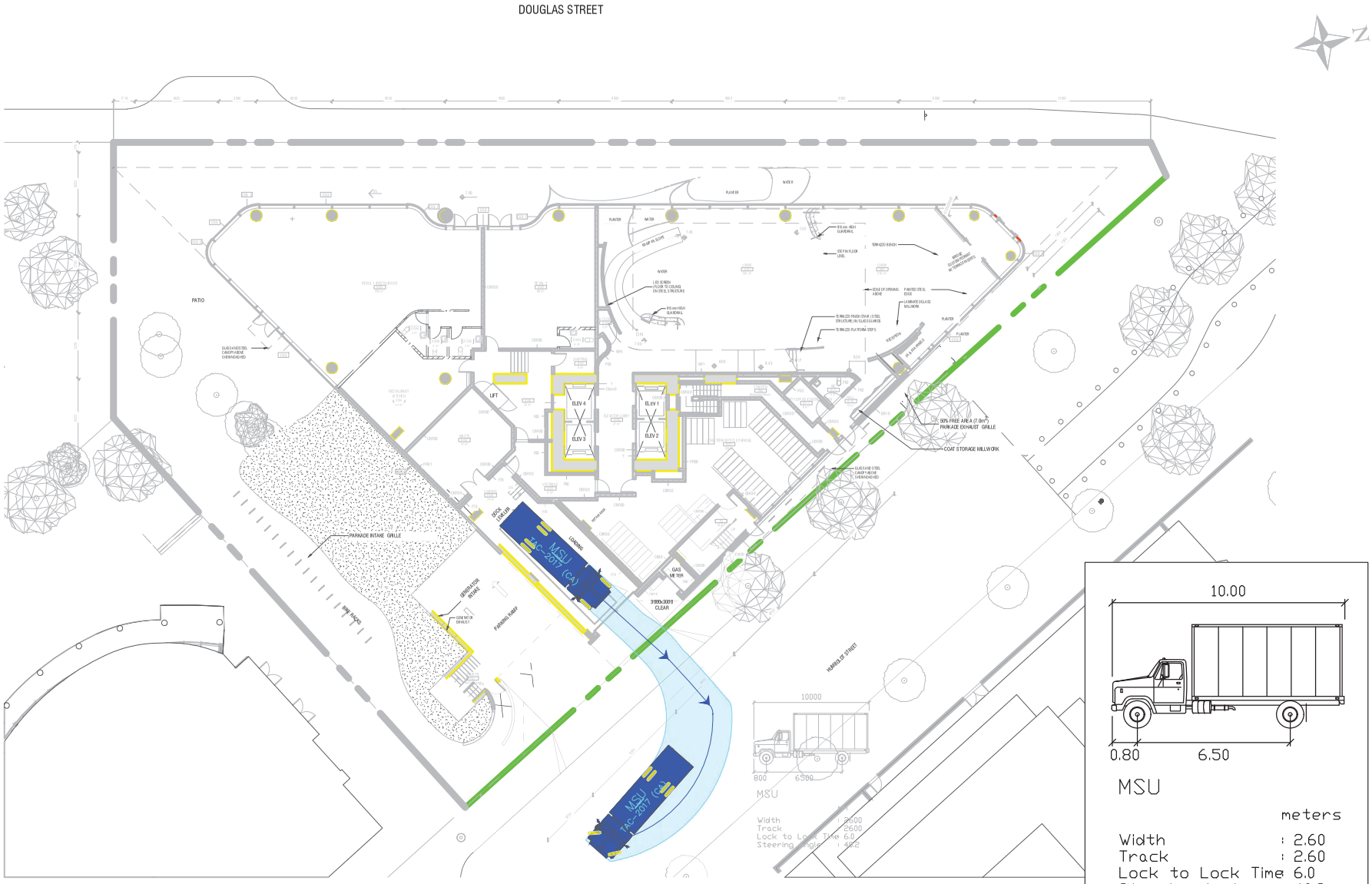
January 2021, Plotted by Kieran Quan



[Based on Drawing L1 from Diamond Schmitt Architects received January 22, 2021]

[Issued for Discussion; not for Construction]

Exhibit 4.2

MSU Loading Vehicle Turn Path - Outound

04-20-0068 January 2021 NOT TO SCALE Prepared by JP/KQ

bunt & associates

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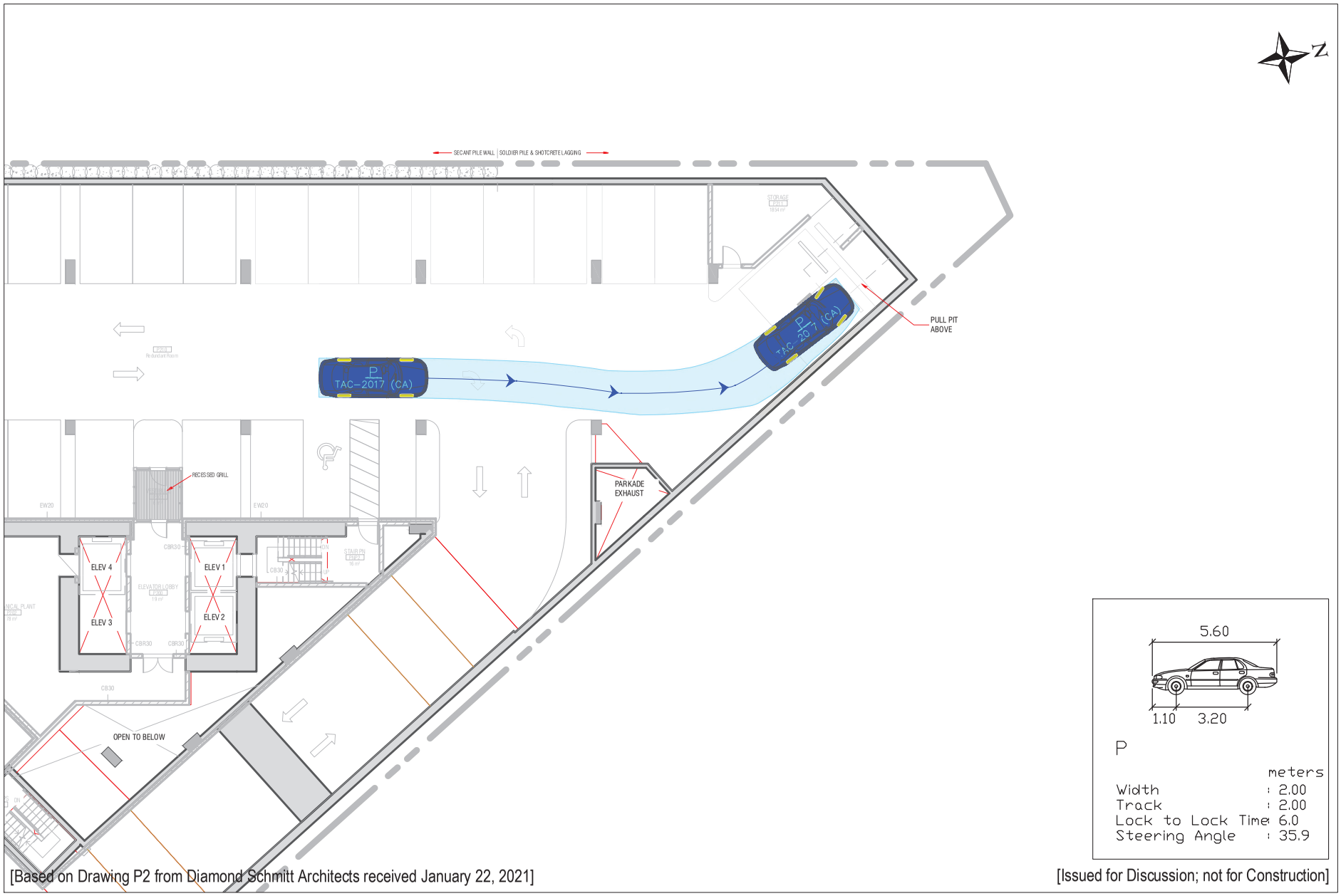
January 2021, Plotted by Kieran Quan



[Based on Drawing P2 from Diamond Schmitt Architects received January 22, 2021]

P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

[Issued for Discussion; not for Construction]

Exhibit 4.3

Passenger Vehicle in Parkade - P1/P2 Corner Parking Spaces - Inbound

04-20-0068 January 2021 NOT TO SCALE Prepared by JP/KQ

bunt & associates

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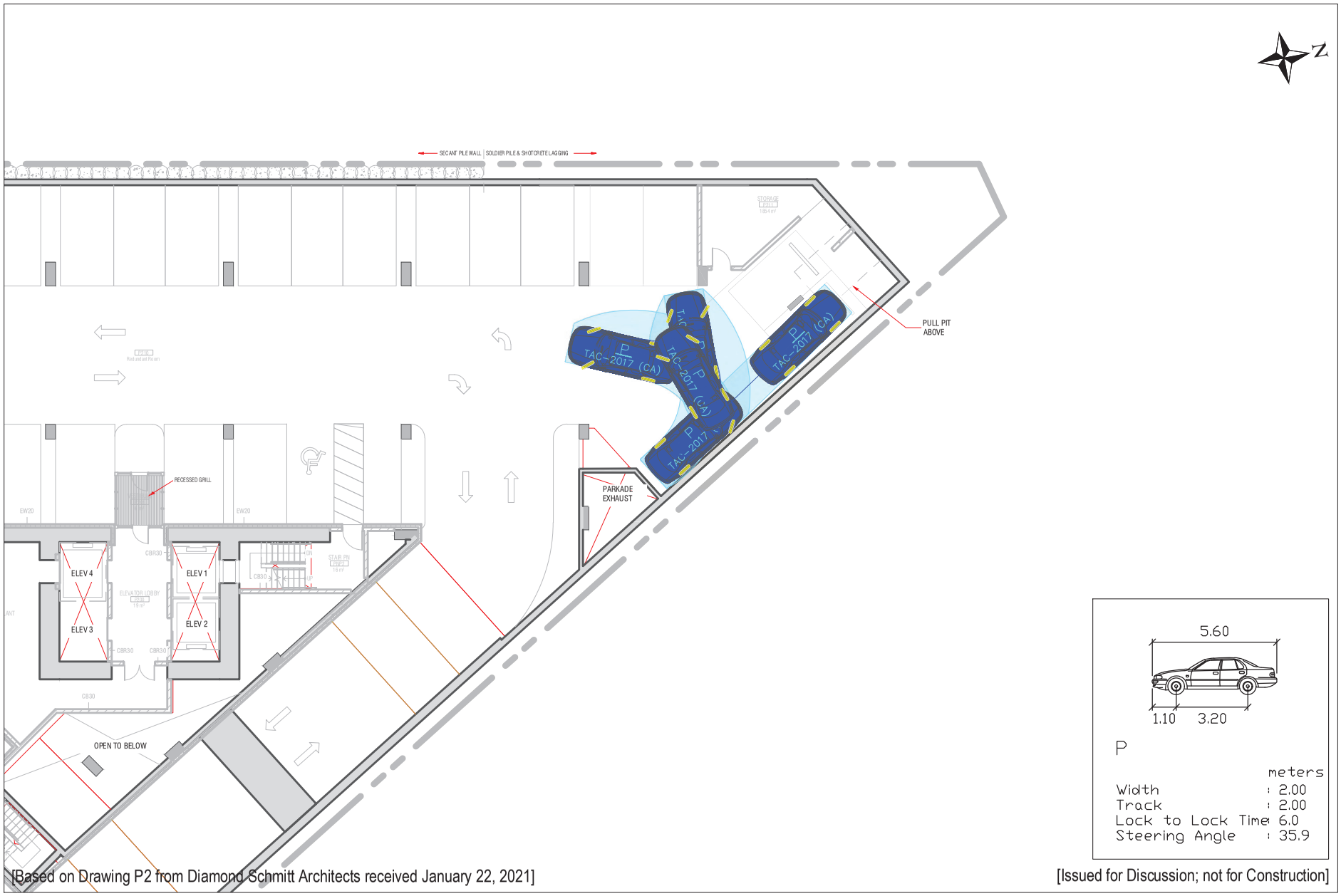
January 2021, Plotted by Kieran Quan



P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	6.0
Steering Angle	: 35.9

[Based on Drawing P2 from Diamond Schmitt Architects received January 22, 2021]

[Issued for Discussion; not for Construction]

Exhibit 4.4

Passenger Vehicles in Parkade - P1/P2 Corner Parking Spaces - Outbound

04-20-0068 January 2021 NOT TO SCALE Prepared by JP/KQ

bunt & associates

5. TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) is defined as the "application of strategies and policies to reduce travel demand (specifically that of single-occupancy private vehicles), or to redistribute this demand in space or in time"[1]. A successful TDM program can influence travel behaviour away from Single Occupant Vehicle (SOV) travel during peak periods towards more sustainable modes such as High Occupancy Vehicle (HOV) travel, transit, cycling or walking. The responsibility for implementation of TDM measures can range across many groups, including regional and municipal governments, transit agencies, private developers, residents/resident associations or employers.

5.1 Recommended TDM Measures for Site

5.1.1 Marketing Materials & Transportation Information

Travel patterns are most pliable when visitors first begin to commute to a location. New developments can assist in influencing travel behaviours, through the distribution of marketing materials to potential tenants that emphasize the attractiveness and ease of non-single occupant vehicle travel modes. Telus has agreed to provide this to its future tenants.

5.1.2 Promote Cycling

The development will be providing 100 Long Term bicycle parking spaces which exceeds bylaw requirements. In addition, its highly visible short-term bicycle spaces will further promote cycling and cycling to transit activity.

5.1.3 Placemaking

The site plan offers significant pedestrian amenities and placemaking with seating and building overhang weather protection. The site plan provides considerable transit integration with a proposed custom bus stop design along the Douglas Street frontage and an adjacent water feature.

[1] http://ops.fhwa.dot.gov/tdm/index.htm FHWA Travel Demand Management home page

6. CONCLUSIONS & RECOMMENDATIONS

6.1 Conclusions

1. The proposed development at 767 Douglas Street consists of approximately 12,714 square meters of office space, 1,408 square meters of medical office space, 298 square meters of restaurant space and 94 square metres of ground-level retail space. The proposed vehicle parkade with 127 vehicle spaces is accessed from Humboldt Street along the north edge of the site.

2. All intersections currently operate within capacity and acceptable level of service thresholds during both the weekday AM and PM peak hour periods.

3. The proposed development could potentially generate approximately 51 two-way vehicle trips in the weekday AM peak hour and 66 two-way trips during the PM peak hour

4. Our analysis indicates that the proposed development will have minimal impact on the adjacent road network. Most vehicle trips generated by the development will travel through intersections that are currently operating well within operational capacity thresholds and are anticiapted to remain within operational capacity thresholds after full occupation of the proposed Telus Ocean development.

5. The 127 proposed vehicle parking supply is anticipated to accommodate the building's vehicle parking demand.

6. Maneuverability within the parkade structure for a large passenger vehicle was confirmed by Bunt using AutoTURN turn path analysis.

7. The proposed bicycle parking supply exceed bylaw guidance by 5 long term spaces.

8. The site plan offers significant pedestrian amenities and placemaking with seating, water features and overhang weather protection.

9. The site plan provides considerable transit integration with a custom bus stop design along the Douglas Street frontage.

10. The development includes electric charging and the ability to increase the quantity of electric charging for both the development's vehicle and Long-Term bicycle spaces.

6.2 Recommendations

11. It is recommended that bylaw variance pertaining to vehicle access, which stipulates distance between driveways, be supported because:

    a) The loading bay is anticipated to encounter low vehicles volumes;

    b) The sidewalk and vehicle route crossing areas are well set back from the Humboldt bike route; and

    c) The location of the driveways at the east portion of the site on Humboldt Street allows for an expanded pedestrian plaza area on Humboldt Street, between Humboldt Street and Douglas Street.

12. It is recommended that marketing materials to prospective tenants highlight the site's non-private vehicle transportation mode amenities.