

1491, 1515 & 1537 Kingsway Avenue Phase 2
Port Coquitlam

Transportation Impact Assessment

Final

Prepared for
Conwest Group of Companies

Date
January 17, 2020

Project No.
04-18-0252

January 17, 2020

Peter Woerler
Conwest Group of Companies
#250 – 1311 Kootenay Street
Vancouver BC Canada V5K 4Y3

Dear Peter:

**Re: Conwest 1491, 1515 & 1537 Kingsway Avenue Phase 2, Port Coquitlam
Transportation Impact Study (TIS)**

Please find attached our Transportation Impact Study (TIS) to support the above project's Development Permit (DP) application.

The study confirms that the two planned site accesses on Kingsway Avenue, one aligned with Langan Avenue and the other with Coast Meridian Road, can function satisfactorily from a geometric and operational perspective. It also provides a rationale to support the planned parking supply for the warehouse building along with enhanced arrangements for bicycle storage and end-of-trip facilities.

We trust that this information will assist you in moving forward with your application. Please do not hesitate to contact me should you have any questions about this study.

Yours truly,
Bunt & Associates



Paul Dorby, MSc
Senior Transportation Planner

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Status: Final

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TO BE COMPETED FOR FINAL VERSION

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1. INTRODUCTION

1.1 Study Purpose

Conwest Group of Companies (Conwest) is planning a warehouse development project located on the lands of 1491, 1515 and 1537 Kingsway Avenue in the City of Port Coquitlam, BC. A Development Permit (DP) application has been submitted to the City of Port Coquitlam and the site location is shown at **Exhibit 1.1**. The site development footprint is also highlighted in **Figure 1.1**, covering Lots 1491, 1515, 1537 along with a portion of 1579. Lots 1545 and 1579 were subject to a separate DP Application in 2018 (see Bunt Transportation Impact Assessment for 1545-1575 Kingsway Avenue [April 2018]). Lots 1537-1515 and 1491 have since been consolidated to a single legal parcel.

Figure 1.1: Footprint of Development Lots



The warehouse development plan is proposed to have two vehicle access points with Kingsway Avenue, where the western access would be aligned with Langan Avenue and the eastern access with Coast Meridian Road. As part of this study, a preliminary conceptual layout has been prepared to support the access alignments with Kingsway Avenue and which have been tested in regard to geometric and capacity operations.

A warehouse floor area of 327,097sq.ft is planned to be occupied by a single tenant with specific site layout requirements to fit their business model along with ancillary office floor space (49,952sq.ft) for a total of 377,049sq.ft.

Around 300 parking spaces are planned for the site, which is well within the expected demands, but is lower than the City of Port Coquitlam's Parking Bylaw requirements. A rationale will therefore be provided to support the proposed supply based on assessing expected demands along with providing sustainable measures to lower demand.

1.2 Study Scope & Area

A Transportation Impact Study (TIS) in support of the development plan has been requested by the City of Port Coquitlam. In response, this report will assess whether the development plan can operate satisfactorily based on the projected vehicle demands, how it can fit within the City Bylaw requirements, and how the proposed site accesses at Langan Avenue and Coast Meridian Road can function from a geometric and operational perspective.

The study area and methodology used in this report is consistent with that applied in the Bunt Transportation Impact Study for the 1545 / 1575 Kingsway Avenue project in April 2018.

1.3 Organization of Report

The report is outlined as follows:

- **Section 2** describes existing transportation systems and establishes the general scope for the planned study network;
- **Section 3** outlines the development plan along with the transportation features, covering vehicle access, parking and loading;
- **Section 4** sets out the methodology and projections for the site vehicle trip generation and distribution; and
- **Section 5** assesses the influence of the site development movements on the study network and whether mitigation measures are required.

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Exhibit 1.1
Site Location

1491, 1515, & 1537 Kingsway Avenue
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2. EXISTING CONDITIONS

2.1 Site Context

The site is bounded by industrial uses to the east and west (1579 Kingsway Ave under construction), Canadian Pacific Rail Yard to the north and Kingsway Avenue to the south. A BC Hydro corridor runs along the south boundary of the site. The two existing site driveways currently cross the Hydro corridor to connect with Kingsway Avenue, both of which will be realigned as part of the development plan.

2.2 Site Use

The site has a total area of around 610,000sq.ft. and where the existing buildings are to be demolished.

2.3 Street Network

Table 2.1 presents details of the street characteristics adjacent to the site.

Table 2.1: Existing Street Characteristics (adjacent to site)

STREET	CLASSIFICATION	NUMBER OF TRAVEL LANES	POSTED SPEED	PARKING FACILITIES
Kingsway Avenue	Arterial	2	50km/h	South Side
Langan Avenue	Collector	2	50km/h	Both sides
Coast Meridian Overpass	Arterial / MRN	4	50km/h	None
Coast Meridian Road	Collector	2	50km/h	West Side

The City's Master Transportation Plan (MTP) 2013 highlights the need for safety improvements on Kingsway Avenue between Coast Meridian Overpass and the Mary Hill Bypass, including the section along the site's frontage. This plan also indicates that the section between Coast Meridian Overpass and Coast Meridian Road is currently designed as a 'Collector Road', and therefore needs to be upgraded to an arterial configuration similar to the section of Kingsway Avenue east of Coast Meridian Road.

The site plans will show this section of Kingsway Avenue roadway widened from 11m to 13.5m to accommodate 4 travel lanes plus a left-turn lane and a new multi use path on the north side. This widened cross section will contribute to improved vehicle capacity on this section of Kingsway Avenue, as reflected in the operational analysis in Section 5.

Summarized in **Table 2.2** are the existing intersection controls in the immediate environs.

Table 2.2: Intersection Controls

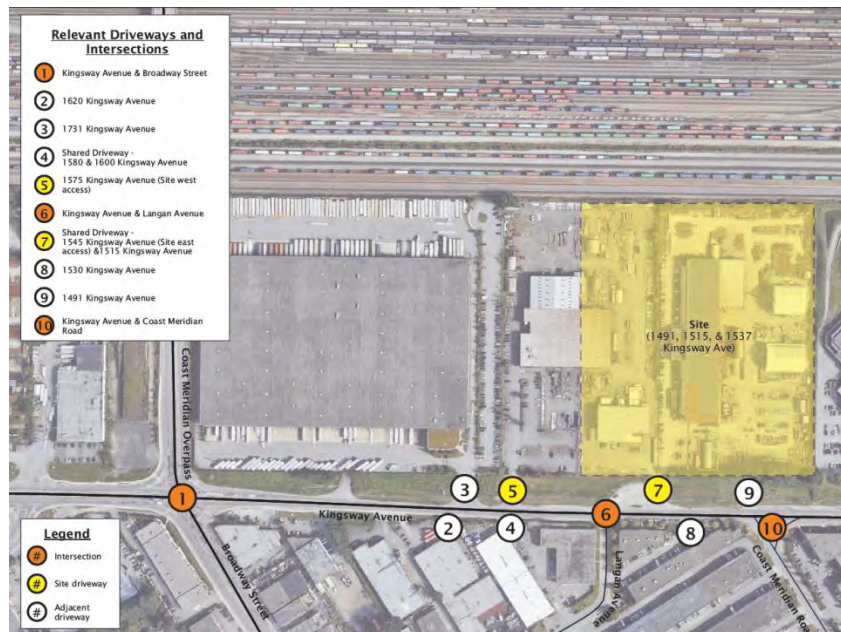
INTERSECTION	CONTROL
Kingsway Avenue and Coast Meridian Road	Minor Stop
Kingsway Avenue and Langan Avenue	Minor Stop
Kingsway Avenue and Coast Meridian Overpass	Signal

The MTP 2013 highlights that there is a need for capacity improvements at Kingsway Avenue's intersections with Langan Avenue and Coast Meridian Road and this will be covered Section 5 as part of the study network operational review.

2.4 Kingsway Avenue Driveways

Figure 2.1 highlights site driveways and intersections in the immediate vicinity of the development location and following presents key changes relevant to the Conwest projects:

- **Site Driveway 5:** (1579 Kingsway) currently under construction;
- **Site Driveway 7** (west driveway for the development) is planned to be moved around 50m westward to align with Langan Avenue; and
- **Site Driveway 9** (east driveway for the development) is proposed to move around 10m eastward to align with the intersection at Coast Meridian Road.

Figure 2.1: Kingsway Avenue Driveways

Preliminary conceptual designs for the two site driveways will be presented in the next section and reviewed as part of the operational assessment in Section 5.

2.5 Cycling Network

The project site is accessible to the City's bicycle network as highlighted at **Exhibit 2.1**. Salient routes closest to the site are covered below and these provide connections to other routes within the City to the south, north and west:

- Coast Meridian Overpass / Broadway (marked bicycle lanes); and
- Langan Avenue (signed bicycle route).

In addition to the above, the City's Master Transportation Plan (2013) highlights that Kingsway Avenue is proposed to have an 'Off-Road Multi Use Path' along the BC Hydro frontage corridor, which has been incorporated into the development plan design.

2.6 Transit

The project site is located around 2200m southeast of Port Coquitlam's downtown core and 1800m from Port Coquitlam's West Coast Express station. Transit routes and stops are highlighted at **Exhibit 2.2**.

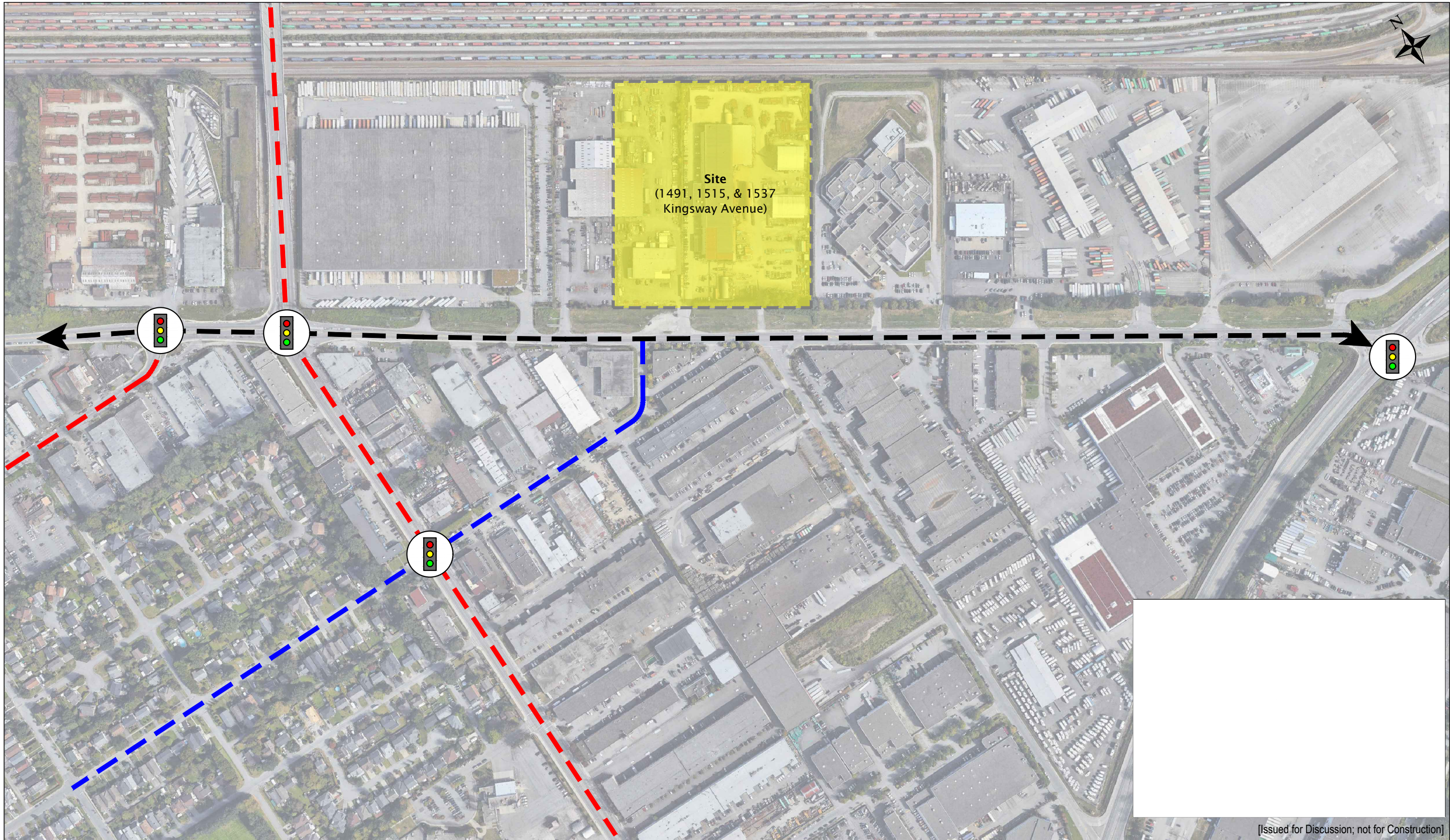
Table 2.3a presents bus stops within 400m of the site, while **Table 2.3b** highlights the operational characteristics of the bus routes.

Table 2.3a: Bus Stops within 400m

ROUTE	STOP LOCATION	COMMENTS
#175	Kingsway Avenue	Westbound Only, Peak Only
#175	Broadway	Southbound Only, Peak Only
#188	McLean Avenue	Both directions

Table 2.3b: Existing Transit Service Frequency

ROUTE #	WEEKDAY SERVICE SPAN		FREQUENCY MINUTES			
	START	END	AM	MID-DAY	PM	EVENING
#188	4:36am	1:02am	15	30	15	30
#175	6:06am / 3:03pm	8:19am / 5:43pm	30	-	30	-



[Issued for Discussion; not for Construction]

Exhibit 2.1
Bicycle Routes

1491, 1515, & 1537 Kingsway Avenue
04-18-0252 January 2020 Prepared by AK



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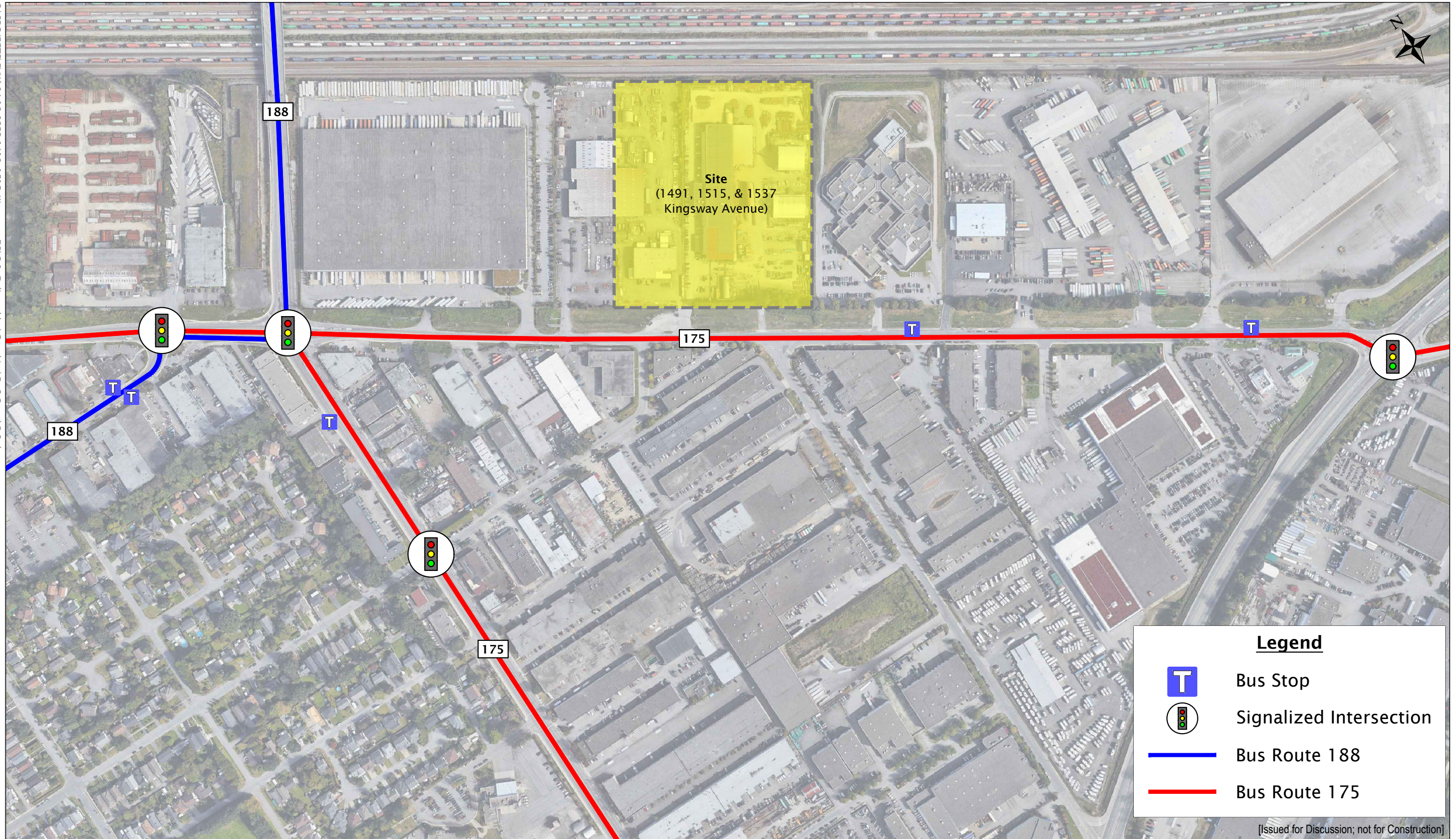


Exhibit 2.2 Transit Routes and Stops

1491, 1515, & 1537 Kingsway Avenue
04-18-0252 January 2020 Prepared by AK



2.7 Data Collection

Provided in **Table 2.4** is a summary of the collected data for the study. Port Coquitlam has kindly provided information for the Coast Meridian Overpass / Broadway Street / Kingsway Avenue intersection (from 2016).

Table 2.4: Summary of Traffic Data

INTERSECTION	SOURCE	DATE OF COUNT
Kingsway Avenue and Coast Meridian Road	Bunt	April 18, 2018
Kingsway Avenue and Langan Avenue	Bunt	April 18, 2018
1530 Kingsway Ave Driveway	Bunt	April 18, 2018
1620 Kingsway Ave Driveway	Bunt	April 18, 2018
BDL Driveway	Bunt	April 18, 2018
1515 Kingsway Ave/East Driveway for Site	Bunt	April 18, 2018
Coast Meridian Overpass / Kingsway / Broadway	Port Coquitlam	December 06, 2016

Based on the observed vehicle volumes on Kingsway Avenue adjacent to the site, the following two weekday peak hour periods were established:

- Morning (AM): 7:45am to 8:45am
- Afternoon (PM): 4:30pm to 5:30pm

Table 2.5 presents a summary of the two-way peak hour vehicle movements on the study network, while **Exhibit 2.3** presents the peak hour vehicle turning volumes.

Table 2.5: Existing Peak Hour Roadway Link Volumes

ROAD LINK	PEAK LINK VOLUMES (VEH/HR)	
	AM	PM
Coast Meridian Overpass	1,575	1,865
Kingsway Avenue (west of Broadway)	1,970	1,800
Broadway Street	1,115	1,735
Kingsway Avenue (along site frontage)	935	1,180
Langan Avenue	135	145
Coast Meridian Road	205	235

Evidently, the afternoon PM peak-hour volume is typically higher. For example, on Kingsway Avenue at the site access frontage, the PM peak-hour two-way volume is 26% higher than the AM peak-hour volume. This will provide important context for the operational analysis.

2.8 Summary

Overall, the project site is within walking distance of the downtown area and is reasonably well-located with respect to transit, especially in comparison to many other industrial sites in Metro Vancouver. These positives should assist in lowering the site vehicle demands with respect to parking and impacts on the adjacent streets.

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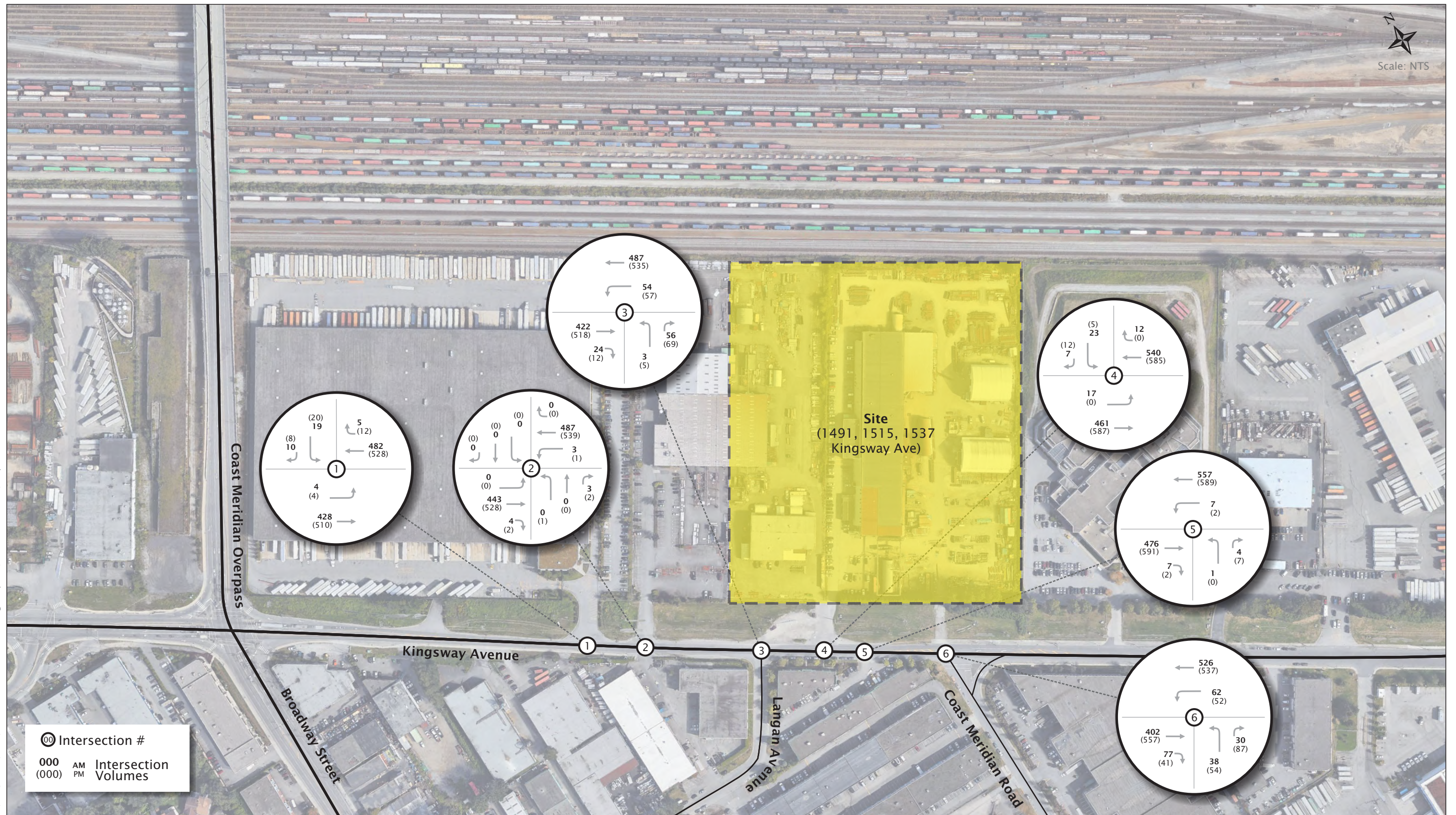


Exhibit 2.3 Existing Vehicle Volumes

1491, 1515, & 1537 Kingsway Avenue
04-18-0252 January 2020

3. SITE PLAN REVIEW

3.1 Introduction

This section presents the development plan from a transportation perspective. It first sets out details on the planned site uses before reviewing tenant operations, site driveway and circulation, and parking and loading requirements. One of the key areas covered is the need for a vehicle parking relaxation and this will be supported with enhanced bicycle storage and end-of-trip facilities.

3.2 Development Content

The proposed warehouse building is presented at **Exhibit 3.1** and represents an intensification of industrial use, consistent with the City's expectations for this part of the City. Summarized in **Table 3.1** is a breakdown of the planned floor areas and it should be noted that the office component will be auxiliary to the warehouse use (consistent with the City's zoning). This relationship will be important for assessing the parking needs along with the vehicle trip demands for the project.

Table 3.1: Development Content

LAND USE	FLOOR AREA SQ.FT.	FLOOR AREA SQ.M.
Warehouse	327,097sq.ft.	30,388sq.m.
Office	49,952sq.ft.	4,641 sq.m.
TOTALS	377,049SQ.FT	35,029SQ.M

3.3 Expected Tenant Operations

Conwest has a specific tenant for the planned warehouse building. The prospective tenant has their own unique operational dynamics with respect to employee numbers, day-to-day site vehicle activity and how much service truck loading is required. The prospective tenant, as with many similar operators these days, heavily uses automation to manage the storage and movement of goods within the warehouse, and consequently, it results in lower employee numbers compared to similar operations conducted say 10 or 15 years ago.

The prospective tenant advised that they anticipate starting operations at the Kingsway Warehouse with around 75 to 80 operational employees with the potential to increase future numbers as set out in **Table 3.2**.

Table 3.2: Projected Tenant Employee Numbers

EMPLOYEE TYPE	FUTURE PROJECTIONS
Operations	160 employees
Non-operations	77 employees
TOTALS	237 EMPLOYEES

These numbers provide an important reference point for the parking review later in the section.

One of the unique aspects of the prospective tenant's operations is the 'daily transfer orders', or Specials, and projections for these movement types is presented in **Table 3.3**. Please note specials originate at remote satellite facilities and commute to this distribution facility for delivery pick-ups and are continual in transit, and therefore do not create additional burden on the parking requirements.

Table 3.3: Specials or Daily Transfers (8am to 6pm)

ACTIVITY	MOVEMENTS (PER DAY)	EQUIVALENT TWO-WAY VEHICLE MOVEMENTS (PER DAY)	AVERAGE TWO-WAY MOVEMENTS (PER HOUR)
Specials	300 to 350	600 to 700	60 to 70

It indicates that, on average, these movements would be equivalent to around 1 per minute, while each vehicle would be parked for a short period of time as a driver picks up a relatively small number of parts and then departs, hence parking for only a few minutes each time.

As well, the prospective tenant estimates that it typically receives up to **10 tractor trailers per day** (with growth factored in) for store stock and DC transfer orders and the expectations for the site is to park 2 tractor trailers and 12 box trucks at any one time (i.e. 14 in total). As well, the loading zone will also have to handle several small parcel truck deliveries and pick-ups each day.

Internally employee parking will be separated from the truck moving and loading activities. Employee parking will primarily be located along the south frontage of the building, while parking for the aforementioned 'Specials' will be located on the east side of the building. Service truck loading docks will be located on the northeast portion of the site, immediately north of the 'Specials' parking area.

3.4 Site Driveway and Circulation

The driveways planned to support the warehouse development (realigned as mentioned in Section 2) will assist both with the site's internal circulation/functionality and better distributing vehicles onto the road network. The main features for each of site access is presented in **Table 3.4**.

Table 3.4: Planned Driveway Arrangements

DRIVEWAY	PROPOSED ALIGNMENT WITH KINGSWAY	ENTRY WIDTH	SERVICE TRUCK FUNCTION
West Driveway	Opposite Langan Avenue	10m	Primary entry point for WB-20s
East Driveway	Opposite Coast Meridian Road	11m	Primary exit point for WB-20s

Planned entry widths at the site access interfaces with Kingsway Avenue have been guided primarily by the need to align with the City streets opposite, while also ensuring there is sufficient room to accommodate the movements for a WB-20 tractor trailer.

The site access design incorporates the City-planned changes on Kingsway Avenue, essentially between Broadway Street and Coast Meridian Road, based on the following configuration:

- Two vehicle travel lanes westbound and eastbound
- Bidirectional left-turn centre lane; and
- Multiuse Path (MUP) on the north side along the BC Hydro Corridor

Even though WB-20 trucks will physically be able to enter and exit the west and east driveways, the planned operational routing is for them to enter at the west access (Langan Avenue) and depart from the east access (Coast Meridian Road). This arrangement will remove the potential for two WB-20 tractor trailer trucks passing each other simultaneously.

Please also note that the projected number of tractor-trailer movements would only be around 10 per day (or 1 per hour) and therefore the chances of a WB-20 exiting and another one entering at the same time will have a very 'low probability of occurrence'. As such, even if a WB-20 enters from the east access it should not result in any operational problems.

A WB-20 truck was used to test both of the site driveway designs. This exercise is presented at **Exhibit 3.2** and it confirms there is sufficient manoeuvring width for these trucks to enter or exit the planned warehouse site, while allowing for a SU9 truck to pass simultaneously. Internal loading design has been reviewed by the Architect for the project, and where the layout will be consistent with the geometrics observed at other industrial sites for the range of vehicle types expected. Further details can be obtained from the Krahn Group of Companies.

3.5 Vehicle Parking

Vehicle parking for the site has been reviewed based on the City's "Parking and Development Management Bylaw, 2005, No. 3525". **Table 3.5a** presents the applicable Parking Bylaw rate for the planned use (Section W) of the Bylaw, while **Table 3.5b** calculates the requirement in the context of the proposed supply.

Table 3.5a: Port Coquitlam Parking Bylaw Requirements (Section 8)

LAND USE	BYLAW CATEGORY	RATE
Warehouse / Auxiliary Office	Manufacturing and industrial buildings and uses, display yards and storage yards, research laboratories, servicing and repair establishments and similar uses	1 per 3 employees or 1 for each 95sq.m. (1022.56sq.ft.) of gross floor area, whichever is greater

Table 3.5b: Planned Vehicle Parking Supply Review

LAND USE	PARAMETER	BYLAW SUPPLY REQUIREMENT	PROPOSED	DIFFERENCE
Warehouse / Auxiliary Office	35,029sq.m GFA	369	300	-69
	237 employees	79	300	+221

Clearly a reduction is required in the context of the City Parking Bylaw rate based on the gross floor area being the governing factor, while the rate based on employee numbers means that the parking required would be oversupplied.

To provide further context, the ITE Parking Generation Manual (4th Edition) has been reviewed and the outputs from this have been summarized in **Table 3.6**, setting out the peak parking demand for manufacturing and warehouse land uses. This review shows that the peak parking demand for the planned warehouse's floor area would be for around 190 spaces, which is well below the City Bylaw requirement of 369 spaces.

Table 3.6: ITE Manufacturing and Warehouse Demand Rates

PEAK DEMAND PARAMETERS	MANUFACTURING (ITE #140)	WAREHOUSE (ITE #150)
ITE Raw Data	1.02 per 1000sq.ft.	0.51 spaces per 1000sq.ft.
Equivalent Bylaw Rate	1 space per 91sq.m.	1 space per 182sq.m.
Projected for 35,029sqm	385 spaces occupied	192 spaces occupied

Another point for this review is to understand expected demands from the prospective tenant, who provided projected employee numbers as set out in Table 3.2. The prospective tenant projects that up to 237 employees could be located at the warehouse, and assuming each one is a single-occupant vehicle driver, it would indicate the absolute maximum parking demand for 237 parking spaces in the very unlikely event everyone is present on-site at the same time.

Furthermore, parking demand will be lower as some employees will walk, ride share, use transit or be dropped-off, and as such, demand will likely be closer to 160 parking spaces occupied at peak times. In addition to employee parking, the prospective tenant also needs to provide 34 spaces for 'daily transfer order' vehicles, and with this, the combined parking needs would for a total of 195 parking spaces. This is consistent with the ITE observed demand for warehouse in Table 3.6.

In sum, it is therefore proposed to provide **300 marked parking spaces** to minimize the number of unused parking spaces on-site and this will be supplement with enhanced facilities for bicycle parking as set out below.

3.6 Proposed Bicycle Parking

The following presents the rationale for the proposed bicycle parking supply along with the storage arrangements and end-of-trip facilities. As per Table 3.2, the prospective tenant is expected to start operations at the Kingsway site with around 75 to 80 operational employees but with the potential to increase future numbers to 237 employees.

As per the City of Port Coquitlam Master Transportation Plan 2013, it advises the following with respect to cycling demand in the City:

‘Ultimately, as bicycle ridership in Port Coquitlam is low, this indicates a significant potential for growth in this mode. The improvement concepts are to be affordable and practical improvements to the bicycle network, occurring in conjunction with city road improvements and land development, where possible.’

According to TransLink’s Trip Diary Survey around 1% of residents in the City use bicycles for day-to-day activities; however, the low sample size may underestimate this mode, while the City has been developing new cycling infrastructure which should increase this proportion in the future. For the 1491-1515 Kingsway project, a target of 5% to 10% of employees cycling to work will be made and this would be equivalent for the need of 12 to 24 bicycle parking spaces, based on future projected employee numbers.

As the City of Port Coquitlam does not have a specific Bylaw requirement for employee bicycle parking, the City of Vancouver (COV) Parking Bylaw has been reviewed as a proxy especially as it specifically covers industrial-use buildings. COV requires for industrial buildings: ‘a *minimum of 1 space for each 1,000 square metres of gross floor area in the building or 1 space for every 17 employees on a maximum work shift, whichever is the greater*’. This requirement would be equivalent to 14 to 35 bicycle parking spaces with the higher number based on the project site’s floor area (35,029sqm).

Given the above, it is planned to provide up to **24 secure bicycle parking spaces** as it falls midrange of the City of Vancouver’s Bylaw Parking requirement and it would be equivalent to 10% of the future site employees cycling to work. As employee numbers at the start will be lower, the proportion of bicycle spaces to employees will be high, and as such, it may be prudent to scale the installation of new bicycle spaces overtime.

The project design has incorporated a secure bicycle storage room located on the south side of the building (door access highlighted in **Figure 3.1**) and this will be entered at-grade. It will be accessible from both of the site driveways with Kingsway Avenue where the City’s planned Multi-Use Path will be located (currently being developed on the BC Hydro corridor).

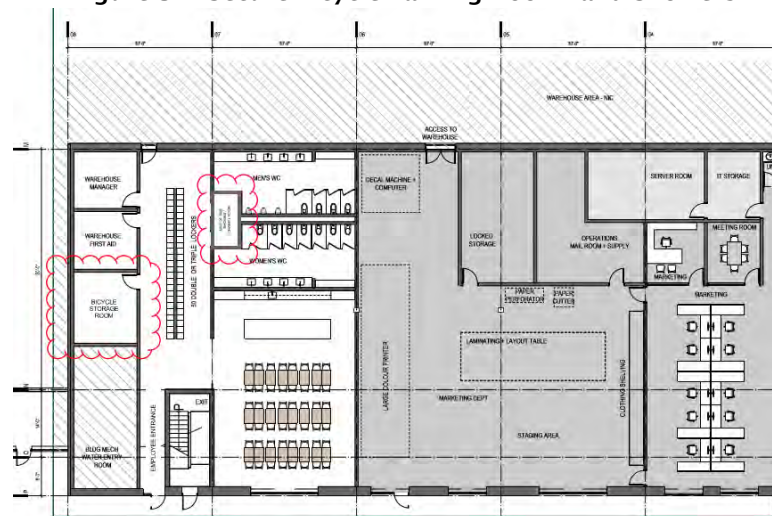
In addition to the secure bicycle parking spaces, 9 visitor spaces are planned with one rack of 3 located close to the main entrance along with another rack of 6 located close to the employee entrance

Figure 3.1: Bicycle Room Access and Visitor Bicycle Parking Locations



A preliminary layout for the planned facilities is shown in **Figure 3.2** and it is also where the employee lockers, showers and washrooms are located.

Figure 3.2: Secure Bicycle Parking Room* and Showers



Please note the bicycle parking Room Layout is underdeveloped (this is for indicative purposes only) and will be able to accommodate up to 24 parking spaces, either stacked, horizontal or vertical. The room will be locked and accessible by cyclists with a Fob key. The door would be 75cm wide and constructed of steel. As well, the bicycle room will be located adjacent to the following end-of-trip facilities:

- changing room with lockers;
- shower;
- toilet; and
- wash basin and grooming station (i.e. mirror, counter, and electrical outlets).

3.7 Service Truck Parking

Loading requirements for the project are set out in the Parking and Development Management Bylaw. The land use applicable to apply to the entire project is 'commercial/industrial,' where the minimum number of loading spaces shall be:

- 3 spaces for 2300sq.m. (24,757sq.ft.) to 4600sq.m. (49,514sq.ft.), plus
- An additional 1 space for each additional 4600sq.m. (49,514sq.ft.)

Based on these rates, **Table 3.7** summarizes the minimum loading requirement would be for 10 spaces, while the development site plan will provide 20 spaces to meet the needs of the expected end user.

Table 3.7: Loading Bylaw Requirements

DESCRIPTION	RATE	LOADING SPACES
First 4,600sq.m	Varies	3
Remaining 30,429sq.m	1 per 4600sq.m.	7
TOTAL		10

3.8 Summary

Conceptual driveway designs have been developed to integrate with the City's new Kingsway Avenue street design and can accommodate the physical needs of WB20 tractor-trailers. Overall 300 parking spaces are proposed and as such a relaxation will required based on the City's Bylaw requirement (369 spaces), and this change will be supported with enhanced storage and end-of-trip facilities for bicycle parking (for 24 spaces), lowering the car use for employees.

Planned service truck loading provision is for 20 spaces to meet the prospective tenant's requirements and which is 8 spaces above the City bylaw.

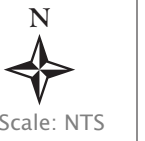


Exhibit 3.1

1491, 1515, & 1537 Kingsway Avenue
04-18-0252 January 2020



[Based on Drawing A10 from Conwest dated August 19, 2019]

[Issued for Discussion; not for Construction]

Exhibit 3.2 WB-20 Truck AutoTURN Analysis



S:\PROJECTS\FWM 04-18-0252 1419, 1515 Kingsway DP\4.0 Analysis & Design\20190823_04-18-0252_1419-1515-Kingsway-DP_V04-ext.dwg
2020/01/17 11:12, Plotted by Roxana Sorkhi

4. PROJECTED VEHICLE MOVEMENTS

4.1 Introduction

This section presents the projected new site-vehicle movements based on ITE Trip Rates along with the vehicle type and distribution patterns.

4.2 Trip Generation

For estimation purposes, the following ITE Trip Generation Manual (10th Edition) average rates are used to measure trips generated by the warehouse/office land uses, assuming urban/suburban conditions:

- *Warehouse* land use (ITE code 150) for main building; and
- *General Office Building* land use (ITE code 710) is assumed the accessory office floor area located at the southeast corner of the building.

Table 4.1a presents the ITE trip rates for the planned two land uses and it takes into consideration appropriate rates for the auxiliary office, while **Table 4.1b** presents the projected vehicle trips for the development.

Table 4.1a: Trip Generation Rates (per 1,000sq.ft. of GFA)

LAND USE	TRIP GENERATION RATES					
	WEEKDAY AM PEAK-HOUR			WEEKDAY PM PEAK-HOUR		
	IN	OUT	TOT	IN	OUT	TOT
Warehouse	0.13	0.04	0.17	0.05	0.14	0.19
General Office Building	1.00	0.16	1.16	0.18	0.97	1.15

Table 4.1b: Projected Site Generated Trips

LAND USE	GFA SQ.FT.	GENERATED TRIPS					
		WEEKDAY AM PEAK-HOUR			WEEKDAY PM PEAK-HOUR		
		IN	OUT	TOT	IN	OUT	TOT
Warehouse	327,097	43	13	56	16	46	62
Office	49,952	50	8	58	9	48	57
TOTAL		92	21	114	25	94	119

Vehicle volumes are projected at around 115 to 120 per hour in the peak hour periods and are expected to be conservative based on the future employee numbers (237) along with daily transfer vehicle movements highlighted in Section 3. It should therefore provide a robust basis for the operational analysis.

Based on previous Bunt studies at similar sites, the number of heavy vehicle trips for warehousing is estimated at 31% in the AM and 43% in the PM periods; **Table 4.2** shows this breakdown. A heavy vehicle

can be single unit truck or tractor trailer (up to a WB-20) and these proportions will be important for the site access capacity analysis work.

Table 4.2: Breakdown of Light and Heavy Vehicle Trips (Warehouse Only)

TRIPS	GENERATED TRIPS							
	WEEKDAY AM PEAK-HOUR				WEEKDAY PM PEAK-HOUR			
	%	IN	OUT	TOT	%	IN	OUT	TOT
Light Vehicle	69%	30	9	39	57%	10	26	36
Heavy Vehicle	31%	13	4	17	43%	6	20	26
TOTAL	100%	43	13	56	100%	16	46	62

4.3 Directional Trip Distribution

Directional trip distribution has been based on observations from adjacent driveways, including the neighbouring BDL site, and this has been combined with the observed turning proportions at the adjacent intersections. Presented in **Table 4.3** is a breakdown of the proposed site traffic distribution.

Table 4.3: Directional Trips 1491, 1515 & 1537 Kingsway Avenue

STREET	WEEKDAY AM PEAK-HOUR % (TRIPS)	WEEKDAY PM PEAK-HOUR % (TRIPS)
Kingsway Avenue West	38% (43)	43% (51)
Kingsway Avenue East	51% (58)	38% (46)
Langan Avenue	5% (6)	7% (8)
Coast Meridian Road	6% (7)	12% (14)
	114	119

4.4 Background Traffic Growth

Similar to the 1545 / 1575 Kingsway Bunt TIS, a background growth factor at 1.5% per year has been applied, and it covers up to the Opening Year 2022 along with the Future Design Year 2027 (+5 years).

4.5 Related Developments – 1545/75 Kingsway Avenue

In addition to the background growth, the projected movements for the Conwest Project at 1545 Kingsway Avenue has been added to the network and a breakdown of the movements has been presented in **Table 4.4**, based on 50% of the projected volume from the Bunt TIS for 1545/75 Kingsway Avenue (April 2018). These volumes will be layered into the operational analysis.

Table 4.4: Directional Trips 1545/75 Kingsway Project (50% Developed)

STREET	WEEKDAY AM PEAK-HOUR % (TRIPS)	WEEKDAY PM PEAK-HOUR % (TRIPS)
Kingsway Avenue West	38% (18)	43% (21)
Kingsway Avenue East	51% (24)	38% (19)
Langan Avenue	5% (3)	7% (4)
Coast Meridian Road	6% (3)	12% (6)

4.6 Vehicle Flow Diagrams

Using the vehicle trip generation and distribution information established above, the projected development vehicle traffic volumes have been presented at **Exhibit 4.1** and will form the basis for the capacity analysis in the next section together with the application of background traffic growth of existing street volumes.

S:\PROJECTS\FVM\04-18-0252 1419_1515_Kingsway DPl\5.0 Deliverables\Graphics

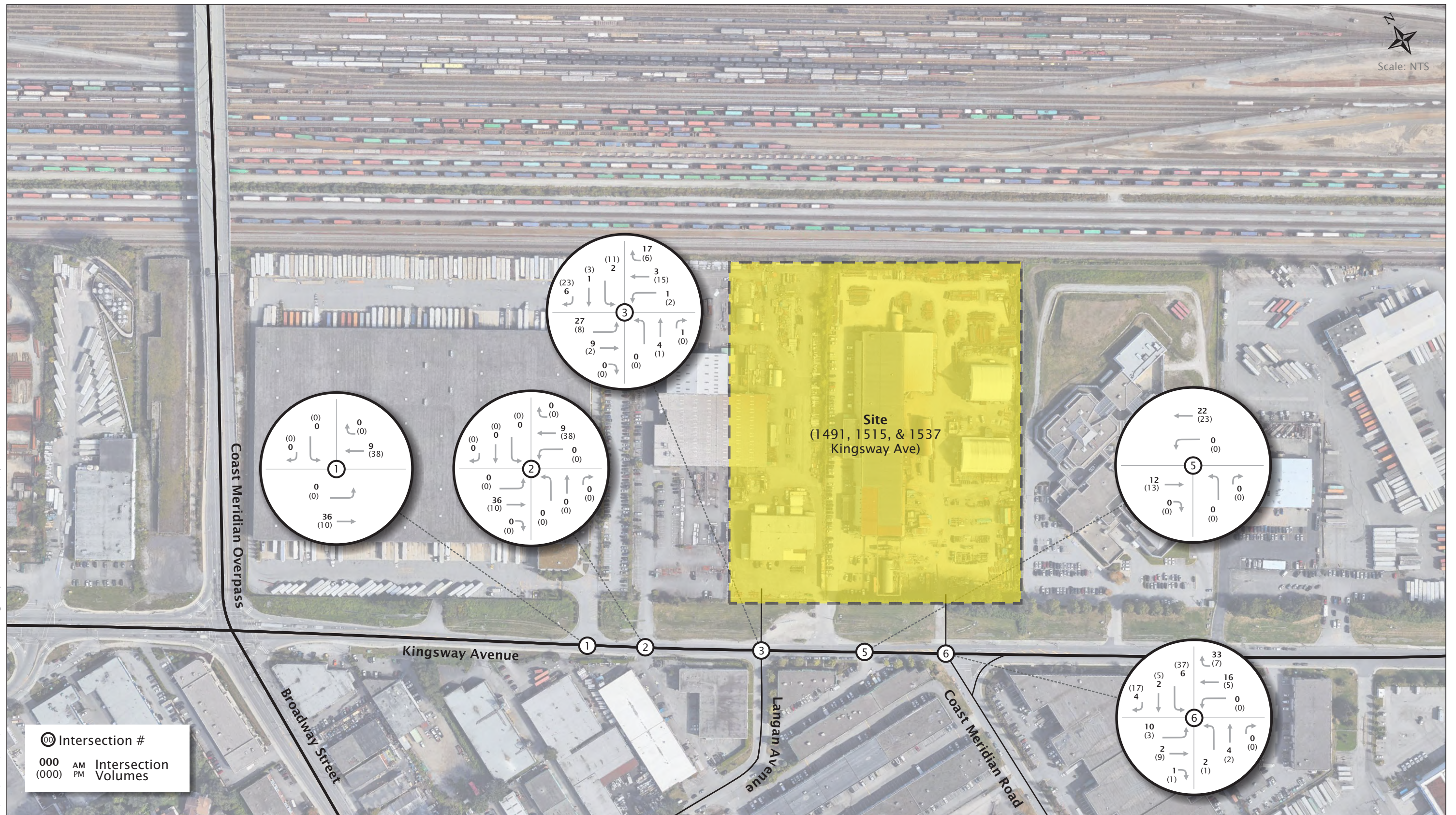


Exhibit 4.1 Development Volumes

1491, 1515, & 1537 Kingsway Avenue
04-18-0252
January 2020

5. STUDY NETWORK OPERATIONS

5.1 Introduction

This section presents the existing and future conditions on the study network to understand the impacts of the proposed development on the study network, whether there is a need for mitigation measures, and a response from the Ministry of Transportation and Infrastructure (MOTI).

5.2 Percentage Impact of Development

Before undertaking the operational assessment, it is important first to understand the percentage change in new vehicle movements on the study network with the development plan in place. This review is summarized in **Table 5.1**, focusing on the busier weekday afternoon peak-hour period (established in Section 2). Please note that the new development movements account for the removal of the existing movements from the site.

Table 5.1: Changes in Traffic on Network Afternoon Peak-Hour

INTERSECTION	EXISTING	DEVELOPMENT	% CHANGE
Kingsway Avenue and Coast Meridian Road	1,330	+82	+6.2%
Kingsway Avenue and Langan Avenue	1,195	+59	+4.9%
Coast Meridian Overpass at Kingsway Avenue	3,640	+36	+1.0%

At the Coast Meridian Overpass, the increase in new development movements would only be around 1%, a magnitude of change which is well within the peak hour volume variations. Based on this, the study analysis is planned to focus on Kingsway Avenue's intersections with Langan Avenue and Coast Meridian Road along with the neighbouring driveways.

5.3 Ministry of Transportation and Infrastructure (MOTI) Response

Based on the projected site vehicle movements at the Kingsway Avenue and Highway 7B intersection, the MOTI has confirmed that the development plan is not expected to represent a material change to operations at this intersection, and as such, there is no further consideration required on this matter. The MOTI letter is included in **Appendix A** along with Bunt's supporting memo on this matter.

5.4 Modelling Parameters

Vehicle operations for the study network intersections and driveways will be assessed using the methods outlined in the 2000 Highway Capacity Manual (HCM), using the Synchro 9 analysis software (Build 908). The traffic operations were assessed using the Level of Service (LOS) performance measure.

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

Table 5.2: 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

Performance thresholds used to trigger consideration of roadway or traffic control improvements to support roadway or traffic control improvements employed in this study are listed below:

Unsignalized Intersections:

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

For this report, the performance reporting convention is as follows:

- For unsignalized two-way stop-controlled intersections, SimTraffic output was reported for individual movements LOS and delays, as the HCM 2000 methodology does not directly take into account the effects of platooning created by nearby intersections and driveways, nor interactions between vehicles and pedestrians and cyclists. 95th Percentile Queues are reported as estimated by SimTraffic as well.

Performance reporting convention noted above will be consistently applied throughout this section. As well, traffic model assumptions for this study contain two salient changes from the previous model prepared by Bunt for the 1545 / 1575 Kingsway Avenue Project as summarized below:

- The previous model assumed an overly conservative approach to the Peak Hour Factor (PHF) which was used to estimate the peak 15-minute period in the model and applied to all vehicle movements on the study network. In this version, a more appropriate approach has been adopted with the PHF derived for each intersection and then applied to its individual movements for calculating the peak 15 minute period; and

- For future design years, the current model will assume that Kingsway Avenue will have a four-lane cross section along with a dedicated left-turn lane, essentially doubling the roadway link capacity in theory.

Operational analysis has focused on following conditions, while detailed outputs from the analysis is provided in **Appendix B**:

- Existing Conditions;
- Future Year 2027 Operations without Development; and
- Future Year 2027 Operations with Development.

5.5 Existing Conditions

Summarized in **Table 5.3a** is the existing site access intersections (but without driveways) at Langan Avenue and Coast Meridian Road.

Table 5.3a: Proposed Site Access Operations: Existing Conditions

INTERSECTION	MOVE- MENT	AM PEAK-HOUR			PM PEAK-HOUR		
		LOS	Delay Seconds	95 th Per Queue (m)	LOS	Delay Seconds	95 th Per Queue (m)
Kingsway Ave & Langan Ave	EBT	A	0.9	7	A	0.7	0
	EBR	A	0.2		A	0.2	
	WBL	A	3.7	28	A	4.1	24
	WBT	A	0.9		A	0.7	
	NBL	A	6.3	17	C	16.3	15
	NBR	A	5.1		A	4.4	
Kingsway Ave & Coast Meridian Rd	EBT	A	0.9	4	A	0.7	1
	EBR	A	0.4		A	0.2	
	WBL	A	5.3	16	A	3.9	16
	WBT	A	0.8	7	A	0.6	0
	NBL	C	17.1	25	B	12.3	16
	NBR	A	3.3		A	1.9	

As can be seen, there are no current operational issues at either location with the highest Level of Service recorded at 'C,' while the highest 95th Percentile queues range between 25m and 30m. This output will provide an important benchmark for assessing future conditions.

Presented in **Table 5.3b** is a summary of the operations for the adjacent driveway access on this stretch of Kingsway Avenue and shows no identified operational issues with Levels of Service ranging of between 'A' and 'C'.

Table 5.3b: Adjacent Driveway Operations: Existing Conditions

INTERSECTION	MOVE-MENT	AM PEAK-HOUR			PM PEAK-HOUR		
		LOS	Delay Seconds	95 th Per Queue (m)	LOS	Delay Seconds	95 th Per Queue (m)
Kingsway Ave @ BDL	EBL	A	2.3	4	A	4.1	7
	EBT	A	0.4		A	0.4	
	WBT	A	0.2	0	A	0.3	8
	WBR	A	0.0		A	0.0	
	SBL	A	10.0	27	A	8.6	24
	SBR	A	4.5		A	3.5	
1600 Kingsway Ave	EBT	A	0.3	0	A	0.3	0
	EBR	A	0.0		A	0.0	
	WBL	A	0.0	0	A	-	3
	WBT	A	0.5		A	0.5	
	NBL	A	-	7	A	-	5
	NBR	A	5.2		A	2.7	
Kingsway Ave @ Dynamic Structure	EBL	A	4.6	20	A	3.4	15
	EBT	A	0.7		A	0.5	
	WBT	A	0.5	6	A	0.3	3
	WBR	A	0.0		A	0.0	
	SBL	C	15.7	29	C	12.3	18
	SBR	A	5.9		B	6.5	
1530 Kingsway Ave	EBT	A	0.5	0	A	0.3	0
	EBR	A	0.2		A	0.1	
	WBL	A	5.3	11	A	3.6	10
	WBT	A	0.6		A	0.4	
	NBL	A	-	7	A	-	6
	NBR	A	2.9		A	3.9	

5.6 Future Year 2027 Operations without Development

Presented in **Table 5.4a** is a summary of the site intersection operations with 9 years background growth added at 1.5% per annum linearly. Again, the analysis does not highlight any operational issues with Levels of Service of 'C' or better recorded.

Table 5.4a: Site Access Operations: 2022 Opening Day + 5 Years Background Growth

INTERSECTION	MOVE- MENT	AM PEAK-HOUR			PM PEAK-HOUR		
		LOS	Delay Seconds	95 th Per Queue (m)	LOS	Delay Seconds	95 th Per Queue (m)
Kingsway Ave & Langan Ave	EBT	A	0.9	7	A	0.7	0
	EBR	A	0.2		A	0.2	
	WBL	A	3.7	28	A	4.1	24
	WBT	A	0.9		A	0.7	
	NBL	A	6.3	17	C	16.3	15
	NBR	A	5.1		A	4.4	
	NBR	A	2.9		A	3.9	
Kingsway Ave & Coast Meridian Rd	EBT	A	0.9	4	A	0.7	1
	EBR	A	0.4		A	0.2	
	WBL	A	5.3	16	A	3.9	16
	WBT	A	0.8	7	A	0.6	0
	NBL	C	17.1	25	B	12.3	16
	NBR	A	3.3		A	1.9	

Presented in **Table 5.4b** is a breakdown of the results for the adjacent site driveways and again confirming no operational issues are anticipated on this part of Kingsway Avenue.

Table 5.4b: Driveway Operations: 2022 Opening Day + 5 Years Background Volumes

INTERSECTION	MOVE- MENT	AM PEAK-HOUR			PM PEAK-HOUR		
		LOS	Delay Seconds	95 th Per Queue (m)	LOS	Delay Seconds	95 th Per Queue (m)
Kingsway Ave @ BDL	EBL	A	4.7	6	A	4.7	12
	EBT	A	0.6		A	0.6	
	WBT	A	0.4	3	A	0.3	1
	WBR	A	0.0		A	0.0	
	SBL	B	14.8	30	B	14.6	19
	SBR	A	3.9		A	5.6	
1575/1600 Kingsway Ave	EBL	A	4.2	18	A	4.9	8
	EBT	A	0.5		A	0.3	
	EBR	A	0.1		-	-	
	WBL	-	-	13	-	-	-
	WBT	A	1.1		A	0.7	
	WBR	A	0.5		A	0.2	
	NBL	-	-	5	-	-	5
	NBT	-	-		-	-	
	NBR	A	2.3		A	4.2	
	SBL	B	12.4	9	C	15.7	17
	SBT	-	-		-	-	
	SBR	A	6.0		A	5.8	
Kingsway Ave @ Dynamic Structure	EBL	A	7.2	30	-	-	-
	EBT	A	1.1		A	0.4	
	WBT	A	0.9	16	A	0.5	7
	WBR	A	0.3		-	-	
	SBL	C	24.8	34	C	20.3	13
	SBR	C	18.4		A	7.0	
1530 Kingsway Ave	EBT	A	0.6	-	A	0.3	0
	EBR	A	0.1		A	0.0	
	WBL	A	10.0	27	-	-	14
	WBT	A	1.2		A	0.5	
	NBL	-	-	10	-	-	7
	NBR	A	5.3		A	5.2	

5.7 Future Year 2027 Operations with Development

Presented in **Table 5.5a** is a summary of the site access operations with 9 years linear background growth at 1.5% per annum plus the new development volumes along with the planned street design for Kingsway Avenue.

Table 5.5a: Site Access Operations: 2022 Opening Day + 5 Years with Development

INTERSECTION	MOVE-MENT	AM PEAK-HOUR			PM PEAK-HOUR		
		LOS	Delay Seconds	95 th Per Queue (m)	LOS	Delay Seconds	95 th Per Queue (m)
Kingsway Ave & Langan Ave / W Site Access	EBL	A	4.3	12	A	5.4	8
	EBT	A	0.3	-	A	0.2	-
	EBR	A	0.2		A	0.1	
	WBL	A	3.8	15	A	3.8	15
	WBT	A	0.2	1	A	0.2	-
	WBR	A	0.1		A	0.1	
	NBL	C	16.9	18	B	11.1	16
	NBT	B	10.7		-	-	
	NBR	A	3.5		A	3.5	
	SBL	-	-	9	B	13.6	14
	SBT	-	-		-	-	
	SBR	A	2.2		A	2.9	
Kingsway Ave & Coast Meridian Rd / E Site Access	EBL	A	3.6	6	-	-	3
	EBT	A	0.3	1	A	0.3	3
	EBR	A	0.2	1	A	0.1	1
	WBL	A	3.8	12	A	4.5	13
	WBT	A	0.4	1	A	0.3	1
	WBR	A	0.3	0	A	0.3	-
	NBL	C	16.3	34	C	19.6	33
	NBT	C	22.0		-	-	
	NBR	A	4.5		A	4.1	
	SBL	B	11.6	15	C	15.8	30
	SBT	-	-		C	24.7	
	SBR	A	7.0		A	8.4	

This analysis confirms that the northbound left-turn movement from Coast Meridian Road to Kingsway Avenue will continue to operate with a acceptable LOS of 'C' in a scenario involving both the development in place along with the widening of Kingsway Avenue, i.e. to two through-lanes per direction.

Even though the City of Port Coquitlam identified capacity issue at this intersection in their 2013 Master Transportation Plan (MTP), a traffic signal is not fully warranted at this point in time. Bunt considered that based on this analysis the intersection can continue to operate as a stop-controlled intersection for the 2027 horizon year regardless of the site development.

It is recommended however, as part of the site access construction work along with the widening work for Kingsway Avenue that traffic signal ducting and chambers be installed to accommodate the potential for a future traffic signal at this location, should it be warranted.

Presented in **Table 5.5b** is the operational review for the adjacent driveways and again no operational issues are identified.

Table 5.5b: Driveway Operations: 2022 Opening Day + 5 Years with Development

INTERSECTION	MOVE- MENT	AM PEAK-HOUR			PM PEAK-HOUR		
		LOS	Delay Seconds	95 th Per Queue (m)	LOS	Delay Seconds	95 th Per Queue (m)
Kingsway Ave @ BDL	EBL	A	3.3	5	A	5.9	5
	EBT	A	0.2		A	0.2	
	WBT	A	0.1	3	A	0.1	-
	WBR	A	0.1		A	0.2	
	SBL	C	18.1	30	B	12.2	18
	SBR	A	4.3		A	3.2	
1575/1600 Kingsway Ave	EBL	A	3.3	9	A	4.0	6
	EBT	A	0.2	-	A	0.1	0
	EBR	A	0.0		A	0.1	
	WBL	-	-	1	-	-	3
	WBT	A	0.2		A	0.2	
	WBR	A	0.1		A	0.0	
	NBL	-	-		-	-	
	NBT	-	-	5	-	-	5
	NBR	-	-		A	1.9	
	SBL	A	7.5	12	A	9.4	17
	SBT	-	-		-	-	
	SBR	A	4.2		A	4.0	
1530 Kingsway Ave	EBT	A	0.3	-	A	0.2	-
	EBR	A	0.1		-	-	
	WBL	A	3.3	4	-	-	4
	WBT	A	0.3	3	A	0.2	
	NBL	-	-	6	-	-	8
	NBR	A	4.8		A	3.2	

6. SUMMARY

Conwest Group of Companies is planning an industrial development located at 1491, 1515 & 1537 Kingsway Avenue in the City of Port Coquitlam, BC. A Development Permit application will be submitted to the City of Port Coquitlam and this study forms part of the supporting materials. Previously the site was occupied by industrial buildings while new development plan encompasses 327,097sq.ft of warehouse space along with 49,952sq.ft of auxiliary office space.

The City's Master Transportation Plan (MTP) 2013 highlights the need for safety improvements on Kingsway Avenue between Coast Meridian Overpass and the Mary Hill Bypass, including the section along the site's frontage, while intersection upgrades are identified at Langan Avenue and Coast Meridian Road.

The site is reasonably accessible to the City's bicycling network (Langan Avenue, Coast Meridian Overpass / Broadway / McLean Avenue), while there are two transit routes close by (#175 and #188) and the site is also within reasonable walking distance of downtown Port Coquitlam.

Two vehicle driveways are planned to access the project site from Kingsway Avenue: the west location will be aligned with Langan Avenue while the east location will be aligned with Coast Meridian Road. Truck movements are planned to enter the west driveway and exit from the east driveway to improve site operational efficiency.

A preliminary conceptual layout has been prepared to support the driveway geometrics with Kingsway Avenue and integrate with the streets opposite. It also takes into consideration the City widening requirements on this section of Kingsway Avenue.

Internally, employee parking will be separated from the truck loading activities. The majority of the employee stalls will be located on the south side of the site, while a service truck loading area will be positioned on the east side of the building along with parking for the daily delivery vehicles ('Specials').

Site parking is planned at 300 spaces, which is 69 spaces below the City Bylaw minimum requirement, but more in line with the ITE Parking Generation Manual warehouse demand projections and above the prospective tenant's expected needs.

A secure bicycle room for 24 spaces is planned and would be accessible at-grade on the southwest corner of the building, Cyclists will have access to a number of end-of-trip facilities, including showers, lockers, etc. As well 9 visitor spaces are planned.

Service truck loading is planned at 20 spaces based on the prospective tenant's requirements and which is generally consistent with other warehouse projects of this scale. This supply is above the City loading bylaw requirement by 8 spaces.

The site is projected to generate around 115 to 120 two-way vehicle movements in the peak hour periods based on the warehouse/office land use planned, equating to around 2 vehicle movements per minute spread across two driveways.

The Ministry of Transportation and Infrastructure has reviewed the development's impact at the Highway 7B and Kingsway Avenue intersection and confirmed that no further review is required.

The intersection operational review confirms the site access driveways can operate within acceptable levels of capacity based on the projected demands for the future Design Year 2027 (with background growth at 1.5% per annum). Although increased vehicle delay occurs with some vehicle movements at the intersection for the Site Driveway/Coast Meridian Road/Kingsway Avenue, overall the intersection will remain within acceptable threshold values. It is recommended; however, as part of the construction work for the site access along with the Kingsway Avenue widening that traffic signal ducts and chambers be installed to accommodate a future traffic signal, should it be warranted.

In sum, this study demonstrates that the development plan's site accesses can operate satisfactorily based on the projected vehicle demands while site circulation and parking supply are consistent with the expected demands, and more generally, it should not have any adverse impacts to vehicle operations along Kingsway Avenue.

APPENDIX A

MOTI Letter/Bunt Memo



Your File #: DP000416
MOTI File #: 2019-06427
Date: Jan/16/20

City of Port Coquitlam
Development Services Department
#200 - 2564 Shaughnessy Street
Port Coquitlam, B.C. V3C 3G4
Canada

Attention: Brian Sherrell - Planner

**Re: Development Permit Approval for:
1491, 1515 and 1537 Kingsway Avenue – Port Coquitlam**

We have no objections to the proposed development to allow a proposed 34,760 sq.m. industrial building, as shown on CMA+D Project No. 18-0360 site plan drawing A10.

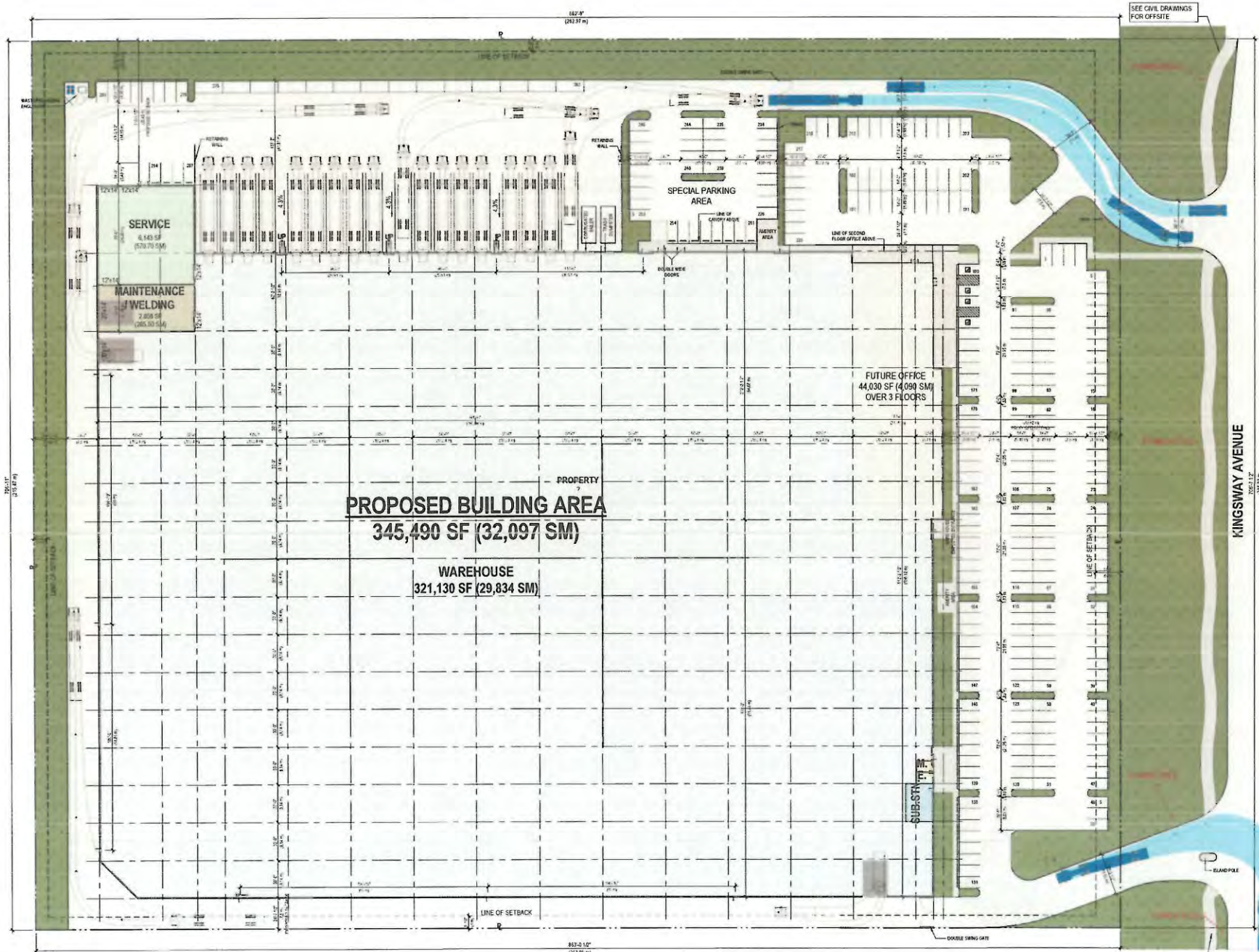
Approval is provided pursuant to Section 505 of the Local Government Act.

If you have any questions, please feel free to call Roanna Cruz at (236) 468-1928 or by email at Roanna.Cruz@gov.bc.ca

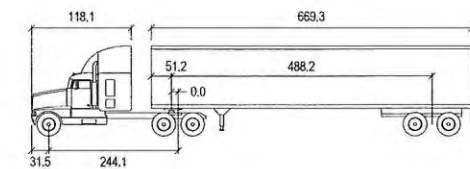
Yours truly,

Roanna Cruz
Senior Development Officer

Local District Address
Lower Mainland District 310-1500 Woolridge Street Coquitlam, BC V3K 0B8 Canada Phone: (604) 527-2221 Fax: (604) 527-2222



1 SITE PLAN
SCALE 1:500



WB-20

Tractor Width	: 102.4	Lock to Lock Time	: 6.0
Trailer Width	: 102.4	Steering Angle	: 28.2
Tractor Track	: 102.4	Articulating Angle	: 70.0
Trailer Track	: 102.4		

2 CONTEXT PLAN
SCALE 1:400

Approved pursuant to section 505 of the Local Government Act
this 16th day of January, 2020
Roann G
for Minister of Transportation

ZONING BY-LAW ANALYSIS

PROJECT DATA PHASE 2 (EAST)

CIVIC ADDRESS 1575 1545, 1515 & 1491 KINGSWAY AVENUE, PORT COQUITLAM
LEGAL ADDRESS L. 1, DISTRICT LOT 268, GP 1, SECTION 7 & 18, BLOCK 6 NORTH RANGE 1 EAST NEW WESTMINSTER, PLAN 5506-1, L. 2, SECTION 7 & 18, BLOCK 6 NORTH RANGE 1 EAST NEW WESTMINSTER, PLAN 5506-1, L. 2, DISTRICT LOTS 268 AND 342, GP 1, SECTION 7, BLOCK 6 NORTH RANGE 1 EAST NEW WESTMINSTER, PLAN EPP92024

ZONING M2
BUILDING USE INDUSTRIAL
GROSS BUILDING AREA BUILDING # 1000 345,490 SQ FT (32,097 SQ M)

ZONING BYLAW ANALYSIS (CITY OF PORT COQUITLAM)

1. ZONING: M2 INDUSTRIAL

2. SITE AREA: 629,870.8 SQ FT (58,558.8 SQ M) = 5.6659 Ha (14.001 ACRES)

3. SITE COVERAGE: 629,870.8 SQ FT (58,558.8 SQ M) = 5.6659 Ha (14.001 ACRES)
TOTAL SITE AREA
ALLOWABLE SITE COVERAGE 60% OF SITE AREA = 379,922 SF (35,395 SM)
GROSS FLOOR AREA 344,127 SQ FT (31,870 SQ M)

LEVEL	USE	CLASSIFICATION	AREA (SQ FT)	AREA (SQ M)
MAIN FLOOR	WAREHOUSE	GROUP "F"	330,120 SQ FT	30,670 SQ M
MAIN FLOOR	FUTURE OFFICE	GROUP "O"	14,000 SQ FT	1,300 SQ M
2ND & 3RD FLOOR	FUTURE OFFICE	GROUP "O"	30,000 SQ FT	2,790 SQ M
TOTAL			374,120 SQ FT	34,750 SQ M

PROPOSED SITE COVERAGE (BUILDING AREA) / (SITE AREA) = %
344,127 SQ FT / 629,870.8 SQ FT = 55%

FLOOR SPACE RATIO (TOTAL FLOOR AREA) / (SITE AREA)
374,120 SQ FT / 629,870.8 SQ FT = 0.51

4. BUILDING HEIGHT: N/A
MAXIMUM HEIGHT: N/A
PROPOSED HEIGHT: 53'-0" (16.15 M)

5. BUILDING SETBACKS:

	REQUIRED	PROPOSED
FRONT YARD (SOUTH)	19'-4" (5.9 M)	140'-4" (42.82 M)
SIDE YARD (EAST)	9'-10" (3.0 M)	115'-3" (35.45 M)
SIDE YARD (WEST)	9'-10" (3.0 M)	24'-7" (7.50 M)
REAR YARD (NORTH)	9'-10" (3.0 M)	50'-5" (15.38 M)

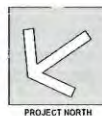
6. LANDSCAPING REQUIREMENTS
EXTERIOR SIDE LOT LINES THAT INCLUDES A MIN. OF ONE TREE PER 10 LINEAL METRES OF ALL LOT LINES ABUTTING A STREET
B. A LANDSCAPED STRIP WITH A MIN. WIDTH OF 3 METRES ALONG INT. SIDE AND REAR LOT LINES ABUTTING A LOT DESIGNATED FOR RESIDENTIAL, COMMERCIAL, INSTITUTIONAL OR PARK USE IN THE OFFICIAL COMMUNITY PLAN OR SEPARATED FROM SUCH A LOT BY A STREET OR LAKE
C. A LANDSCAPED STRIP WITH A MIN. WIDTH OF 1 METRE ADJACENT TO A BUILDING WALL FACING A STREET OR PARK. FOR CLARITY, THIS LANDSCAPE STRIP MAY INCLUDE WALKWAYS, PROVISIONS ACCESS TO THE BLDG & MIN. AREA OF 6M² FOR EVERY EIGHT PARKING STALLS AND INCLUDES A MIN. OF ONE TREE.

7. PARKING AND LOADING:

INDUSTRIAL PARKING STALLS REQUIRED	1 STALL / 1,022.57 SQ FT (95 SQ M) FLOOR AREA 330,120 / 1,022.57 = 322.84 STALLS REQUIRED
OFFICE PARKING STALLS REQUIRED	1 STALL / 1,022.57 SQ FT (95 SQ M) FLOOR AREA 14,000 / 1,022.57 = 13.69 STALLS REQUIRED
TOTAL REQUIRED PARKING	322.84 + 13.69 = 336.53
ACCESSIBLE STALLS REQUIRED	1% OF TOTAL STALL REQUIRED 336 x 0.01 = 3.36 (4)
LOADING STALLS REQUIRED	2 FOR THE FIRST 2,300 SM, 1 PER ADDITIONAL 4,600 S, OR FRACTION THEREOF (34,750 SM - 2,300 SM) / 4,600 SM = 7.1 9.10 STALLS REQUIRED
DRIVE AISLE WIDTH	24'-7" (7.50 M) AT 90°
MIN. STALL DIMENSIONS	WIDTH LENGTH DRIVE AISLE ANGLE
STANDARD STALL	9'-0" (2.70 M) 18'-0" (5.50 M) 24'-7" (7.50 M) 90°
ACCESSIBLE STALL	12'-2" (3.70 M) 18'-0" (5.50 M) 24'-7" (7.50 M) 90°
SMALL CAR STALL	6'-2" (2.50 M) 16'-0" (5.00 M) 24'-7" (7.50 M) 90°
LOADING STALL	8'-6" (2.60 M) 30'-0" (9.00 M) 24'-7" (7.50 M) 90°
TOTAL STALLS	REQUIRED PROVIDED
MIN. REQ. STD. & PARALLEL STALLS (75%)	272 281
MIN. REQ. ACCESSIBLE STALLS (1%)	4 4
ALLOWED NO. OF SMALL CAR STALLS (20%)	90 2
TOTAL	366 287
LOADING STALLS	9 18

LETTER CONCERNING NUMBER OF EMPLOYEES TO BE PROVIDED BY THE OWNER.

LANGAN AVENUE



3-2019/08/09 ISSUED FOR DP SUBMISSION
2-2019/07/24 ISSUED FOR CLIENT'S REVIEW
1-2019/07/11 ISSUED FOR DP
NO. DATE YARD DESCRIPTION
ISSUES AND REVISIONS
SCALE

CMA + D
Craig Mitchell Architecture Design Inc.
101 Kingsway Ave., Suite 100, Port Coquitlam, BC V3C 1K1
Phone: 778-778-1111 Email: cma@cmad.ca

PROJECT NAME
KINGSWAY AVENUE PH-2

PROJECT ADDRESS
1575, 1545, 1515, 1491
KINGSWAY AVE., PORT COQUITLAM

DRAWING TITLE
SITE PLAN

SCALE	As indicated
DRAWN	L.E.
REVIEWED	SAD
PROJECT NO.	18-CM2
DRAWING NO.	

A10



MEMO

DATE: December 5, 2019
PROJECT NO: 04-19-0252
PROJECT: 1491-1515 Kingsway
SUBJECT: MOTI Response

TO: Peter Woerler, Conwest Developments

PREPARED BY: Paul Dorby, MSc

1. INTRODUCTION

This memo has been prepared in response to the Ministry of Transportation and Infrastructure email of December 3, 2019 in respect to the planned industrial/employment development located at 1491-1515 Kingsway Avenue, Port Coquitlam. Comments from the MOTI email is summarized below and were based upon Bunt & Associates Transportation Impact Study (Bunt TIS) dated August 27, 2019:

- *'Study doesn't include impact assessment for H7B intersection with Kingsway.*
- *The study identifies 30-40% of new traffic as heavy vehicles/trucks.*
- *With approximately 50-60 vehicles/hr accessing the site from the east- that is from H7B, this new traffic will put pressure on existing available storage at the intersection (most specifically, left turn lanes).*
- *The result of the above two comments is that we need to address the need for **additional storage** at H7B left turn lanes to avoid traffic spilling back to highway through lanes. I will follow up as to what additional storage means in terms of on the ground application.*
- *Also, were you asked to send in a Terms of Reference prior to the Traffic Impact Study? Or did you have a scope meeting re: the TIA? If so, could you send this to me?'*

The following provides additional context from the Bunt TIA in order to assist the MOTI in assessing the full impacts of the development at the intersection of Highway 7B and Kingsway Avenue.

2. BACKGROUND

Transportation planning work for the 1491 - 1515 Kingsway Development was primarily focused on the site design along with assessing the immediate environs as the City of Port Coquitlam was concerned about the number of driveway locations on this part of Kingsway Avenue and to see how these could be consolidated/better aligned.

The City of Port Coquitlam provided general guidance on the general approach to the TIA scope, and based on this, a study network was developed on Kingsway Avenue between Coast Meridian Road and Broadway to support the Development Permit application (project complies with the City's existing zoning).

It is acknowledged that wider consideration should have been given to better inform the Ministry of Transportation and Infrastructure on the expected impact at the Kingsway Avenue and Highway 7B intersection and this will be covered in the following sections.

3. DEVELOPMENT IMPACT AT KINGSWAY AVENUE/HIGHWAY 7B

Dynamic Structures was still active on the development site when Bunt collected site driveway count data in April 2018 and this date has been attached for reference. Dynamic Structures typically had around 150 employees on-site although in the past it was as high as 180.

Table 3.1 summarizes the site-vehicle driveway movements (April 2018) which were recorded going to/coming from the direction of the Kingsway Avenue and Highway 7B intersection, while similarly **Table 3.2** presents the projected new site development vehicle movements for this same direction (taken from Exhibit 4.1 of the Bunt Transportation Impact Study).

Table 3.1: Previous Site Vehicle Volumes to/from Highway 7B & Kingsway Avenue

TIME PERIOD	EASTBOUND	WESTBOUND	COMBINED
8am to 9am	23	12	35
4pm to 5pm	38	10	48

Table 3.2: Projected New Site Vehicle Volumes to/from Highway 7B & Kingsway Avenue

TIME PERIOD	EASTBOUND	WESTBOUND	COMBINED
8am to 9am	8	49	57
4pm to 5pm	46	12	58

As can be seen, the development 'net new' is closer to 22 (57-35) new two-way vehicle movements in the morning peak-hour to/from Kingsway Avenue/Highway 7B intersection, which is equivalent to 1 vehicle every 3 minutes. In the afternoon peak-hour, the magnitude of change is lower at 10 (58-

48) additional two-way vehicle movements in the direction of Kingsway Avenue/Highway 7B intersection, or 1 vehicle every 6 minutes.

To provide context, background vehicle volumes on Kingsway Avenue (between Coast Meridian Road and Highway 7B) were reviewed using a CTS Automatic Count from December 2016. This data is summarized in **Table 3.3** for the weekday peak hours, while the output has been attached for reference.

Table 3.3: CTS Automatic Count Summary on Kingsway Avenue

TIME PERIOD	EASTBOUND	WESTBOUND	COMBINED
8am to 9am	297	155	452
4pm to 5pm	290	346	638

Clearly the more critical time period for vehicle volume movements is the weekday afternoon PM peak-hour, which is higher by around 40% compared to the weekday AM peak-hour period. Next, **Table 3.4** highlights the change in vehicle volume demand without and with the existing site-vehicle movements removed.

Table 3.4: Development Impact on Kingsway Avenue (between Coast Meridian & H7b)

SCENARIO	8AM TO 9AM TWO WAY	4PM TO 5PM TWO WAY
Background Volume	452	638
New Development Volume	57 (13%)	58 (9%)
New Development (net new)	22 (5%)	10 (1.6%)

During the more critical PM peak-hour, the 'net new' development vehicle volumes would be equivalent to 1.6% of the total two-way Kingsway Avenue volume. In the morning peak-hour the proportion is higher, but the background volume is around 180 vehicles per hour lower.

Bunt also reviewed a vehicle turning count survey at the Highway 7B and Broadway intersection, conducted in October 2013, in order to provide an indication of the relative vehicle volume flow along this corridor by direction and time of day. This is presented in **Table 3.5** and again it shows the critical time period being the weekday PM peak-hour.

Table 3.5: Vehicle Volume north of Broadway on Highway 7B

TIME PERIOD	NORTHBOUND	SOUTHBOUND	COMBINED
8am to 9am	900	1700	2600
4pm to 5pm	2200	1100	3300

Based on the combined northbound and southbound background vehicle volumes on Highway 7B, the development's 'net new' in the more critical PM peak-hour would be just 0.3% (10/3300).

Given the above, the development's 'net new' impact at the intersection of Highway 7B and Kingsway Avenue is not considered material to the existing operations, while the next section will explain the definition of heavy vehicles used for the analysis.

4. DEFINITION OF HEAVY VEHICLES

Presented in **Figure 4.1** is breakdown of the vehicle classification used by Bunt. Class A represents the type of light vehicles counted (in addition to cars and motor bicycles), while the Class B group is counted as heavy vehicles including box vans, step vans and Single Unit trucks.

Figure 4.1: Truck Classification







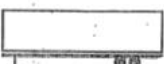
Type of Vehicle	Length in metres (feet)	Width in metres (feet)	Height in metres (feet)	Gross Vehicle Weight (kg) (lbs)		Class
Van	4.6 – 5.6 (15.0 – 18.5)	1.8 (6.0)	2.0 – 2.1 (6.5 – 7.0)	2,132 – 4,264 (4,700 – 9,400)		A
Pick-up	4.4 – 6.11 (14.5 – 20.0)	1.8 (6.0)	1.5 – 2.0 (5.0 – 6.5)	2,495 – 4,536 (5,500 – 10,000)		A
Cube Van	5.5 – 9.1 (18.0 – 25.0)	2.4 – 2.6 (8.0 – 8.5)	3.04 (10.0)	2,722 – 4,536 (6,000 – 10,000)		B
Step Van	5.5 – 9.1 (18.0 – 25.0)	2.4 – 2.6 (8.0 – 8.5)	3.04 (10.0)	2,700 – 4,536 (6,000 – 10,000)		B
Single Units	7.3 – 10.9 (24.0 – 36.0)	2.4 – 2.6 (8.0 – 8.5)	3.66 (12.0)	4,536 – 11,793 (10,000 – 26,000)		B
Tractor-trailer	12.2 – 21.3 (40.0 – 70.0)	2.4 – 2.6 (8.0 – 8.5)	4.11 (13.5)	> 11,795 (> 26,000)		C
Trailer	8.5 – 14.6 (28.0 – 48.0)	2.4 – 2.6 (8.0 – 8.5)	4.11 (13.5)			C

Table 4.1 summarizes the projected heavy vehicle movements from the planned development (see Table 4.2 of the TIA) and these have projected to/from the intersection of Kingsway Avenue and Highway 7B (based on the proportions from Table 4.3 of the TIA).

Table 4.1: Projected New Heavy Vehicle Movements (excluding net new reduction)

TIME PERIOD	SITE OVERALL HEAVY VEHICLES	KINGSWAY EAST DISTRIBUTION	KINGSWAY AVE / HIGHWAY 7B HEAVY VEHICLES NEW	KINGSWAY AVE / HIGHWAY 7B HEAVY VEHICLES NEW
8am to 9am	17	51%	9	2
4pm to 5pm	27	38%	10	3

Basically the development could generate up to 10 new heavy vehicle movements in the peak-hours to/from Kingsway Avenue/Highway 7B, but the 'net new' would be equivalent to 2 to 3 additional heavy vehicle movements at the Highway 7B/Kingsway Avenue intersection for the weekday peak-hour periods.

5. SUMMARY

The Bunt's Transportation Impact Study (August 27, 2019) primarily focused on the site design and immediate environs for the Development Permit application submission materials to the City of Port Coquitlam, but it is appreciated that wider consideration should have been given to the impact at the Highway 7B/Kingsway Avenue intersection to inform the MOTI.

Given this, it is hoped that this memo can provide sufficient information for the MOTI to better understand the development's impact at the Highway 7B and Kingsway Avenue intersection and in particular that the 'net new' site-generated vehicle movements are not expected to be material to influence existing operations.

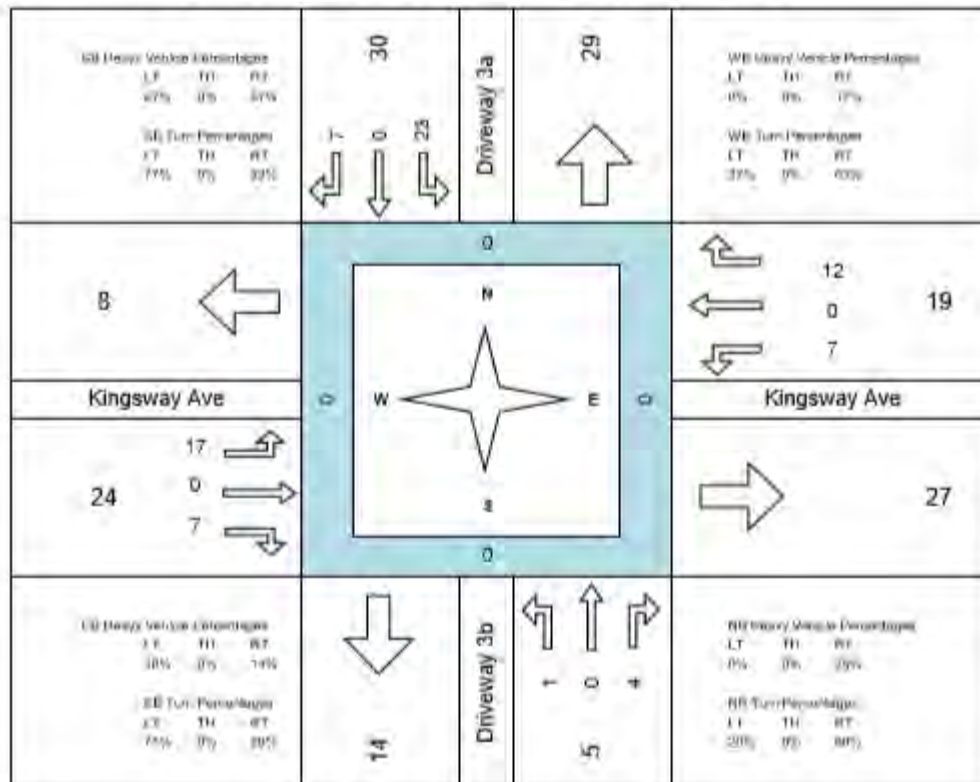
Further information and clarification can be provided to assist the MOTI as necessary in reviewing this matter.

location 3a and 3b @ Kingsway Ave

Project #: 04-18-0124 Date: Apr 18, 2019
 Peak Hour: 07:45 — 08:45 Weather: Clear
 Overall PHF: 0.78 Road Cond: Dry
 Notes: TM only



Time Intervals	All Vehicles Movements												Pedestrians			
	NE LT	NE TH	NE RT	SE LT	SE TH	SE RT	EW LT	EW TH	EW RT	WS LT	WS TH	WS RT	N	S	E	W
06:00 - 06:15	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0
06:15 - 06:30	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
06:30 - 06:45	0	0	1	2	0	1	8	0	0	1	0	16	0	0	0	0
06:45 - 07:00	0	0	0	3	0	2	4	0	0	0	0	7	0	0	0	0
07:00 - 07:15	0	0	0	2	0	5	2	0	0	0	0	0	0	0	0	0
07:15 - 07:30	0	0	0	1	0	0	2	0	0	1	0	3	0	0	0	0
07:30 - 07:45	0	0	0	0	0	2	0	0	0	3	0	3	0	0	0	0
07:45 - 08:00	0	0	0	2	0	0	7	0	0	4	0	2	0	0	0	0
08:00 - 08:15	0	0	0	4	0	3	4	0	4	2	0	4	0	0	0	0
08:15 - 08:30	1	0	0	0	0	4	3	0	3	0	0	5	0	0	0	0
08:30 - 08:45	0	0	0	0	0	0	3	0	0	1	0	1	0	0	0	0
08:45 - 09:00	0	0	2	2	0	2	1	0	0	1	0	5	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V _h	1	0	0	0	0	4	7	0	4	4	0	5				
PHF	0.25		0.25	0.00		0.44	0.01		0.40	0.44		0.50				

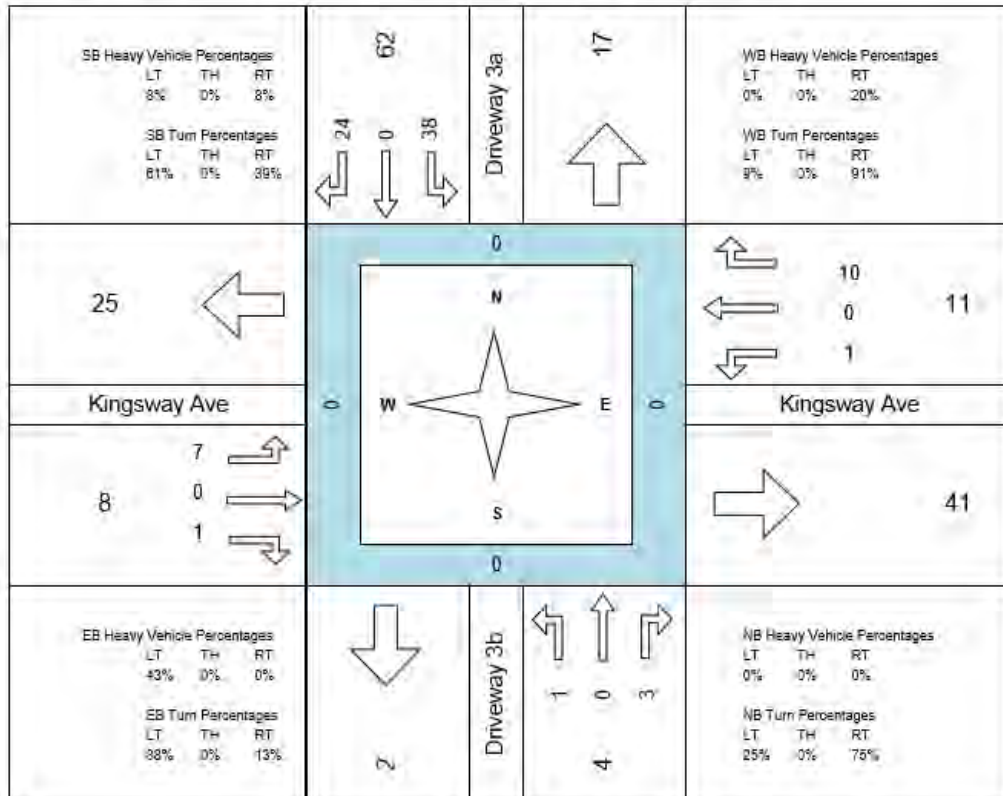


location 3a and 3b @ Kingsway Ave

Project #: 04-18-0124 Date: Apr 18, 2018
 Peak Hour: 15:00 — 18:00 Weather: Clear
 Overall PHF: 0.56 Road Cond: Dry
 Notes: TM only



Time Intervals	All Vehicles Movements												Pedestrians			
	NB LT	NB TH	NB RT	SB LT	SB TH	SB RT	EB LT	EB TH	EB RT	WB LT	WB TH	WB RT	N	S	E	W
15:00 - 15:15	0	0	1	4	0	6	2	0	0	0	0	3	0	0	0	0
15:15 - 15:30	0	0	0	21	0	14	0	0	0	0	0	3	0	0	0	0
15:30 - 15:45	0	0	1	2	0	2	3	0	0	1	0	3	0	0	0	0
15:45 - 16:00	1	0	1	5	0	2	2	0	1	0	0	1	0	0	0	0
16:00 - 16:15	1	0	2	4	0	1	1	0	0	1	0	0	0	0	0	0
16:15 - 16:30	0	0	1	3	0	4	0	0	1	0	0	1	0	0	0	0
16:30 - 16:45	0	0	2	3	0	3	0	0	2	1	0	0	0	0	0	0
16:45 - 17:00	0	0	3	0	0	2	0	0	0	1	0	0	0	0	0	0
17:00 - 17:15	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0
17:15 - 17:30	0	0	1	0	0	7	0	0	0	0	0	0	0	0	0	0
17:30 - 17:45	1	0	1	0	0	2	0	0	1	0	0	1	0	0	0	0
17:45 - 18:00	0	0	0	2	0	1	0	0	2	0	0	1	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
N/A - N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak V _{hour}	1		1	21		14	3		1	1		3				
PHF	0.25		0.75	0.45		0.43	0.58		0.25	0.25		0.83				



LOCATION: Kingsway Ave between Coast Meridian Rd & Mary Hill Bypass PROJECT: 5588 - Port Coquitlam - 2016 Fall As And When Data Collection Services NOTES: Suspect Data Highlighted in Red. Tubes removed on Sun, Dec 4 and replaced on Mon, Dec 5 fr									
EASTBOUND									
Time	AVERAGE WEEKDAY			SATURDAY			SUNDAY		
	Passenger	Commercial	All	Passenger	Commercial	All	Passenger	Commercial	All
0 - 1	13	2	15				75	0	75
1 - 2	12	2	14				39	1	40
2 - 3	5	1	6				29	0	29
3 - 4	16	1	17				21	1	22
4 - 5	42	2	44				16	2	20
5 - 6	87	3	90				51	1	52
6 - 7	235	9	244				85	2	87
7 - 8	288	8	294				79	3	82
8 - 9	288	9	297				121	3	124
9 - 10	210	11	221				239	3	242
10 - 11	186	11	197	355	5	360	324	5	329
11 - 12	187	9	196	449	5	454	357	5	362
12 - 13	158	6	164	411	11	422	252	0	252
13 - 14	154	5	159	400	2	402	350	5	355
14 - 15	260	14	274	481	10	491	54	1	55
15 - 16	273	17	290	408	4	410	0	0	0
16 - 17	281	8	289	338	2	330	0	0	0
17 - 18	222	3	225	340	1	341	0	0	0
18 - 19	163	3	166	222	1	223	0	0	0
19 - 20	138	3	141	186	0	186	0	0	0
20 - 21	113	2	115	143	0	143	0	0	0
21 - 22	84	3	87	131	0	131	0	0	0
22 - 23	67	1	68	127	0	127	0	0	0
23 - 24	46	3	49	92	1	93	0	0	0
Total	3562	133	3695	3991	42	4033	2204	41	2245
%	96.4%	3.6%	100.0%	99.0%	1.0%	100.0%	98.2%	1.8%	100.0%
WESTBOUND									
Time	AVERAGE WEEKDAY			SATURDAY			SUNDAY		
	Passenger	Commercial	All	Passenger	Commercial	All	Passenger	Commercial	All
0 - 1	27	3	30				69	0	69
1 - 2	15	1	16				42	0	42
2 - 3	8	1	9				30	1	31
3 - 4	13	3	16				22	0	22
4 - 5	31	6	37				8	0	8
5 - 6	82	7	89				30	1	31
6 - 7	99	6	105				59	0	59
7 - 8	150	8	158				97	4	101
8 - 9	148	7	155				148	3	151
9 - 10	188	7	175				271	1	272
10 - 11	185	10	175	410	7	417	322	3	325
11 - 12	129	8	137	421	7	428	358	5	363
12 - 13	134	7	141	423	6	429	414	3	417
13 - 14	204	8	212	439	4	443	419	4	423
14 - 15	280	11	301	451	6	457	53	0	53
15 - 16	352	9	361	409	3	412	0	0	0
16 - 17	338	8	346	383	1	384	0	0	0
17 - 18	314	4	318	284	3	287	0	0	0
18 - 19	230	3	233	245	0	245	0	0	0
19 - 20	159	4	163	195	6	201	0	0	0
20 - 21	129	5	134	154	1	155	0	0	0
21 - 22	107	5	112	142	0	142	0	0	0
22 - 23	74	5	79	119	0	119	0	0	0
23 - 24	68	4	72	129	2	131	0	0	0
Total	3414	140	3554	4184	46	4230	2342	25	2367

APPENDIX B

SimTraffic Reports

1: Kingsway Ave & BDL Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.1	0.5	0.0	0.0	0.1	0.1	0.2
Total Del/Veh (s)	2.3	0.4	0.2	0.0	10.0	4.5	0.5

2: 1600 Kingsway Ave/1575 Kingsway Ave & Kingsway Ave Performance by movement

Movement	EBT	EBR	WBL	WBT	NBR	All
Denied Del/Veh (s)	0.0	0.0		0.0	0.1	0.0
Total Del/Veh (s)	0.3	0.0		0.5	5.2	0.4

3: Langan Ave & Kingsway Ave Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	0.9	0.2	3.7	0.9	6.3	5.1	1.3

4: Kingsway Ave & Dyn Struct Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	4.6	0.7	0.5	0.0	15.7	5.9	1.1

5: 1530 Kingsway Ave & Kingsway Ave Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0		0.1	0.0
Total Del/Veh (s)	0.5	0.2	5.3	0.6		2.9	0.6

6: Coast Meridian Rd & Kingsway Ave Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	3.0	0.8	0.2	0.2	0.5
Total Del/Veh (s)	0.9	0.4	5.3	0.8	17.1	3.3	1.7

Total Network Performance

Denied Del/Veh (s)	0.7
Total Del/Veh (s)	5.2

Intersection: 1: Kingsway Ave & BDL

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (m)	1.5	23.2
Average Queue (m)	0.3	13.2
95th Queue (m)	3.7	26.8
Link Distance (m)	99.5	45.6
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: 1600 Kingsway Ave/1575 Kingsway Ave & Kingsway Ave

Movement	NB
Directions Served	LTR
Maximum Queue (m)	6.9
Average Queue (m)	1.1
95th Queue (m)	6.8
Link Distance (m)	65.0
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (m)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Langan Ave & Kingsway Ave

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	3.8	25.8	16.3
Average Queue (m)	0.8	10.4	10.2
95th Queue (m)	6.9	28.2	16.8
Link Distance (m)	77.8	38.8	68.0
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		2	
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Kingsway Ave & Dyn Struct

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	20.8	4.5	25.6
Average Queue (m)	5.4	0.8	12.6
95th Queue (m)	20.4	5.7	29.1
Link Distance (m)	38.8	28.1	60.5
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: 1530 Kingsway Ave & Kingsway Ave

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	10.1	7.6
Average Queue (m)	2.1	1.2
95th Queue (m)	10.8	7.3
Link Distance (m)	49.9	71.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Coast Meridian Rd & Kingsway Ave

Movement	EB	WB	WB	NB
Directions Served	TR	L	T	LR
Maximum Queue (m)	2.8	14.6	3.1	22.4
Average Queue (m)	0.4	8.2	0.4	9.5
95th Queue (m)	3.7	16.4	6.6	24.5
Link Distance (m)	49.9		106.5	76.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)		25.0		
Storage Blk Time (%)			0	
Queuing Penalty (veh)			0	

Network Summary

Network wide Queuing Penalty: 2

1: Kingsway Ave & BDL Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.1	0.4	0.0	0.0	0.1	0.1	0.2
Total Del/Veh (s)	4.1	0.4	0.3	0.0	8.6	3.5	0.5

2: 1600 Kingsway Ave/1575 Kingsway Ave & Kingsway Ave Performance by movement

Movement	EBT	EBR	WBL	WBT	NBR	All
Denied Del/Veh (s)	0.0	0.0		0.0	0.1	0.0
Total Del/Veh (s)	0.3	0.0		0.5	2.7	0.4

3: Langan Ave & Kingsway Ave Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.2	0.1	0.0
Total Del/Veh (s)	0.7	0.2	4.1	0.7	16.3	4.4	1.1

4: Kingsway Ave & Dyn Struct Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.2	0.0
Total Del/Veh (s)	3.4	0.5	0.3	0.0	12.3	6.5	0.7

5: 1530 Kingsway Ave & Kingsway Ave Performance by movement

Movement	EBT	EBR	WBL	WBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	0.3	0.1	3.6	0.4	3.9	0.4

6: Coast Meridian Rd & Kingsway Ave Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	3.3	0.6	0.1	0.1	0.5
Total Del/Veh (s)	0.7	0.2	3.9	0.6	12.3	1.9	1.2

Total Network Performance

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)			0.6				
Total Del/Veh (s)			4.0				

Intersection: 1: Kingsway Ave & BDL

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	4.9	10.2	21.2
Average Queue (m)	0.8	1.4	10.0
95th Queue (m)	7.1	8.2	24.3
Link Distance (m)	99.5	30.7	45.6
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: 1600 Kingsway Ave/1575 Kingsway Ave & Kingsway Ave

Movement	WB	NB
Directions Served	LTR	LTR
Maximum Queue (m)	2.3	4.4
Average Queue (m)	0.2	0.9
95th Queue (m)	3.1	5.3
Link Distance (m)	77.8	65.0
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Langan Ave & Kingsway Ave

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	22.2	14.5
Average Queue (m)	8.6	9.2
95th Queue (m)	23.7	15.0
Link Distance (m)	38.8	68.0
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Queuing and Blocking Report
Existing PM

06/27/2019

Intersection: 4: Kingsway Ave & Dyn Struct

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	17.7	1.5	16.5
Average Queue (m)	3.9	0.2	6.8
95th Queue (m)	15.4	3.2	17.9
Link Distance (m)	38.8	28.1	60.5
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: 1530 Kingsway Ave & Kingsway Ave

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	7.8	5.0
Average Queue (m)	1.4	1.3
95th Queue (m)	9.6	6.2
Link Distance (m)	49.9	71.9
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Coast Meridian Rd & Kingsway Ave

Movement	EB	WB	NB
Directions Served	TR	L	LR
Maximum Queue (m)	0.6	13.1	13.6
Average Queue (m)	0.1	6.3	7.6
95th Queue (m)	1.3	16.3	15.6
Link Distance (m)	49.9		76.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)		25.0	
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Network Summary

Network wide Queuing Penalty: 1

1: Kingsway Ave & BDL Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.3	0.5	0.0	0.0	0.2	0.1	0.3
Total Del/Veh (s)	4.7	0.6	0.4	0.0	14.8	3.9	0.8

2: 1600 Kingsway Ave/1575 Kingsway Ave & Kingsway Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0		0.0	0.0	0.1	0.1	0.1	0.0
Total Del/Veh (s)	4.2	0.5	0.1		1.1	0.5	2.3	12.4	6.0	0.9

3: Langan Ave & Kingsway Ave Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.3	0.2	0.0
Total Del/Veh (s)	1.2	0.5	5.1	1.5	30.3	6.8	1.9

4: Kingsway Ave & Dyn Struct Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	7.2	1.1	0.9	0.3	24.8	18.4	1.8

5: 1530 Kingsway Ave & Kingsway Ave Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0		0.1	0.0
Total Del/Veh (s)	0.6	0.1	10.0	1.2		5.3	1.0

6: Coast Meridian Rd & Kingsway Ave Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	3.2	1.0	0.2	0.2	0.7
Total Del/Veh (s)	1.1	0.5	5.9	1.2	28.4	6.6	2.5

Total Network Performance

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)				0.8			
Total Del/Veh (s)				7.9			

Intersection: 1: Kingsway Ave & BDL

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	6.6	1.5	26.9
Average Queue (m)	0.8	0.3	13.2
95th Queue (m)	6.0	3.4	29.6
Link Distance (m)	99.5	30.7	45.6
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: 1600 Kingsway Ave/1575 Kingsway Ave & Kingsway Ave

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (m)	18.9	5.9	4.1	7.2
Average Queue (m)	4.4	1.1	0.7	2.4
95th Queue (m)	18.1	13.0	5.0	8.8
Link Distance (m)	30.7	77.8	65.0	45.6
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	1			
Storage Bay Dist (m)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Langan Ave & Kingsway Ave

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	14.3	35.4	20.4
Average Queue (m)	1.4	14.0	11.1
95th Queue (m)	10.6	35.5	20.6
Link Distance (m)	77.8	38.8	68.0
Upstream Blk Time (%)		1	
Queuing Penalty (veh)		5	
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report
Background 2027 AM, No Improvements

06/27/2019

Intersection: 4: Kingsway Ave & Dyn Struct

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	33.8	16.9	30.7
Average Queue (m)	9.1	3.2	17.0
95th Queue (m)	29.6	16.2	34.3
Link Distance (m)	38.8	28.1	60.5
Upstream Blk Time (%)	1	1	
Queuing Penalty (veh)	6	4	
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: 1530 Kingsway Ave & Kingsway Ave

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	23.9	12.2
Average Queue (m)	5.1	2.2
95th Queue (m)	25.6	9.9
Link Distance (m)	49.9	71.9
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	2	
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Coast Meridian Rd & Kingsway Ave

Movement	EB	WB	WB	NB
Directions Served	TR	L	T	LR
Maximum Queue (m)	9.0	15.7	7.7	36.1
Average Queue (m)	1.2	9.3	1.1	17.0
95th Queue (m)	8.9	18.0	10.0	40.2
Link Distance (m)	49.9		106.5	76.1
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)		25.0		
Storage Blk Time (%)		0	0	
Queuing Penalty (veh)		0	0	

Network Summary

Network wide Queuing Penalty: 18

1: Kingsway Ave & BDL Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	0.7	0.5	0.0	0.0	0.1	0.1	0.3
Total Del/Veh (s)	4.7	0.6	0.3	0.0	14.6	5.6	0.7

2: 1600 Kingsway Ave/1575 Kingsway Ave & Kingsway Ave Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0		0.0	0.0		0.1	0.1	0.1	0.0
Total Del/Veh (s)	4.9	0.3		0.7	0.2		4.2	15.7	5.8	0.9

3: Langan Ave & Kingsway Ave Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	0.8	0.5	4.9	1.3	27.3	6.6	1.6

4: Kingsway Ave & Dyn Struct Performance by movement

Movement	EBT	WBT	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.1	0.0
Total Del/Veh (s)	0.4	0.5	20.3	7.0	0.6

5: 1530 Kingsway Ave & Kingsway Ave Performance by movement

Movement	EBT	EBR	WBL	WBT	NBR	All
Denied Del/Veh (s)	0.0	0.0		0.0	0.1	0.0
Total Del/Veh (s)	0.3	0.0		0.5	5.2	0.4

6: Coast Meridian Rd & Kingsway Ave Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)	0.0	0.0	3.0	0.7	0.3	0.2	0.4
Total Del/Veh (s)	0.9	0.3	7.5	0.8	28.0	3.5	2.3

Total Network Performance

Movement	EBT	EBR	WBL	WBT	NBL	NBR	All
Denied Del/Veh (s)				0.6			
Total Del/Veh (s)				6.8			

Intersection: 1: Kingsway Ave & BDL

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (m)	7.5	0.7	17.5
Average Queue (m)	1.3	0.1	7.6
95th Queue (m)	12.0	1.4	18.7
Link Distance (m)	99.5	30.7	45.6
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: 1600 Kingsway Ave/1575 Kingsway Ave & Kingsway Ave

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (m)	4.3	5.2	12.7
Average Queue (m)	1.1	0.9	7.9
95th Queue (m)	7.9	5.1	17.0
Link Distance (m)	30.7	65.0	45.6
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Langan Ave & Kingsway Ave

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (m)	34.0	18.0
Average Queue (m)	13.4	10.9
95th Queue (m)	32.4	18.1
Link Distance (m)	38.8	68.0
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	2	
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Kingsway Ave & Dyn Struct

Movement	WB	SB
Directions Served	TR	LR
Maximum Queue (m)	7.4	10.7
Average Queue (m)	0.6	4.8
95th Queue (m)	6.6	12.9
Link Distance (m)	28.1	60.5
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: 1530 Kingsway Ave & Kingsway Ave

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (m)	0.7	6.5	6.7
Average Queue (m)	0.0	1.5	1.4
95th Queue (m)	0.0	13.5	6.6
Link Distance (m)	28.1	49.9	71.9
Upstream Blk Time (%)		0	
Queuing Penalty (veh)		0	
Storage Bay Dist (m)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Coast Meridian Rd & Kingsway Ave

Movement	EB	WB	NB
Directions Served	TR	L	LR
Maximum Queue (m)	5.8	19.6	27.9
Average Queue (m)	0.9	9.7	16.2
95th Queue (m)	6.0	22.1	35.2
Link Distance (m)	49.9		76.1
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)		25.0	
Storage Blk Time (%)		0	
Queuing Penalty (veh)		3	

Network Summary

Network wide Queuing Penalty: 4

1: Kingsway Ave & BDL Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	2.8	0.2	0.0	0.0	0.1	0.1	0.1
Total Del/Veh (s)	3.3	0.2	0.1	0.1	18.1	4.3	0.5

2: 1600 Kingsway Ave/1575 Kingsway Ave & Kingsway Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0		0.0	0.0		0.1	0.1	0.0
Total Del/Veh (s)	3.3	0.2	0.0		0.2	0.1		7.5	4.2	0.3

3: Langan Ave/Site W & Kingsway Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.1			0.1
Total Del/Veh (s)	4.3	0.3	0.2	3.8	0.2	0.1	16.9	10.7	3.5			2.2

3: Langan Ave/Site W & Kingsway Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	0.8

5: 1530 Kingsway Ave & Kingsway Ave Performance by movement

Movement	EBT	EBR	WBL	WBT	NBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.0
Total Del/Veh (s)	0.3	0.1	3.3	0.3	4.8	0.3

6: Coast Meridian Rd/Site E & Kingsway Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	2.7	0.2	0.3	0.1	0.1	0.1	0.1		0.1
Total Del/Veh (s)	3.6	0.3	0.2	3.8	0.4	0.3	16.3	22.0	4.5	11.6		7.0

6: Coast Meridian Rd/Site E & Kingsway Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	1.4

Total Network Performance

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	3.1

Queuing and Blocking Report
Total 2027 AM, Kingsway Ave Widened

07/04/2019

Intersection: 1: Kingsway Ave & BDL

Movement	EB	WB	SB
Directions Served	L	TR	LR
Maximum Queue (m)	4.6	1.3	28.2
Average Queue (m)	0.8	0.2	13.2
95th Queue (m)	5.0	2.7	29.6
Link Distance (m)		30.8	40.5
Upstream Blk Time (%)			0
Queuing Penalty (veh)			0
Storage Bay Dist (m)	50.0		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: 1600 Kingsway Ave/1575 Kingsway Ave & Kingsway Ave

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	T	LTR	LTR
Maximum Queue (m)	9.6	0.8	0.6	2.9	10.5
Average Queue (m)	2.1	0.1	0.1	0.4	2.8
95th Queue (m)	8.8	1.6	1.2	4.7	11.6
Link Distance (m)			78.7	59.8	40.5
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)	20.0	30.0			
Storage Blk Time (%)	0				
Queuing Penalty (veh)	0				

Intersection: 3: Langan Ave/Site W & Kingsway Ave

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	T	LTR	LTR
Maximum Queue (m)	11.2	12.2	0.6	17.9	8.9
Average Queue (m)	3.4	6.2	0.1	11.2	2.7
95th Queue (m)	12.2	14.5	1.3	18.1	9.4
Link Distance (m)			75.4	64.5	53.8
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)	30.0	50.0			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: 1530 Kingsway Ave & Kingsway Ave

Movement	WB	WB	NB
Directions Served	L	T	LR
Maximum Queue (m)	2.7	1.6	6.9
Average Queue (m)	0.6	0.2	1.2
95th Queue (m)	4.4	3.3	6.1
Link Distance (m)		48.8	68.2
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (m)	20.0		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Coast Meridian Rd/Site E & Kingsway Ave

Movement	EB	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	TR	LTR	LTR
Maximum Queue (m)	6.6	0.9	0.8	10.8	0.6	0.2	32.4	14.7
Average Queue (m)	1.2	0.1	0.1	4.9	0.1	0.0	14.0	3.9
95th Queue (m)	6.4	1.4	1.2	11.8	0.8	0.3	33.9	14.7
Link Distance (m)		48.8	48.8		102.6	102.6	71.1	56.0
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (m)	20.0			25.0				
Storage Blk Time (%)								
Queuing Penalty (veh)								

Network Summary

Network wide Queuing Penalty: 0

1: Kingsway Ave & BDL Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Del/Veh (s)	3.4	0.1	0.0	0.0	0.1	0.2	0.1
Total Del/Veh (s)	5.9	0.2	0.1	0.2	12.2	3.2	0.4

2: 1600 Kingsway Ave/1575 Kingsway Ave & Kingsway Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SBL	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0		0.0	0.0		0.1	0.1	0.1	0.0
Total Del/Veh (s)	4.0	0.1	0.1		0.2	0.0		1.9	9.4	4.0	0.4

3: Langan Ave/Site W & Kingsway Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.1		0.2	0.1		0.1
Total Del/Veh (s)	5.4	0.2	0.1	3.8	0.2	0.1	11.1		3.5	13.6		2.9

3: Langan Ave/Site W & Kingsway Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	0.7

5: 1530 Kingsway Ave & Kingsway Ave Performance by movement

Movement	EBT	EBR	WBL	WBT	NBR	All
Denied Del/Veh (s)	0.0			0.0	0.1	0.0
Total Del/Veh (s)	0.2			0.2	3.2	0.2

6: Coast Meridian Rd/Site E & Kingsway Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)		0.0	0.0	3.1	0.2	0.4	0.3		0.2	0.2	0.2	0.2
Total Del/Veh (s)		0.3	0.1	4.5	0.3	0.3	19.6		4.1	15.8	24.7	8.4

6: Coast Meridian Rd/Site E & Kingsway Ave Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	1.9

Total Network Performance

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	3.7

Queuing and Blocking Report
Total 2027 PM, Kingsway Ave Widened

07/04/2019

Intersection: 1: Kingsway Ave & BDL

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (m)	4.6	14.6
Average Queue (m)	0.8	8.0
95th Queue (m)	4.9	17.8
Link Distance (m)		40.5
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)	50.0	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: 1600 Kingsway Ave/1575 Kingsway Ave & Kingsway Ave

Movement	EB	EB	WB	NB	SB
Directions Served	L	T	TR	LTR	LTR
Maximum Queue (m)	5.3	0.6	1.3	5.3	15.1
Average Queue (m)	0.8	0.0	0.2	0.9	7.6
95th Queue (m)	5.9	0.0	2.7	5.2	17.2
Link Distance (m)		30.8	78.7	59.8	40.5
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (m)	20.0				
Storage Blk Time (%)	0				
Queuing Penalty (veh)	0				

Intersection: 3: Langan Ave/Site W & Kingsway Ave

Movement	EB	WB	NB	SB
Directions Served	L	L	LTR	LTR
Maximum Queue (m)	8.1	12.8	17.8	10.3
Average Queue (m)	1.3	7.3	10.2	6.6
95th Queue (m)	7.5	14.9	16.0	13.6
Link Distance (m)			64.5	53.8
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (m)	30.0	50.0		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Queuing and Blocking Report
Total 2027 PM, Kingsway Ave Widened

07/04/2019

Intersection: 5: 1530 Kingsway Ave & Kingsway Ave

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (m)	3.4	6.0
Average Queue (m)	0.5	1.9
95th Queue (m)	3.8	7.7
Link Distance (m)	68.2	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (m)	20.0	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Coast Meridian Rd/Site E & Kingsway Ave

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	LTR	LTR
Maximum Queue (m)	3.0	1.3	0.8	11.6	0.3	33.0	26.0
Average Queue (m)	0.4	0.2	0.1	5.4	0.0	13.3	14.0
95th Queue (m)	3.3	2.7	1.2	13.3	0.7	32.6	29.6
Link Distance (m)		48.8	48.8		102.6	71.1	56.0
Upstream Blk Time (%)						0	
Queuing Penalty (veh)						0	
Storage Bay Dist (m)	20.0			25.0			
Storage Blk Time (%)							
Queuing Penalty (veh)							

Network Summary

Network wide Queuing Penalty: 0
