



Committee of Council Agenda

Tuesday, October 6, 2020

2:00 p.m.

Port Coquitlam Community Centre - Wilson Lounge

2150 Wilson Avenue, Port Coquitlam, BC

Pages

1. CALL TO ORDER

2. ADOPTION OF THE AGENDA

2.1 Adoption of the Agenda

Recommendation:

That the Tuesday, October 6, 2020, Committee of Council Meeting Agenda be adopted as circulated.

3. CONFIRMATION OF MINUTES

3.1 Minutes of Committee of Council

1

Recommendation:

That the minutes of the following Committee of Council Meetings be adopted:

- *September 22, 2020.*

4. REPORTS

4.1 Development Permit - 745 Seaborne Avenue

6

Recommendation:

That Committee of Council approve Development Permit DP000430 to regulate an industrial development at 745 Seaborne Avenue.

4.2 Development Permit and Development Variance Permit - 2841 Welcher Avenue

29

Recommendation:

That Committee of Council:

1. Approve in principle Development Permit DP000441, regulating a 5-storey 63-unit,

multi- family residential development at 2481 Welcher Avenue.

2. Pursuant to s. 498 of the Local Government Act, authorize staff to provide notice of an application to vary building height and floor area regulations; and
3. Forward Development Variance Permit DVP00073 to Council with support for consideration, subject to comments from neighbourhood input.

4.3 2019 Traffic Count Results

82

Recommendation:

None.

4.4 Oxford Street and Coquitlam Avenue Intersection Control

104

Recommendation:

That Committee of Council approve staff to proceed with detailed design of a traffic signal at the intersection of Oxford Street and Coquitlam Avenue as presented in this report; and

That the 2021-2025 Financial Plan include \$49,600 in funding from the General Capital Reserve to the Oxford Street and Coquitlam Avenue Intersection Control project for construction in 2021.

5. COUNCILLORS' UPDATE

6. MAYOR'S UPDATE

7. CAO UPDATE

8. RESOLUTION TO CLOSE

8.1 Resolution to Close

Recommendation:

That the Committee of Council Meeting of Tuesday, October 6, 2020, be closed to the public pursuant to the following subsections(s) of Section 90(1) of the Community Charter:

Item 5.1

i. the receipt of advice that is subject to solicitor-client privilege, including communications necessary for that purpose;

l. discussions with municipal officers and employees respecting municipal objectives, measures and progress reports for the purposes of preparing an annual report under section 98 [annual municipal report].

9. ADJOURNMENT

9.1 Adjournment of the Meeting

Recommendation:

That the Tuesday, October 6, 2020, Committee of Council Meeting be adjourned.

10. MEETING NOTES



Committee of Council Minutes

Tuesday, September 22, 2020
Port Coquitlam Community Centre - Wilson Lounge
2150 Wilson Avenue, Port Coquitlam, BC

Present: Chair - Mayor West
Councillor Darling
Councillor Dupont
Councillor McCurrach
Councillor Pollock
Councillor Washington

Absent: Councillor Penner

1. CALL TO ORDER

The meeting was called to order at 2:22 p.m.

2. ADOPTION OF THE AGENDA

2.1 Adoption of the Agenda

Moved-Seconded:

That the Tuesday, September 22, 2020, Committee of Council Meeting Agenda be adopted as circulated.

In Favour (6): Mayor West, Councillor Darling, Councillor Dupont, Councillor McCurrach, Councillor Pollock, and Councillor Washington

Absent (1): Councillor Penner

Carried

3. CONFIRMATION OF MINUTES

3.1 Minutes of Committee of Council

Moved-Seconded:

That the minutes of the following Committee of Council Meetings be adopted:

- *September 8, 2020.*

In Favour (6): Mayor West, Councillor Darling, Councillor Dupont, Councillor McCurrach, Councillor Pollock, and Councillor Washington

Absent (1): Councillor Penner

Carried

4. REPORTS

4.1 Menstrual Products in Civic Facilities

Moved-Seconded:

That Committee direct staff to prepare a Decision Package for consideration in the 2021 budget deliberations to support the provision of free menstrual products in public access washrooms located in 12 civic facilities, for an approximate initial cost of \$22,000 and an approximate ongoing annual operating budget expense of \$8,800 (amount will vary based on the volume of products required).

In Favour (6): Mayor West, Councillor Darling, Councillor Dupont, Councillor McCurrach, Councillor Pollock, and Councillor Washington

Absent (1): Councillor Penner

Carried

4.2 Temporary Use Permit - 2388 Mary Hill Road

Moved-Seconded:

That Committee of Council approve renewal of temporary use permit TU000011 at 2388 Mary Hill Road.

In Favour (6): Mayor West, Councillor Darling, Councillor Dupont, Councillor McCurrach, Councillor Pollock, and Councillor Washington

Absent (1): Councillor Penner

Carried

4.3 Rezoning Application - 1604 Pitt River Road

Moved-Seconded:

That Committee of Council recommend to Council that:

1. *The zoning of 1604 Pitt River Road be amended from RS1 (Residential Single Dwelling 1) to RS4 (Residential Single Dwelling 4);*
2. *Prior to adoption of the amending bylaw, the following conditions be met to the satisfaction of the Director of Development Services:*
 - a. *Demolition of the existing buildings; and*
 - b. *Completion of design and submission of fees and securities for off-site works and services including stairwell access from Pitt River Road.*

In Favour (6): Mayor West, Councillor Darling, Councillor Dupont, Councillor McCurrach, Councillor Pollock, and Councillor Washington

Absent (1): Councillor Penner

Carried

4.4 Temporary Use Permit - 1648 Broadway Street

Moved-Seconded:

That Committee of Council approve Temporary Use Permit No. TUP000018 for 1648 Broadway Street.

In Favour (6): Mayor West, Councillor Darling, Councillor Dupont, Councillor McCurrach, Councillor Pollock, and Councillor Washington

Absent (1): Councillor Penner

Carried

4.5 Temporary Use Permit - 955 Seaborne Avenue

Moved-Seconded:

That Committee of Council approve Temporary Use Permit No. TUP000017 for 955 Seaborne Avenue.

In Favour (6): Mayor West, Councillor Darling, Councillor Dupont, Councillor McCurrach, Councillor Pollock, and Councillor Washington

Absent (1): Councillor Penner

Carried

5. PUBLIC INPUT OPPORTUNITY - Time Specific 6:00 p.m.

5.1 Temporary Use Permit for 1648 Broadway

No public comments.

5.2 Temporary Use Permit for 955 Seaborne Avenue

No public comments, one written submission was received.

6. COUNCILLORS' UPDATE

Council provided updates on City business.

7. MAYOR'S UPDATE

Mayor West provided an update on City business.

Moved - Seconded:

That the City support the Reeve Slough Enhancement Project in the Coquitlam River and apply to BC Hydro Fish and Wildlife Compensation Program grant in support of the North Fraser Salmon Assistance Project Society.

In Favour (6): Mayor West, Councillor Darling, Councillor Dupont, Councillor McCurrach, Councillor Pollock, and Councillor Washington

Absent (1): Councillor Penner

Carried

8. CAO UPDATE

No update.

9. RESOLUTION TO CLOSE

9.1 Resolution to Close

Moved-Seconded:

That the Committee of Council Meeting of Tuesday, September 22, 2020, be closed to the public pursuant to the following subsection(s) of Section 90(1) of the Community Charter:

Item 5.1

e. the acquisition, disposition or expropriation of land or improvements, if the council considers that disclosure could reasonably be expected to harm the interests of the municipality;

k. negotiations and related discussions respecting the proposed provision of a municipal service that are at their preliminary stages and that, in the view of the council, could reasonably be expected to harm the interests of the municipality if they were held in public.

In Favour (6): Mayor West, Councillor Darling, Councillor Dupont, Councillor McCurrach, Councillor Pollock, and Councillor Washington

Absent (1): Councillor Penner

Carried

10. ADJOURNMENT

10.1 Adjournment of the Meeting

Moved-Seconded:

That the Tuesday, September 22, 2020, Committee of Council Meeting be adjourned at 6:02 p.m.

In Favour (6): Mayor West, Councillor Darling, Councillor Dupont, Councillor McCurrach, Councillor Pollock, and Councillor Washington

Absent (1): Councillor Penner

Carried

11. MEETING NOTES

The meeting recessed from 2:23 - 4:38 p.m. and from 5:01 - 6:00 p.m.

Mayor

Corporate Officer

745 Seaborne Avenue - Development Permit Application

RECOMMENDATION:

That Committee of Council approve Development Permit DP000430 to regulate an industrial development at 745 Seaborne Avenue.

REPORT SUMMARY

This report describes an application for a development permit to regulate an industrial development at 745 Seaborne Avenue in the Dominion Triangle. The 6-unit, two-storey building proposal and site landscaping are designed to comply with the site's M3 Light Industrial zoning, development permit designations and design covenant. As such, the development permit is recommended for approval.

BACKGROUND

Proposal: The applicant, Karla Castellanos Architect, has proposed the development of a two-storey light industrial building with on-site parking and landscaping at 745 Seaborne Avenue.

Context: The vacant site is located between Dominion and Seaborne Avenues along Fremont Street and is currently vacant. Surrounding land uses include light industrial, agricultural, the Carnoustie Golf Course, and townhouse residential uses along the north side of Dominion Avenue. A BC Hydro statutory right-of-way (SRW) transects the southeast corner of the site and restricts buildings and tall trees within this area due to the overhead transmission wires.



Location map

745 Seaborne Avenue - Development Permit Application

Policy and Regulations: The land use designation in the Official Community Plan for the site is Light Industrial; policies of the Plan promote economic development and job creation within this designation. The property is zoned M3 – Light Industrial. The objectives and guidelines of the site’s industrial development permit area designation are intended to guide the form and character of industrial developments, promote orderly development, and control the interface between industrial and other land uses. The environmental conservation development permit area designation encourages sustainable development and building design, efficient use of energy, water and other resources, and the reduction of waste and pollution.

At the time of rezoning, a restrictive covenant was registered on the property title to establish a number of additional design guidelines to mitigate potential impacts to the townhouse uses north of Dominion Avenue. These design guidelines include:

- requiring a 6m wide landscape strip along Dominion Avenue,
- restricting fencing and retaining walls with an industrial character (e.g. barb wire),
- prohibiting loading bays and transport/service vehicle access and parking in yards fronting Dominion Avenue,
- requiring dark sky lighting,
- requiring garbage and recycling storage in a building,
- screening of visible roof top equipment, and
- ensuring quality building design that emphasises the importance of each street frontage.

Project Profile

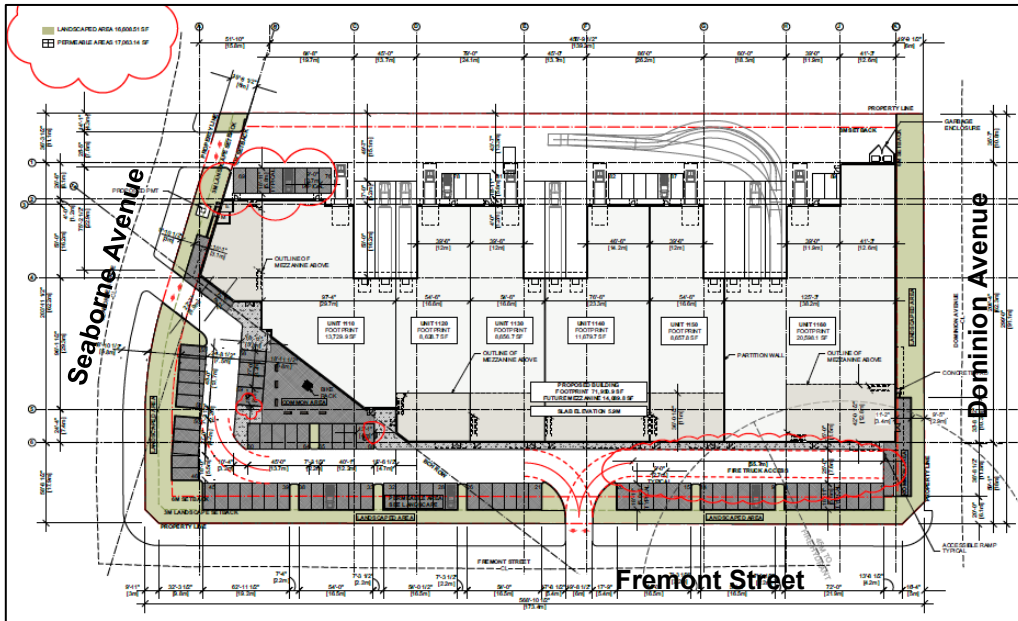
	Bylaw Regulations ¹	Proposed ²
Site Area	930 m ² min'm	15,309 m ² (3.78 acres)
Total Building Area	n/a	8,015 m ² (86,278 ft ²)
Building Lot Coverage	n/a	44 %
Setbacks:		
Front Setback (Seaborne)	6 m	6 m
Rear Setback (Dominion)	6 m	6 m
Exterior Side Setback (Fremont)	6 m	17.8 m
Interior Side Setback (west)	0 m	10.8 m
Building Height	12 m	10.9 m
Impervious surface	80%	79.5%
Parking (total)	84	89
Loading bays	4 minimum	16
Bicycle Parking	Space for 6 bikes	Space for 7 bikes

¹ Refer to Zoning Bylaw No. 3630 and Parking and Development Management Bylaw No. 4078 for specific regulations.

² Information provided by applicant.

745 Seaborne Avenue - Development Permit Application

Project Description: The proposed 8,015m² (86,278 ft²) multi-unit building would be constructed of durable tilt-up concrete and provide industrial space and accessory offices suitable for a wide variety of light industrial uses. As shown in the drawing below, the building frontage and majority of the parking is to be oriented to Fremont Street and loading spaces are oriented to the west side of the building. Access to the site is to be provided by three driveways, two for passenger vehicles and one, accessed from Seaborne Avenue, for transport vehicles.



Site Plan

The proposed design provides for the street front facades to have extensive glazing, elements of wall articulation, varying height, awning projections and a varying colour palette of white, light and dark grays with green elements and metal cladding accents as shown on the image below. The applicant advises the building design and colour has been coordinated to create a uniform and quality character and focuses the accessory offices uses to the street fronts.



Building facade (Dominion/Fremont Street intersection)

The west loading bay façade fronting the adjacent industrial developments will be white in colour to create clean look and ensure these areas remain secure for the future business occupants. The building design also includes arched walls that extend beyond the building footprint fronting Dominion Avenue. These walls are intended to create architectural interest and help screen parking and loading areas from the residential uses along the north side of Dominion Avenue.

The landscape plan calls for a mixture of trees, shrubs, perennials, groundcover plants and grasses. 36 new trees, including a mixture of conifer (15 trees) and deciduous (21 trees) species, will be planted along the periphery of the site in landscape areas and strips within the parking areas outside of the BC Hydro SRW. Landscaping within the SRW is to be restricted to lower growing plant varieties with a mature height of no more than 3m. A number of the proposed plants including 437 black-eyed susan plants are pollinators. The proposed landscape plan also provides two outdoor areas with seating for the building occupants, one located near the southeast corner of the building and the second near the northeast corner.

A significant portion of the site area is to be used for required parking, vehicle circulation, and transport vehicle loading areas which is typical of industrial development. The applicant has proposed the use of permeable unit pavers for the surfacing of the passenger vehicle parking spaces in the parking areas adjacent to Fremont Street and Seaborne Avenue to improve permeability of the site.

Offsite Infrastructure and Services: Offsite infrastructure including road works, curbs and gutters, sidewalks, boulevard landscaping and street trees, was provided when the parcel was subdivided in 2018.

Environmental Conservation: Measures to comply with the environmental conservation objectives and guidelines include building practices and products to reduce energy and water consumption, promote stormwater management, and reduce greenhouse gas emissions. Proposed elements include light coloured roofing materials to minimize solar heat gain, high efficiency windows and selection of native and drought tolerant plant species, use of low volatile organic compound materials, high efficiency irrigation system, and bicycle parking. A complete list of conservation measures is included in Schedule A of the development permit.

DISCUSSION

The proposed industrial building and landscaping provide a high quality of character consistent with other light industrial development in the Dominion Triangle. The design is in keeping with the site specific design guidelines registered on the property title and provides for the required 6m wide landscape strip along Dominion Avenue, dark sky exterior lighting and an attractive building design. Loading bays and transport vehicles access is located away from yards fronting Dominion Avenue, garbage and recycling storage is located in a building and rooftop equipment is to be positioned to the center of the building to help screen its visual impact.

745 Seaborne Avenue - Development Permit Application

The design of the proposed industrial building and landscaping meets the intent of the industrial design guidelines, environmental conservation designation and the site specific design guidelines. The proposal complies with applicable zoning and parking regulations. Staff recommend approval.

PUBLIC CONSULTATION

A sign providing notification of the application is posted on site. To date, no comments have been received.

FINANCIAL IMPLICATIONS

None.

OPTIONS (✓ = Staff Recommendation)

	#	Description
<input checked="" type="checkbox"/>	1	Approve Development Permit DP000430.
<input type="checkbox"/>	2	Request additional information or amendments if Committee is of the opinion that such information or amendment would assist in its evaluation of how the design complies with the development permit area designation or regulations.
<input type="checkbox"/>	3	Refuse the application if the Committee is of the opinion the application does not conform to the design guidelines or regulations.

ATTACHMENTS

Attachment 1: Draft Development Permit DP000430

Lead author(s): Bryan Sherrell

THE CORPORATION OF THE CITY OF PORT COQUITLAM

“DEVELOPMENT PROCEDURES BYLAW, 2013, NO. 3849”

DEVELOPMENT PERMIT

NO. DP000430

Issued to: FLOOD TIDE CAPITAL CORP
(Owner as defined in the Local Government Act,
hereinafter referred to as the Permittee)

Address: 1110-1560 BROADWAY ST PORT COQUITLAM BC V3C 2M8

1. This Development Permit is issued subject to compliance with all of the Bylaws of the Municipality applicable thereto, except as specifically varied by this Permit.
2. This Development Permit applies to and only to those lands within the Municipality described below, and any and all buildings, structures and other development thereon:

Address: 745 SEABORNE AVENUE

Legal Description: LOT 1, BLOCK 6N, SECTION 8, RANGE 1E, NEW WESTMINSTER
DISTRICT, PLAN EPP82336

P.I.D.: 030-609-941

3. The above property has been designated as a Development Permit Area under Section 9.0 – Development Permit Area in the “Official Community Plan Bylaw, 2013, No. 3838”.
4. “Port Coquitlam Zoning Bylaw, 2008, No. 3630” and “Parking and Development Management Bylaw, 2018, No.4078” are varied, supplemented or both in accordance with the following:
 - a. The form and character of the building, including the siting, height and general design, shall be as shown on drawings numbered DP000430 (1) to DP000430 (14) which are attached hereto and form part of this permit.
 - b. The form and character of on-site landscaping shall be as shown on drawings numbered DP000430 (12) and DP000430 (14) and the following standards for landscaping are imposed:
 - (i) All landscaping works and planting materials shall be provided in accordance with the landscaping plan and specifications thereon, which form part of this permit and is attached hereto.

- (ii) All planting materials shall be able to survive for a period of one year from the date of the site landscape approval by the Municipality.
- c. The building and landscaping shall provide the energy conservation, water conservation and GHG emission reduction elements as shown on Schedule A to the drawings which are attached hereto and form part of this permit.

5. Landscape Security

- (a) As a condition of the issuance of this permit, the security set out below will be held by the Municipality prior to the issuance of a building permit to ensure satisfactory provision of landscaping in accordance with the terms and conditions as set forth in Clause 4 above. There is filed accordingly an irrevocable Letter of Credit or cash security in the amount \$333,263.00 for the purpose of landscaping.
- (b) Should any interest be earned upon the security, it shall accrue to the Permittee and be paid to the Permittee if the security is returned. A condition of the posting of the security is that should the Permittee fail to carry out the works or services as hereinabove stated, according to the terms and conditions of this permit within the time provided, the Municipality may use the security to complete these works or services by its servants, agents or contractors, and any surplus shall be paid over to the Permittee.
- (c) The Permittee shall complete the landscaping works required by this permit within six months of the final inspection for the final phase of the development. Within the six month period, the required landscaping must be installed by the Permittee, and inspected and approved by the Municipality.

If the landscaping is not approved within the six month period, the Municipality has the option of continuing to hold the security until the required landscaping is completed or has the option of drawing the security and using the funds to complete the required landscaping, and recoup additional costs from the Permittee if necessary. In such a case, the Municipality or its agents have the irrevocable right to enter into the property to undertake the required landscaping for which the security was submitted.

- (d) Should the Permittee carry out the works and services permitted by this permit within the time set out above, the security shall be returned to the Permittee.
6. The land described herein shall be developed strictly in accordance with the terms and conditions and provisions of this permit and any plans and specifications attached to this permit, which shall form a part hereof.

- 7. This permit shall lapse if the Permittee does not substantially commence the construction permitted by this permit within two years of the (issuance) date of this permit.
- 8. The terms of this permit or any amendment to it, are binding on all persons who acquire an interest in the land affected by this permit.
- 9. This permit is not a building permit.

APPROVED BY THE COMMITTEE OF COUNCIL THE _____ DAY OF _____ MONTH 20__.

SIGNED THIS _____ DAY OF _____ MONTH 20____.

Mayor

Corporate Officer

I ACKNOWLEDGE THAT I HAVE READ AND UNDERSTAND THE TERMS AND
CONDITIONS UPON WHICH THIS PERMIT IS ISSUED.

Applicant (or Authorized Agent or
Representative of Applicant)



CONTEXT PLAN

SITE DATA

CIVIC ADDRESS

2375 FREMONT STREET
PORT COQUITLAM, BC.

LEGAL DESCRIPTION

LOT 1 SECTION 8 BLOCK 6 NORTH, RANGE 1 EAST, NEW
WESTMINSTER DISTRICT PLAN EPP82386

ZONING

M3 LIGHT INDUSTRIAL

SITE AREA

SITE AREA 14,671 SF APPROX

PERMEABLE AREA

TOTAL PERMEABLE AREA 33,671.65 SF (20.43 %)

GROSS FLOOR AREA

PROPOSED BUILDING 71,950.86 SF
FUTURE MEZZANINE 14,089.79 SF

TOTAL 86,040.67 SF

TOTAL UNITS 6

BUILDING HEIGHT

PERMITTED 12M
PROPOSED 10.8M

SETBACKS

FRONT YARD (SEABORNE)	8.0 M	PERMITTED
	8.0 M	PROVIDED
REAR YARD (DOMINION)	8.0 M	PERMITTED
	8.0 M	PROVIDED
SIDE YARD (FREMONT)	8.0 M	PERMITTED
	8.0 M	PROVIDED
SIDE YARD (WEST)	0.0 M	PERMITTED
	10.8 M	PROVIDED

PARKING

REQUIRED Mezzanine 14,089.79 SF / 1,022.56 = 13.77
Warehouse 71,950.86 SF / 1,022.56 = 70.36

REQUIRED 84.13

PROVIDED TOTAL PROVIDED 89

ACCESSIBLE PARKING

PROVIDED 2

LOADING

86,278.41 (8,015.28 sqm) =
4,900.00 = 3 spaces
3,416.28 = 1 space

REQUIRED 4
PROVIDED 16

NOTES

- ALL DIMENSIONS TO BE CONFIRM WITH SURVEY PLAN
- BUILDING & LANDSCAPE SETBACKS TO BE CONFIRMED WITH THE CITY.

PROJECT MANAGER

TYLER ARMSTRONG
INTEGRATED CONSTRUCTION

Office: 604 542 4888
Email: tarmstrong@integratedconstruction.com

ARCHITECT

KARLA CASTELLANOS Architect AIBC
KCC ARCHITECTURE AND DESIGN LTD

Office: 604 909 1257
Email: kccastellanos@kccarchitecture.com

CIVIL

STEVE O'CONNELL P. ENG
CENTRAS ENGINEERING LTD

Office: 604 782 6927
Email: Steve@centras.ca

LANDSCAPE

SHAN TENNYSON
KO PLANNING AND DESIGN LTD

Office: 604 853 8931
Email: shant@kahn.com

DP000430 (1)

NO.	DATE	ISSUANCE
1	2020 03 31	ISSUED FOR COORDINATION
2	2020 04 03	ISSUED FOR DEVELOPMENT PERMIT
3	2020 04 13	RE-ISSUED FOR DP
4	2020 09 02	RE-ISSUED FOR DP
5	2020 09 21	RE-ISSUED FOR DP



PROPOSED NEW DEVELOPMENT

2375 FREMONT ST
PORT COQUITLAM BC

DATA SHEET

A 1.0



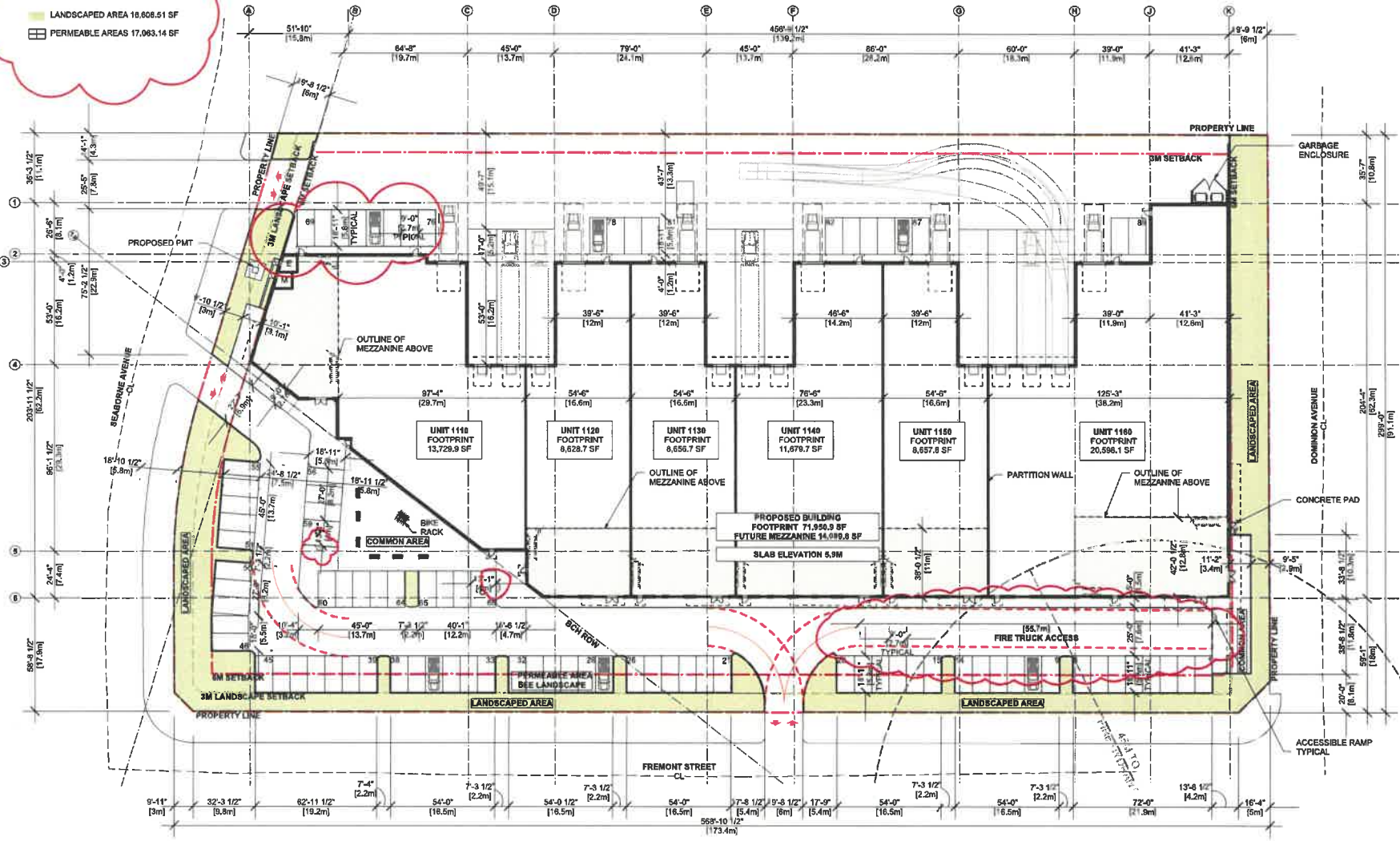
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SCALE: N/A
FILE: 202

KCC Architecture & Design Ltd. Kcc@kccarchitecture.com
Unit 300 15900 Claydon Drive Surrey BC V4Z 0Z5 T: 604 383 0912



LANDSCAPED AREA 18,608.51 SF
 PERMEABLE AREAS 17,093.14 SF

DP0004130
 (2)



NO.	DATE	ISSUANCE
4	2020 03 23	ISSUED FOR COORDINATION
5	2020 03 27	ISSUED FOR COORDINATION
6	2020 03 31	ISSUED FOR COORDINATION
7	2020 04 02	ISSUED FOR COORDINATION
8	2020 04 08	ISSUED FOR DEVELOPMENT PERMIT
9	2020 04 13	RE-ISSUED FOR DP
10	2020 06 14	ISSUED FOR COORDINATION
11	2020 09 02	RE-ISSUED FOR DP
12	2020 09 21	RE-ISSUED FOR DP

NO.	DATE	ISSUANCE
4	2020 03 23	ISSUED FOR COORDINATION
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12	2020 09 21	RE-ISSUED FOR DP



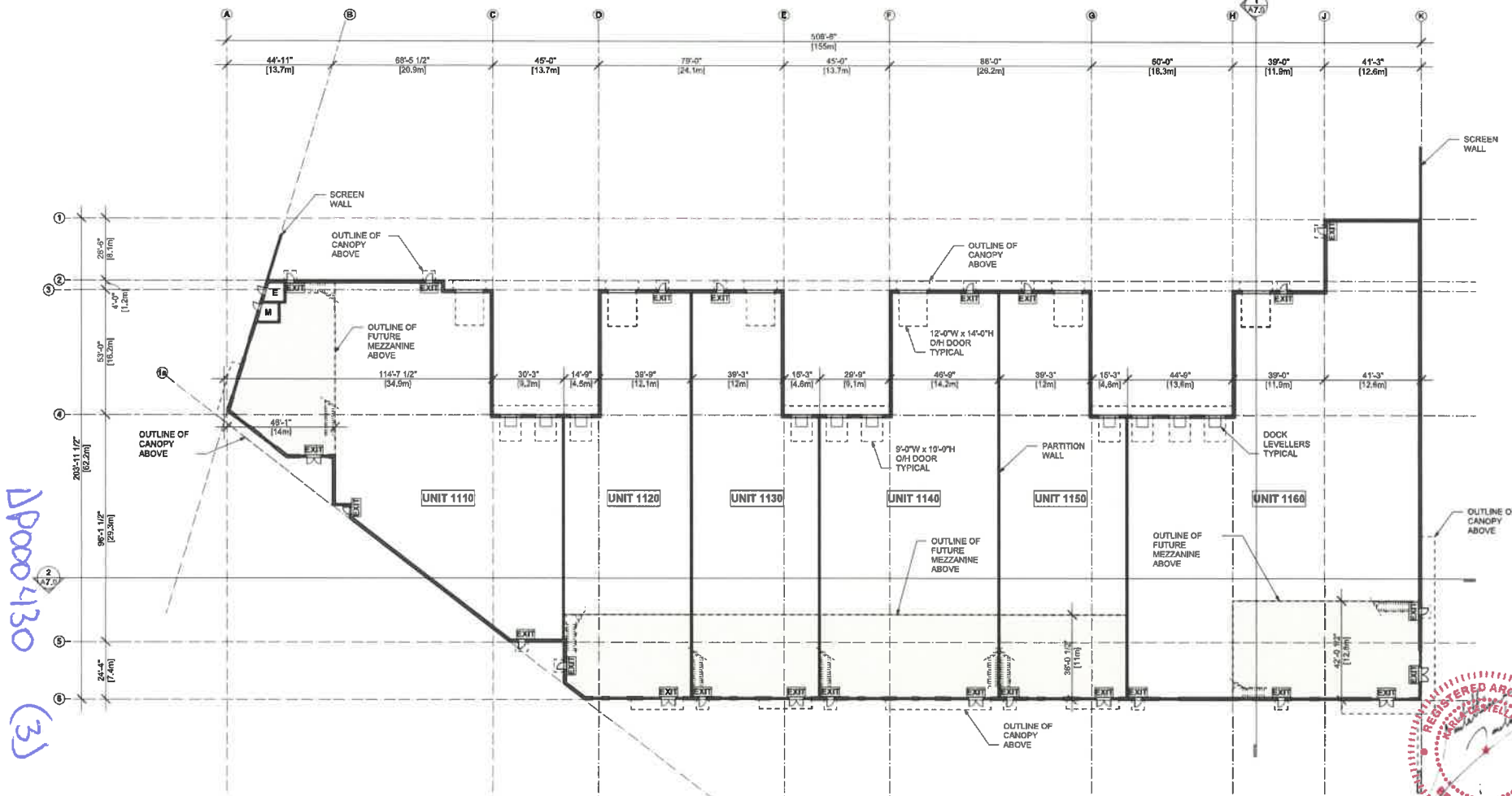
PROPOSED NEW DEVELOPMENT
 2375 FREMONT ST
 PORT COQUITLAM BC

SITE PLAN

A 2.0



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NO.	DATE	ISSUANCE
1	2020 04 02	ISSUED FOR COORDINATION
2	2020 04 08	ISSUED FOR DEVELOPMENT PERMIT
3	2020 04 13	RE-ISSUED FOR DP
4	2020 09 02	RE-ISSUED FOR DP



PROPOSED NEW DEVELOPMENT
2375 FREMONT ST
PORT COQUITLAM BC

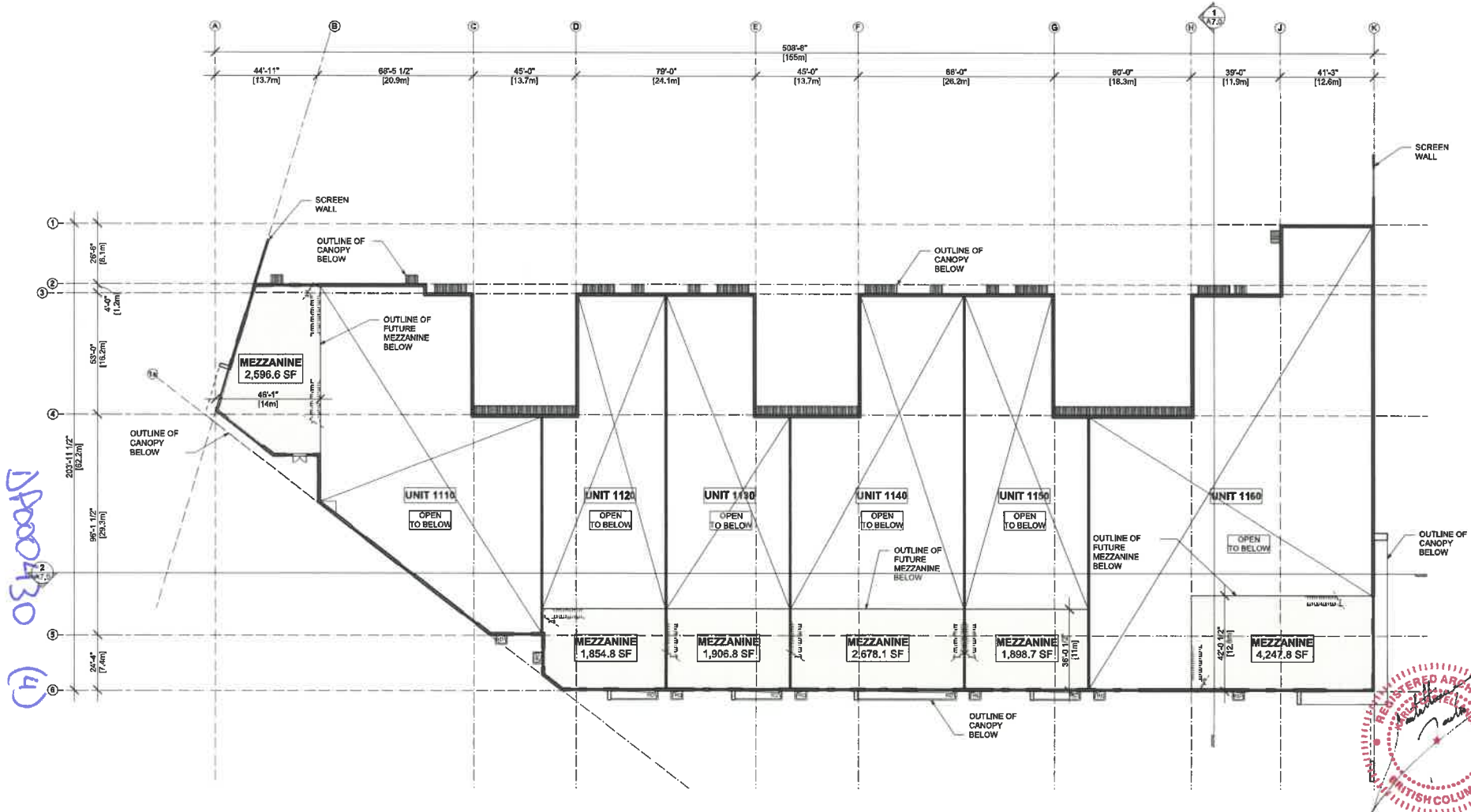
FLOOR PLAN
LEVEL 1

A 3.0



DATE: 2020 09 02
SCALE: 1/8" = 1'-0"
FILE: 272

KCC Architecture & Design Ltd.
Unit 300 1590 Craven Drive Surrey BC V4E 0E7
kccarchitecture.com
Tel: 604 283 8712



NO.	DATE	ISSUANCE
1	2020 04 02	ISSUED FOR COORDINATION
2	2020 04 03	ISSUED FOR DEVELOPMENT PERMIT
3	2020 04 13	RE-ISSUED FOR DP
4	2020 09 02	RE-ISSUED FOR DP

DATE
 2020 04 02
 2020 04 03
 2020 04 13
 2020 09 02

ISSUANCE
 ISSUED FOR COORDINATION
 ISSUED FOR DEVELOPMENT PERMIT
 RE-ISSUED FOR DP
 RE-ISSUED FOR DP



PROPOSED NEW DEVELOPMENT
 2375 FREMONT ST
 PORT COQUITLAM BC

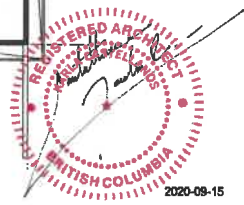
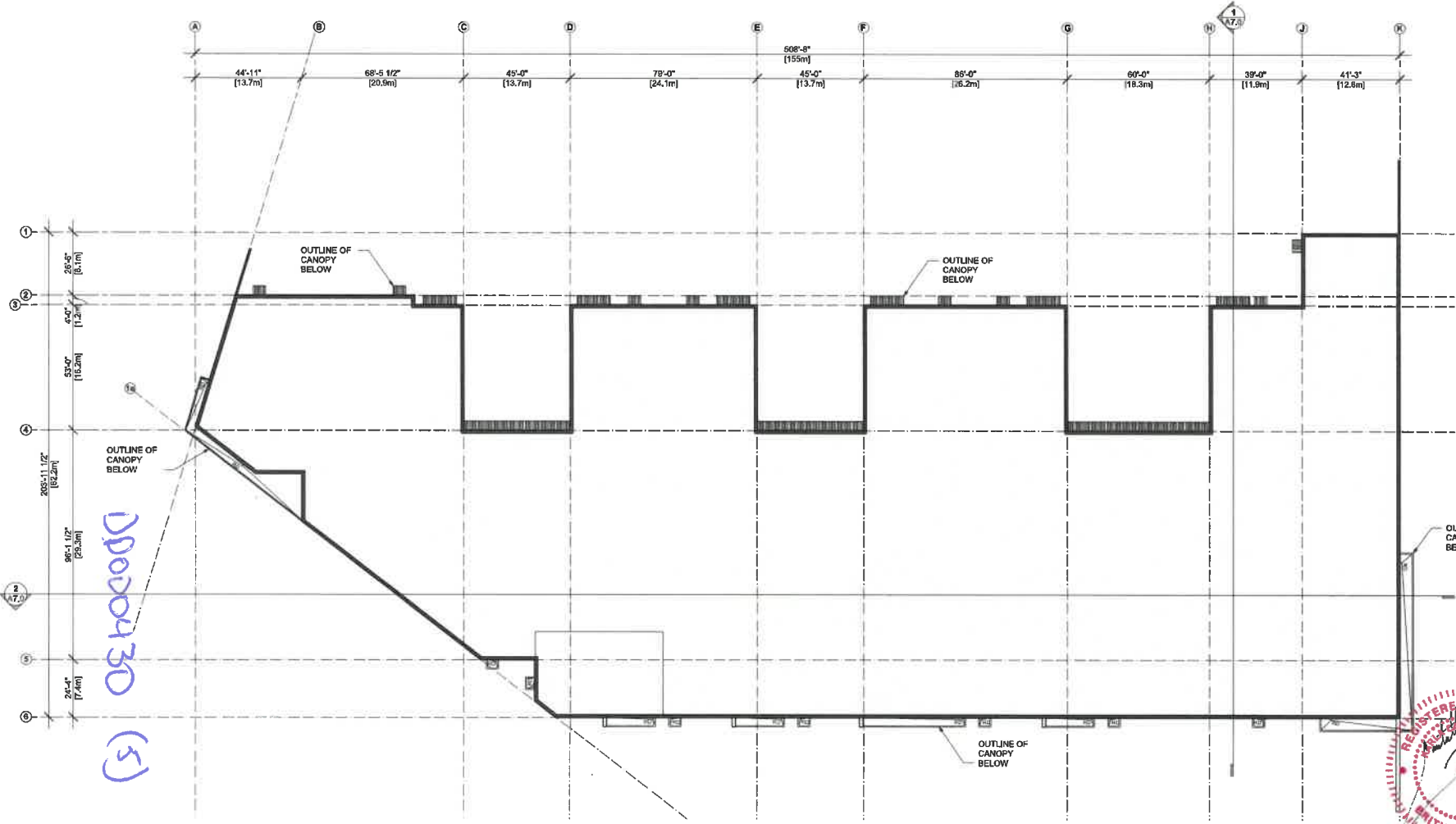
FLOOR PLAN
LEVEL 2

A 3.1



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 CHECKED BY: [Name]
 FILE: 202

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 Unit 370 15300 Ceylon Drive Surrey BC V3Z 0Z5
 T: 604 273 0212



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NO.	DATE	ISSUANCE
1	2020 04 02	ISSUED FOR COORDINATION
2	2020 04 03	ISSUED FOR DEVELOPMENT PERMIT
3	2020 04 19	RE-ISSUED FOR DP
4	2020 09 02	RE-ISSUED FOR DP



PROPOSED NEW DEVELOPMENT
2375 FREMONT ST
PORT COQUITLAM BC

ROOF PLAN

A 3.2

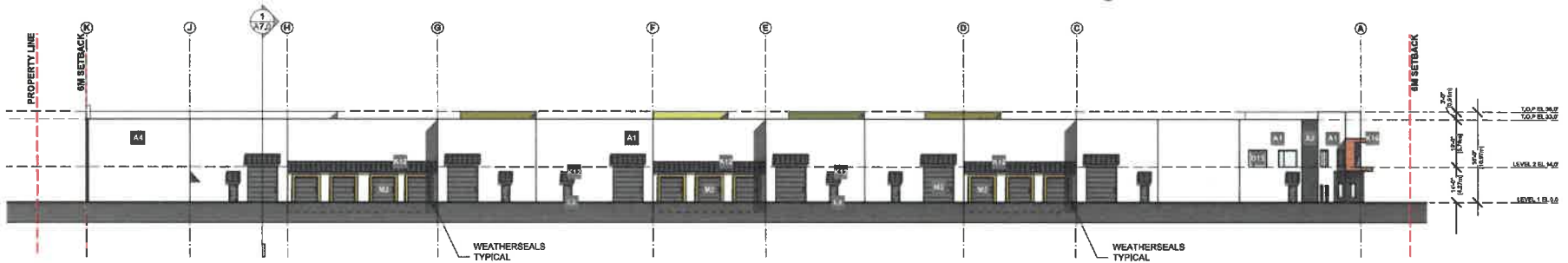


DRAWN BY: [Name] CHECKED BY: [Name] SCALE: 1/8"=1'-0" FILE: [Name]

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Unit: 301-1500 Crofton Drive Surrey BC V3Z 0Z5 T: 604.581.0912



1 EAST ELEVATION
1:500



2 WEST ELEVATION
1:500

DP000430
(6)

- MATERIAL LEGEND**
- A INSULATED TILT-UP CONCRETE PANEL PAINTED
 - B TILT-UP SCREENING WALL
 - C STOREFRONT WINDOW
 - D WINDOW WALL
 - E WINDOW WALL W/WRITED GLASS

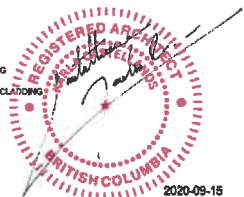
- F MAN DOOR
- G PANEL JOINT
- H CAST-IN-PLACE FORM WIREVEALS
- J PAINTED TRIM
- K CANOPY

- L STEEL FRAME HOLLOW METAL DOOR
- M OVERHEAD DOOR PAINTED
- N BALCONY WITH GLASS RAILING

- COLOUR LEGEND**
- 1 BENJAMIN MOORE WHITE
 - 2 BENJAMIN MOORE DARKER GREY
 - 3 BENJAMIN MOORE DARK GREY
 - 4 BENJAMIN MOORE LIGHT GRAY
 - 5 BENJAMIN MOORE BLUEGREY

- 6 BENJAMIN MOORE GREEN 1
- 7 BENJAMIN MOORE GREEN 2
- 8 BENJAMIN MOORE GREEN 3
- 9 VICWEST RW WHITE METAL CLADDING
- 10 VICWEST WOOD FINISH METAL CLADDING

- 11 VICWEST DEEP GRAY METAL CLADDING
- 12 VICWEST DEEP DARKER GRAY METAL CLADDING
- 13 BLACK ALUMINUM FRAME & TRANSPARENT DOUBLE GLASS UNIT
- 14 US FORM LINER REGU/L 1/10 PELLWORM



NO.	DATE	ISSUANCE
1	2020 03 23	ISSUED FOR COORDINATION
2	2020 04 02	ISSUED FOR COORDINATION
3	2020 04 03	ISSUED FOR DEVELOPMENT PERMIT
4	2020 09 02	RE-ISSUED FOR DP



PROPOSED NEW DEVELOPMENT
2375 FREMONT ST
PORT COQUITLAM BC

ELEVATIONS

A 4.0

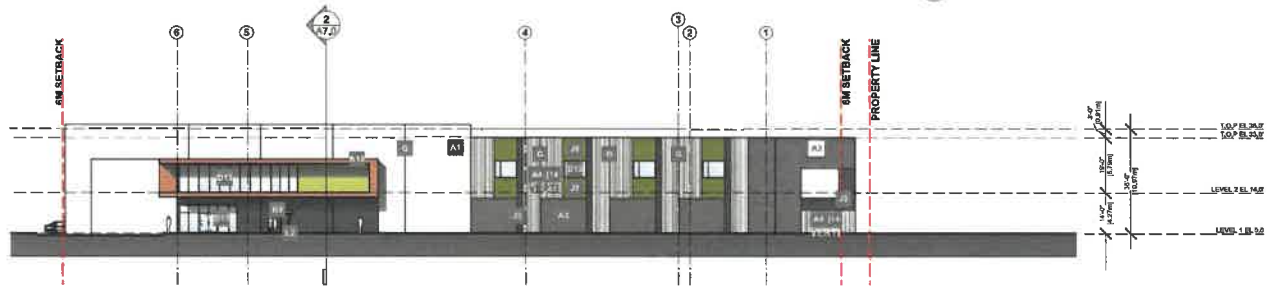


DATE: 15 SEP 2020
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FILE: 202

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KCC ARCHITECTURE
1000 15700 Crofton Dr. Surrey BC, V3R 0Z5
Tel: 604 281 0012



1 SOUTH ELEVATION
1:500



2 NORTH ELEVATION
1:500

DP000130 (7)

MATERIAL LEGEND

- A INSULATED TILT-UP CONCRETE PANEL PAINTED
- B TILT-UP SCREENING WALL
- C STOREFRONT WINDOW
- D WINDOW WALL
- E WINDOW WALL TINTED GLASS

- F MAN DOOR
- G PANEL JOINT
- H CAST-IN-PLACE FORM WIREWEALS
- J PAINTED TRIM
- K CANOPY

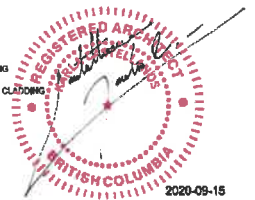
- L STEEL FRAME HOLLOW METAL DOOR
- M OVERHEAD DOOR PAINTED
- N BALCONY WITH GLASS RAILING

COLOUR LEGEND

- 1 BENJAMIN MOORE WHITE
- 2 BENJAMIN MOORE DARKER GREY
- 3 BENJAMIN MOORE DARK GREY
- 4 BENJAMIN MOORE LIGHT GRAY
- 5 BENJAMIN MOORE BLUEGREY

- 6 BENJAMIN MOORE GREEN 1
- 7 BENJAMIN MOORE GREEN 2
- 8 BENJAMIN MOORE GREEN 3
- 9 VICKWEST R/W/W WHITE METAL CLADDING
- 10 VICKWEST WOOD FINISH METAL CLADDING

- 11 VICKWESTDEEP GRAY METAL CLADDING
- 12 VICKWESTDEEP DARKER GRAY METAL CLADDING
- 13 BLACK ALUMINUM FRAME & TRANSPARENT DOUBLE GLASS UNIT
- 14 US FORMLINER RECORU 1/10 PELLWORM



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NO.	DATE	ISSUANCE
1	2020 03 31	ISSUED FOR COORDINATION
2	2020 04 03	ISSUED FOR DEVELOPMENT PERMIT
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PROPOSED NEW DEVELOPMENT

2375 FREMONT ST
PORT COQUITLAM BC

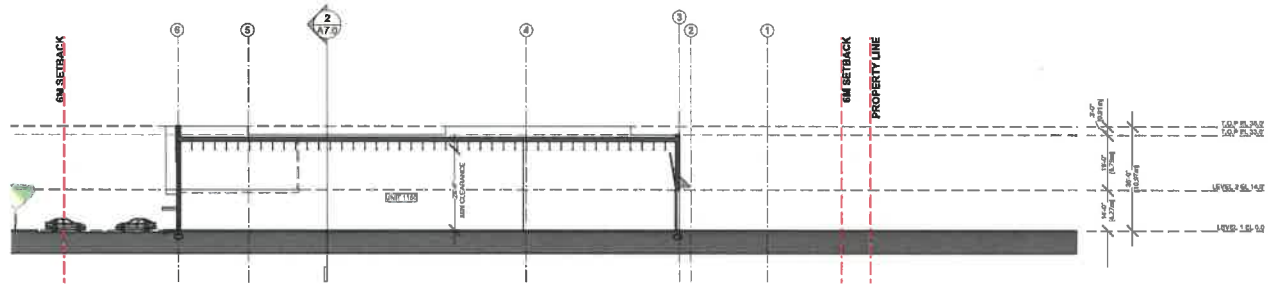
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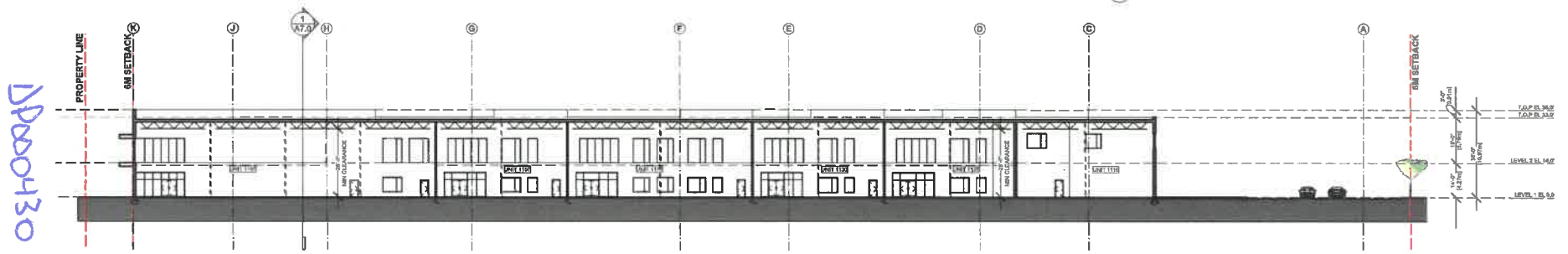


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1 SECTION 1
1:500



2 SECTION 2
1:500

DP000430 (8)



NO.	DATE	ISSUANCE
1	2020 03 23	ISSUED FOR COORDINATION
2	2020 04 02	ISSUED FOR COORDINATION
3	2020 04 02	ISSUED FOR DEVELOPMENT PERMIT
4	2020 09 02	RE-ISSUED FOR DP

NO.	DATE	ISSUANCE
1	2020 03 23	ISSUED FOR COORDINATION
2	2020 04 02	ISSUED FOR COORDINATION
3	2020 04 02	ISSUED FOR DEVELOPMENT PERMIT
4	2020 09 02	RE-ISSUED FOR DP



PROPOSED NEW DEVELOPMENT
2375 FREMONT ST
PORT COQUITLAM BC

SECTIONS

A 5.0

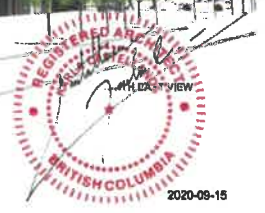


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NO.	DATE	ISSUANCE
1	2019 09 04	ISSUED FOR REVIEW
2	2019 09 06	ISSUED FOR REVIEW
3	2019 09 30	ISSUED FOR REVIEW
4	2019 10 07	ISSUED FOR REVIEW
5	2020 02 19	ISSUED FOR REVIEW
6	2020 04 03	ISSUED FOR DEVELOPMENT PERMIT
7	2020 09 02	RE-ISSUED FOR DP



PROPOSED NEW DEVELOPMENT
2375 FREMONT ST
PORT COQUITLAM BC

SCHEMATIC VIEWS

A 6.0



DRAWN: KC
CHECKED: KC
SCALE: NTS
FILE: 2002

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D000430 (10)



NORTH-EAST VIEW



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NO.	DATE	ISSUANCE
1	2019 09 04	ISSUED FOR REVIEW
2	2019 09 08	ISSUED FOR REVIEW
3	2020 02 19	ISSUED FOR REVIEW
4	2020 04 03	ISSUED FOR DEVELOPMENT PERMIT
5	2020 09 02	RE-ISSUED FOR DP



PROPOSED NEW DEVELOPMENT

2375 FREMONT ST
PORT COQUITLAM BC

ISO VIEW

A 6.1



DATE: 2020-09-15

SCALE: NIS

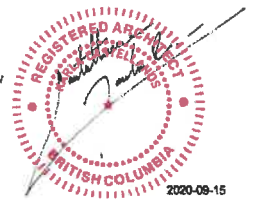
FILE: NIS

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T: 604 383 0912

DPA00430 (1)



SOUTH-EAST VIEW



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NO.	DATE	ISSUANCE
1	2018 09 04	ISSUED FOR REVIEW
2	2019 09 06	ISSUED FOR REVIEW
3	2020 02 19	ISSUED FOR REVIEW
4	2020 04 03	ISSUED FOR DEVELOPMENT PERMIT
5	2020 09 02	RE-ISSUED FOR DP



PROPOSED NEW DEVELOPMENT

2375 FREMONT ST
PORT COQUITLAM BC

ISO VIEW

A 6.2

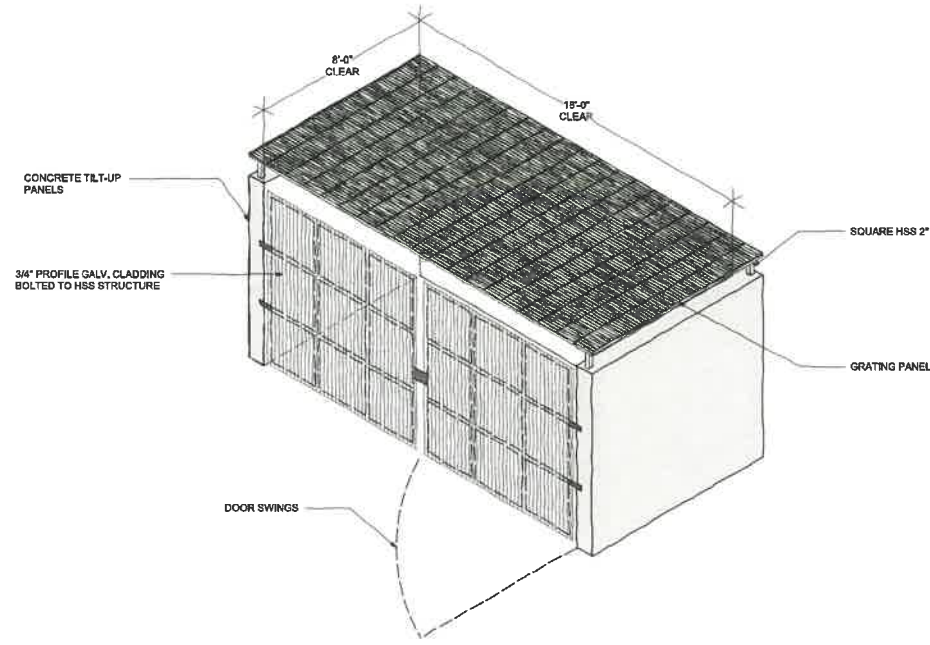


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SCALE: NIS

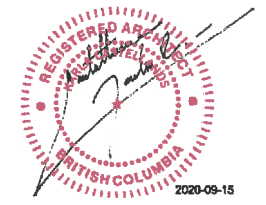
FILE: 2020

KCC Architecture & Design Ltd.
Unit 300 15300 Crofton Drive Surrey BC V2Z 0Z5
konarch@kccdm.com T: 604 283 0912



1 GARBAGE ENCLOSURE
3'16" x 1'-0"

DP000430 (12)



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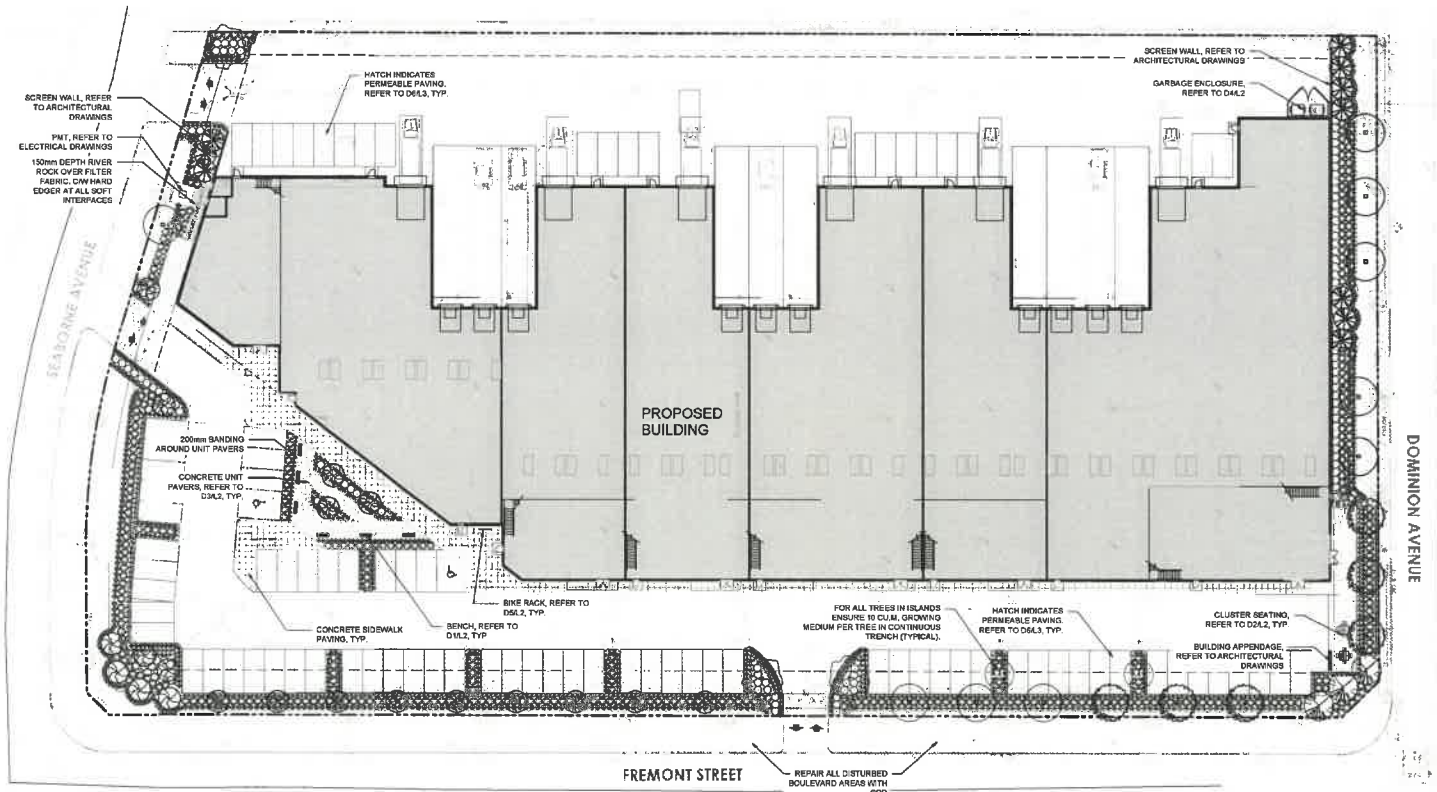
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2375 FREMONT ST
PORT COQUITLAM BC

MISCELLANEOUS DETAILS A 7.0



DESIGNED BY: BF
CHECKED BY: GC
SCALE: AS SHOWN
FILE: 202

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Tel: 604 233 0972



LEGEND

- TURF GRASS
- CONCRETE SIDEWALK PAVING
- CONCRETE UNIT PAVERS
- PERMEABLE PAVERS
- BIRCH
- CLUSTER SEATING

REVISIONS

NO.	DATE	DESCRIPTION
01	11/11/2020	ISSUED FOR PERMIT
02	11/11/2020	ISSUED FOR COMMENT RESPONSE
03	11/11/2020	ISSUED FOR COMMENT RESPONSE
04	11/11/2020	ISSUED FOR REDLINE
05	11/11/2020	ISSUED FOR REVIEW
06	11/11/2020	ISSUED FOR PERMIT

B.C.S.L.A. #565

PLANTING NOTES

- PLANTS SHALL BE INSTALLED AS DIRECTED BY THE DRAWING, NOTES AND DETAILS.
- PLANT MATERIAL, SUBSTITUTIONS WILL NOT BE ACCEPTED WITHOUT PRIOR WRITTEN APPROVAL.
- ALL PLANT MATERIAL SHALL BE THOROUGHLY WATERED AND SOAKED AT THE TIME OF PLANTING.
- WIRE PROTECTION:** PER THE MUNICIPAL DETAIL IF REQUIRED.
- ALL LANDSCAPE MATERIAL IS TO COMPLY WITH THE CANADIAN LANDSCAPE STANDARDS.
- SOIL ANALYSIS FOR PROPOSED GROWING MEDIUMS IS TO BE PROVIDED TO LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
- ALL PLANTING BEDS TO BE FINISHED WITH 75mm OF BARK MULCH, REFER TO PLANTING DETAILS FOR INSTALLATION AROUND PLANT MATERIAL.
- PLANT MATERIALS SPECIFIED FOR THIS PROJECT WILL CONFORM TO THE CANADIAN LANDSCAPE STANDARDS AND GENERAL LANDSCAPE STANDARDS FOR SITE, VARIETY AND CONDITION AS INDICATED IN THE PLAN. GET SHOWN ON THIS DRAWING. ANY PLANT DISPLAYING POOR GROWTH HABITS, INJURY OR DAMAGE WILL BE REJECTED. ANY PLANT THAT IS REJECTED WILL BE REMOVED FROM THE SITE AND REPLACED WITH A PLANT OF ACCEPTABLE QUALITY AT THE CONTRACTOR'S COST TO THE OWNER.
- REMOVE DEAD OR DAMAGED BRANCHED, ALL PRUNING SHALL BE PERFORMED IN ACCORDANCE WITH STANDARD HORTICULTURAL PRACTICES AND INTERNATIONAL SOCIETY OF ARBORISTS (ISA) SPECIFICATIONS WITH APPROPRIATE TIMING FOR EACH SPECIES.
- PROVIDE A ONE-YEAR WARRANTY FOR THE PLANT MATERIAL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MAINTENANCE REQUIRED TO KEEP THE PLANTS IN A HEALTHY CONDITION DURING THE WARRANTY PERIOD, UNLESS OTHERWISE AGREED UPON AND FOR REPLACEMENT OF PLANT MATERIAL THAT ARE DEAD OR IN POOR CONDITION DURING THE WARRANTY PERIOD AT THE CONTRACTOR'S OWN EXPENSE. MAINTENANCE INCLUDES BUT IS NOT LIMITED TO:
 - 10.1 Regular schedule of watering of the plants as required and/or as directed by the Project Manager during construction and the warranty period. Plants shall be watered within 24 hours of setting by the Contractor or Owner's representative. If there is no water, the Project Manager shall be notified immediately by the Contractor. The cost of this work shall be deducted from the total Contract Price or retained and to be recovered from the Contractor.
 - 10.2 Mulch/maintenance and additional installation of water.
 - 10.3 Watered around.
 - 10.4 Disease treated.

GENERAL NOTES

- EXAMINE SITE AND CONFIRM EXISTING SITE CONDITIONS BEFORE BIDDING.
- CONFIRM ALL MEASUREMENTS ON SITE. DO NOT SCALE DRAWINGS.
- CONFIRM EXISTING AND PROPOSED GRADES PRIOR TO BEGINNING CONSTRUCTION WORKS.
- CONFIRM MUNICIPAL REQUIREMENTS FOR BUILDING PERMITS, SETBACKS, BUILDING CODE WORKS, AND OTHER BYLAW REQUIREMENTS. OBTAIN REQUIRED PERMITS PRIOR TO BEGINNING CONSTRUCTION WORKS.
- OBTAIN UTILITY AND SERVICES LOCATES PRIOR TO BEGINNING CONSTRUCTION WORKS.
- PROTECT FROM DAMAGE ALL EXISTING STRUCTURES, TREES, SERVICES, SITE FURNISHINGS, UNDERGROUND SERVICES AND OTHER EXISTING ELEMENTS THAT REMAIN ON SITE. ARE PART OF THE SITE ACCESS OR ARE ADJACENT TO THE SITE. PERFORM REPAIR AND MAKE GOOD WORKS FOR ANY DAMAGE THAT IS CAUSED BY THE CONTRACTOR'S WORK AT THE CONTRACTOR'S OWN EXPENSE.
- UNLESS OTHERWISE SPECIFIED, CONTRACTOR SHALL GUARANTEE ALL WORKS AND MATERIALS FOR A PERIOD OF NOT LESS THAN ONE (1) YEAR. CONTRACTOR SHALL INSPECT THE LANDSCAPE ON A REGULAR BASIS AND REPLACE MATERIALS THAT ARE IN POOR CONDITION WITHIN TWO WEEKS OF INSPECTION OR NOTIFICATION.
- THE CONTRACTOR SHALL MAINTAIN THE SITE IN GOOD WORKING ORDER WITH A CLEAN AND ORDERED APPEARANCE, DURING THE PERIOD OF WORKS. EXISTING PUBLIC AND ROAD AREAS ARE TO BE KEPT OPEN AT ALL TIMES AND KEPT FREE OF DEBRIS. LANDSCAPE DEBRIS IS TO BE DISPOSED OFF-SITE AT LEGAL AND APPROVED LOCATIONS.

BIDDING NOTES:

- BIDDING AREAS AS SHOWN ON THE PLANTING PLAN ARE TO BE CERTIFIED CANADIAN NO. 1 CULTIVATED TURF SOIL WITH STRONG PERENNIAL ROOT SYSTEM, THICK AND HEAVY GROWTH CONCERNING TO REQUIREMENTS OF THE CANADIAN LANDSCAPE STANDARDS, AND OF THE FOLLOWING:
 - 100% BLOOM OF 100% BLOOMING BLOSSOMS
 - 50% CREEPING RED FESCUE
 - 20% PERENNIAL RYEGRASS
 - USE LATEST APPROVED CULTIVARS
- AREAS TO BE SOODED SHALL HAVE A MINIMUM 100mm TOPSOIL DEPTH.
1. LOCKEN SOIL SURFACE PRIOR TO SOODING. ELIMINATE BUMPES AND HOLE LEMS. HILL LIGHTLY W/ WHEEL OVER TOPSOIL IS EXCESSIVELY LOW.
2. PRIOR TO SOODING, OBTAIN APPROVAL THAT FINISHED GRADE AND DEPTH OF TOPSOIL ARE SATISFACTORY.
3. DELIVER SOIL TO SITE WITHIN 24 HOURS OF BEING LIFTED AND LAY WITHIN 48 HOURS OF BEING LIFTED. DURING DRY PLEASER PROTECT SOIL FROM DRYING, AND WATER SOIL AS NECESSARY TO MAINTAIN MOISTURE AND PREVENT THE LOSS OF SOIL IN HANDLING. DRY SOIL WILL BE REJECTED.
4. LAY SOIL DURING GROWING SEASON. LAY SOIL IN ROWS, PERPENDICULAR TO BLOW AND WITH JOINTS STAGGERED. BUTT SECTIONS CLOSELY WITHOUT OVERLAPPING OR LEAVING GAPS BETWEEN SECTIONS. CUT OUT HORIZONTAL OR TYPICAL SECTIONS WITH SHARP IMPLEMENTS.
5. WATER SOIL IMMEDIATELY AFTER LAYING TO OBTAIN MOISTURE PENETRATION INTO TOP 150MM OF TOPSOIL. MAINTAIN SOODED AREAS FROM START OF INSTALLATION UNTIL FINAL ACCEPTANCE.

IRRIGATION NOTES:

- IRRIGATION TO BE PROVIDED FOR ALL "SOFT" LANDSCAPE AREAS (SHOWN ON THE DRAWING) USING A HIGH EFFICIENCY IRRIGATION SYSTEM.
- IRRIGATED AREAS TO BE INSTALLED AS A DESIGN BUILT IRRIGATION SYSTEM FOR THE STUD OUTS PROVIDED. PRELIMINARY DETAILS OF DESIGN TO CONSULTANT AT LEAST ONE WEEK PRIOR TO INSTALLATION AND AS-BUILT DRAWINGS WITHIN ONE MONTH OF SUBSTITUTIONAL PERFORMANCE.
- THE IRRIGATION SYSTEM DESIGN AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE IRRIGATION INDUSTRY OF BC STANDARDS AND GUIDELINES.
- ALL IRRIGATION VALVE BOXES TO BE EQUIPPED WITH CHECK COUPLERS.
- USE POP-UP SPRINKLER HEADS.
- 6.0 NO-SPRAY WATERER TYPE TRUNKS.

PLANT LIST

KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	CONDITION
DECIDUOUS TREES						
	3	<i>Acer rubrum</i> 'Autumn Flame'	Autumn Flame Norway Maple	6cm cal.	As Shown	W.B.
	6	<i>Olea glabra</i>	Mediterranean Olive	6cm cal.	As Shown	W.B.
	6	<i>Cordyline japonica</i>	Katana Tree	6cm cal.	As Shown	W.B.
	2	<i>Zelkova serrata</i>	Japanese Zelkova	6cm cal.	As Shown	W.B.
CONIFERUS TREES						
	18	<i>Picea canadensis</i>	Eastern Spruce	2.5m H.	As Shown	W.B.
	3	<i>Chamaecyparis nootkanensis</i>	Wreathing Hoop Pine	2.5m H.	As Shown	W.B.
BIRCHES						
	411	<i>Larix laricina</i>	Scots Pine	30cm H.	0.75m	#5 Pot
	555	<i>Picea canadensis</i>	White Birch	25cm H.	1m	#5 Pot
	41	<i>Thuja occidentalis</i>	Greenery	80cm H.	1m	#5 Pot
	75	<i>Kalmia latifolia</i>	Sheep Laurel	30cm H.	1m	#5 Pot
	20	<i>Anemone pulsatilla</i>	Windflower	3m H.	As Shown	Mult-Shr.
PERENNIALS, GROUND COVERS, AND GRASSES						
	432	<i>Verbena officinalis</i>	Verbena	1.5m		Potted
	495	<i>Nepeta haworthii</i>	Woolly Thyme	1.5m		Potted

DPO00430 (13)



PROPOSED NEW DEVELOPMENT

2375 FREEMONT ST.
PORT COQUITLAM, BC

LANDSCAPE PLAN AND NOTES

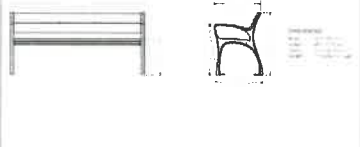
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2	11/11/2020	ISSUED FOR COMMENT RESPONSE
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4	11/11/2020	ISSUED FOR REDLINE
5	11/11/2020	ISSUED FOR REVIEW
6	11/11/2020	ISSUED FOR PERMIT

L1

MLB870-W 870 SERIES



MATERIALS Steel made from select steel mill alloy. The steel employed has more than 400 MPa tensile strength and 235 MPa yield strength.
FINISH Galvanized steel substrate powder coated with a self-healing finish.
INSTALLATION The bench is delivered with assembly instructions for all required parts.
OPTIONS Bench seat/backrest.
 Casters for mobility.

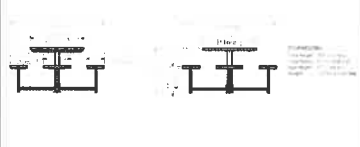


D1 BENCH N.T.S.

MLPT400-S-W 400 SERIES



MATERIALS The frame is a L, steel seat and full size and every detail is made from steel.
FINISH All steel components are galvanneal with a clear coat epoxy.
INSTALLATION The table is delivered with assembly instructions for all required parts.
OPTIONS Table seat/backrest.
 Casters for mobility.
 Casters for mobility.



D2 CLUSTER SEATING N.T.S.

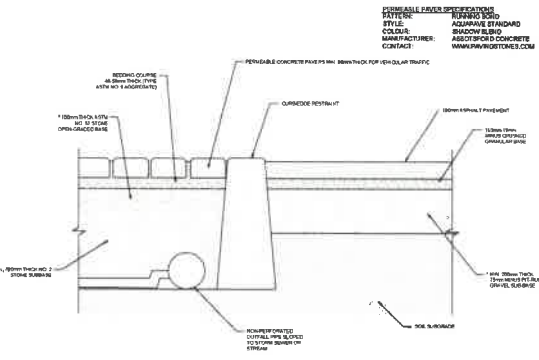
MBR400-T-S 400 SERIES



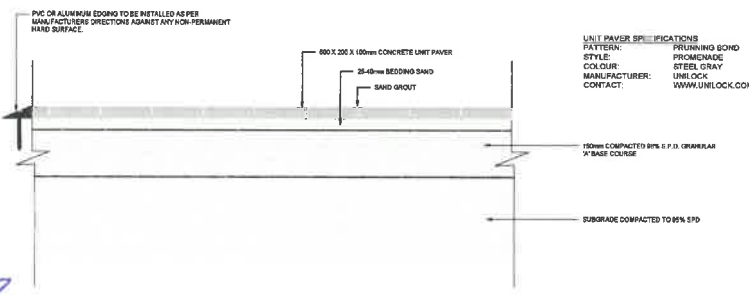
MATERIALS All parts of the rack are made from heavy-duty steel.
FINISH All steel components are galvanneal with a clear coat epoxy.
INSTALLATION The rack is delivered with assembly instructions for all required parts.
OPTIONS Casters for mobility.
 Casters for mobility.



D5 BIKE RACK N.T.S.

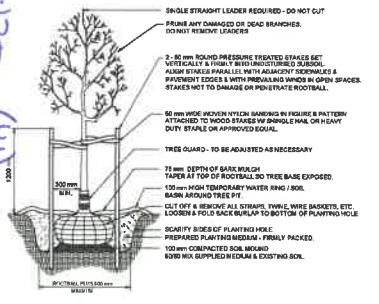


D6 PERMEABLE PAVING N.T.S.

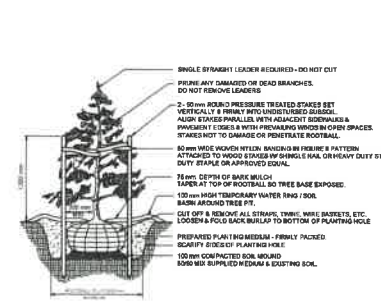


D3 CONCRETE UNIT PAVERS N.T.S.

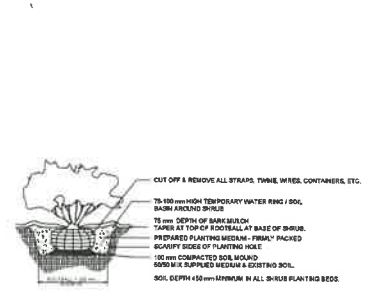
Dp-3130 (14)



DECIDUOUS TREE N.T.S.



CONIFEROUS TREE N.T.S.



SHRUB AND PERENNIAL PLANTING DETAIL N.T.S.



- 23000 ISS FOR COMMENT RESPONSE
- 23500 ISS FOR COMMENT RESPONSE
- 140000 ISSUED FOR BIDD
- 150000 ISSUED FOR REVIEW
- 200000 ISSUED FOR EP
- 200000 ISSUED FOR EP
- 200000 ISSUED FOR EP
- 200000 ISSUED FOR EP

PROPOSED NEW DEVELOPMENT
 2375 FREEMONT ST,
 PORT COQUITLAM, BC

DETAILS

NO.	DESCRIPTION	DATE
1	AS NOTED	
2		
3		
4		
5		
6		

L2

Schedule A

Energy Conservation:

Conservation Measure	Verification Method
All roofs are to be light in colour to minimize solar heat gain	BP stage; written confirmation by Architect along with staff review of BP submission
Landscaping adjacent to passenger vehicle parking areas includes shade trees to provide shading of parking space pavement	DP stage; staff review of landscape plan
Windows are to be double glass with e-coating to reduce solar heat gain in the summer and heat loss in the winter	BP stage; written confirmation by Architect along with staff review of BP submission
Majority of windows face north and east, or are shaded to limit heat gain and limit cooling of accessory office areas	DP and BP stage; staff review of architectural drawing
Exterior lighting that is dark sky compliant to reduce glare and spill-over to adjacent property	BP stage; written confirmation by Architect

Water conservation:

Conservation Measure	Verification Method
Use of low-flow plumbing fixtures	BP stage; staff review of building plans and inspections
Native and drought resistant planting will be used to reduce water consumption	DP and BP stage; staff review of landscape drawing, site inspection by Landscape Architect and City Arbourist
High-efficiency irrigation system with rain sensors will be installed	DP and BP stage; staff review of landscape drawing, site inspection by Landscape Architect and City Arbourist
Minimum depth of soil for planting areas will be 45cm	DP and BP stage; staff review of landscape drawing, site inspection by Landscape Architect and City Arbourist
Soil/grit and oil interceptors will be installed	BP stage; staff review of building plans and inspections
Impervious landscape/permeable paver area exceed the minimum requirements of the zoning bylaw increasing infiltration and reduce stormwater flows	DP stage; staff review of landscape plan

GHG Reduction:

Conservation Measure	Verification Method
Building will be constructed of insulated tilt-up concrete panels, a light coloured roof, and insulated overhead loading doors with weather seals which reduce energy consumption for heating and cooling purposes	BP stage; written confirmation by Architect along with staff review of BP submission
Building will utilize materials with low volatile organic compound off-gassing potential	BP stage; written confirmation by Architect along with staff review of BP submission
Installation of bike racks to promote alternative transportation	DP and BP stage; staff review of landscape drawing

per OCP Sec. 9.11 Environmental Conservation DPA designation

2481 Welcher Avenue – Development Permit and Development Variance Permit Applications

RECOMMENDATION:

That Committee of Council:

1. Approve in principle Development Permit DP000441, regulating a 5-storey 63-unit, multi-family residential development at 2481 Welcher Avenue.
2. Pursuant to s. 498 of the Local Government Act, authorize staff to provide notice of an application to vary building height and floor area regulations; and
3. Forward Development Variance Permit DVP00073 to Council with support for consideration, subject to comments from neighbourhood input.

PREVIOUS COUNCIL/COMMITTEE ACTION

None.

REPORT SUMMARY

This report describes two applications from Metro Vancouver Housing for a property at 2481 Welcher Avenue. The first is a development permit application to regulate the form and character for a non-market rental residential building. And the second, an application to vary the height of the building and density bonus payment for additional floor area to permit the construction of an additional 13 units. The proposal includes a five storey high performance and energy efficient 63 unit building. Metro Vancouver will be the owner and operator of this non-market rental housing development. Staff recommends Committee provide approval in principle to the development permit, advise Council that Committee supports further consideration of the requested variances and authorize staff to provide public notification of the variances.

BACKGROUND

Proposal: The applicant, Metro Vancouver Housing, has applied for a development permit and development variance permit to facilitate development of a 5-storey, 63-unit non-market rental housing project at 2481 Welcher Avenue.

Context: The 2,700m² (29,062 ft²) site is located at the corner of Welcher Avenue and Reeve Street, with Gates Park located directly to the west of the site. The site is comprised of three lots currently occupied by two empty single residential houses. The subject properties within an area already development with apartment residential uses; Gates Park and Riverside Secondary School are located to the west and southwest of Reeve Street respectively.

2481 Welcher Avenue – Development Permit and Development Variance Permit Applications



Location map

Policy and Regulations: The Official Community Plan designates the site as Apartment Residential that allows for lower profile attached residential uses. The property is zoned RA1 (Residential Apartment 1), which permits residential uses.

The objectives of the site's Downtown, Intensive Residential, and Environmental Conservation development permit area designations are intended to:

- Create a sense of community in intensive residential areas by improving the relationship and connection between public and private space along intensive residential streets.
- Facilitate the orderly development of the area and to encourage coordination of the siting, form, and volume of intensive residential buildings and their areas for parking, storage, and landscaping
- Encourage sustainable development and building design, efficient use of energy, water and other resources, and the reduction of waste and pollution.

OCP policies also support meeting housing affordability objectives and promote amenities for diverse families through opportunities to encourage the development of rental housing and ensure options for households that do not want or cannot afford to own their home.

Project Description: The proposed development is a 5-storey, non-market rental housing building with 63 apartment units. The applicant has designed the building to be family oriented, with a number of larger units and an accessible design to support people of all ages and abilities. The proposed unit breakdown consists of 6 studio, 5 one-bedroom, 34 two-bedroom, and 18 three-bedroom units. The units will range in size from 38m² (410 ft²) to 96m² (1,033 ft²) and each will have a balcony or patio.

2481 Welcher Avenue – Development Permit and Development Variance Permit Applications

	Bylaw Regulations ¹	Proposed ²	Proposed Variance
Site area minimum	1000 m ²	2,700 m ²	-
Floor area ratio	1.5 / 2.0	1.79	0.21
Dwelling units (total)	-	63	-
Adaptable units	-	57	-
Family-oriented units	16	18	-
Building lot coverage	50%	50%	-
Setbacks:			
Front (south)	4.0 m	5.4 m	-
Rear (north)	7.5 m	8.5 m	-
Interior side (east)	3.0 m	3.3 m	-
Exterior side (west)	4.0 m	4.2 m	-
Building height	15 m	17.7 m	2.7 m
Parking: Total	63	66	-
Residents	63	63	-
Staff	n/a	3	-
Small car	25% (16)	23% (15)	-
Bicycle parking			
Long-term	63 (1 per res unit)	63	-
Short-term	6	6	-
Indoor recreation area	126 m ²	136.6 m ²	-
Outdoor recreation area	220.5 m ²	278.1 m ²	-



Looking east at the corner of Welcher Avenue and Reeve Street



Looking northwest along Welcher Avenue

¹ Refer to Zoning Bylaw No. 3630, Parking and Development Management Bylaw No. 4078 and Building and Plumbing Bylaw No. 3710 for specific regulations.

² Information provided by applicant.

2481 Welcher Avenue – Development Permit and Development Variance Permit Applications

The applicant advises that the development is intended to respect the scale and quality of the existing residential neighborhood and adjacent greenspace while ensuring a strong focus on community and quality of life for tenants. The building orientation provides for strong corner presence with a focus on a street-oriented, pedestrian environment; the main pedestrian entrance is on Welcher Avenue and this frontage provides for a generous amount of common outdoor courtyard space plus private patios intended to support a vibrant streetscape and facilitate opportunities to provide safe and attractive pedestrian connections into the building. Along Reeve Street, there are substantive landscape elements, including street trees, maintaining continuous street character. Vehicular access to the underground parking is to be located off the rear lane at the northeast corner of the site.

The design of the building has been largely influenced by the intent to reduce energy consumption to meet BC Energy Step Code 4 energy requirements, and potentially achieve a Net-Zero Energy performance. Passive design strategies, such as simple building form, external (non-recessed) balconies, and orientation to consider summer and winter heat gain have been used to this end. The applicant advised that since energy performance would be compromised with additional building envelope articulation, such as stepping back higher stories of the building, they have instead addressed building massing by using horizontal material changes to break down the massing and increase the pedestrian experience at the human scale. The inclusion of dark brick at the base is intended to give the building a strong foundation at the ground level with light cladding above to reduce the presence of upper storeys. The impact of the fifth floor to the adjacent building to the east is further mitigated by limiting the size of windows and eliminating balconies on this elevation and increasing the setback.

The proposed colour palette is reflective of the neighbouring buildings and includes elements which are sympathetic to the City's heritage character. This includes a substantive amount of brick and metal panels, with a mixture of colours, textures and substantial glazing to increase light into the units.

The common outdoor courtyard on Welcher Avenue connects directly to an indoor amenity space used as an area for residents to socialize and host events. The outdoor space includes movable tables and chairs, terraced concrete benches and a moveable long table for events. Equipment for children includes a water play pump, chalkboard wall and there will be a community garden beds for all residents with a potting table and garden tool storage. Each unit is also provided with their own private balcony or terrace.

2481 Welcher Avenue – Development Permit and Development Variance Permit Applications



Landscaping on-site including street trees along Welcher Avenue and Reeve Street

All required vehicular parking is located in the parkade structure, along with secured bicycle storage and three staff parking stalls for Metro Vancouver Housing building management and maintenance staff. A vehicle wash station would be provided within a staff parking stall. Three short term bike racks are provided next to the front entrance for visitors. The garbage and recycling facility is located in a secured structure off of the rear lane.

In order to accommodate the development, 56 trees on-site and two off-site trees would need to be removed. An arborist report was submitted and identified the majority of tree species are fast growing Cottonwood and Laurel species. No significant trees were identified.

The proposed landscaping includes vegetated, concrete planters around the edges of the site with various shrubs and trees evenly spaced. The landscape architect has advised that the development can accommodate a total of 38 replacement trees which will include Red Maple, European Beech, Yoshino Cherry, and Lavalle Hawthorne. The addition of 10 trees along the northeast of the property was provided for increased screening based on concerns expressed by abutting residents. Replacement trees will be placed primarily around the perimeter of the site, on the boulevard and within the outdoor courtyard. A total of 973 shrubs and extensive groundcover will be comprised of Salal, Japanese Holly, and Viburnum. In accordance with the City’s Tree Bylaw, cash-in-lieu



Trees to be protected at 2437 Welcher Ave

2481 Welcher Avenue – Development Permit and Development Variance Permit Applications

may be provided for the replacement trees that cannot be accommodated on-site.

There are four trees located on 2437 Welcher and one tree within the boulevard, in close proximity to the property line. In accordance with the City's Tree Bylaw, protective fencing will be installed along the east side of the property to ensure that buffering trees are not impacted by the development.

Environmental Conservation

The applicant have confirmed they intend to construct the building to meet Step 4 of the BC Energy Step Code, which incorporates critical energy reducing measures into the architectural, mechanical and electrical design of the building to provide for the potential of Net-Zero Energy performance. The proposal goes beyond the City's current requirements for any large residential buildings, which is Energy Step Code 2. The Net-Zero Energy performance that has been incorporated into building design includes Passive House performance level envelope, high efficiency heat recovery, heat pumps for domestic hot water use, and passive design strategies. Energy meters will be installed so that residents are aware of the impacts their choices make.

A complete list of conservation measures are provided in Schedule A of the draft development permit.

Offsite requirements

In accordance with the Subdivision Servicing Bylaw, servicing work includes upgrading Welcher Avenue and Reeve Street (curb and gutter, sidewalk, road drainage and street lighting), undergrounding of utilities in the lane and the extension and construction of water, storm and sanitary to service the site. These will be conditions of building permit issuance. The City has identified the need for 3m x 3m corner cut at the intersections of Reeve/Welcher and Welcher/lane.

Variances to Zoning Regulations:

The applicant has requested a 2.7 m height variance to facilitate construction of the fifth storey of affordable rental units, The construction of a fifth storey has also resulted in a floor area ratio of 1.79, and applicant has also requested a variance to the zoning bylaw provision which requires a contribution in the amount of \$50 per square foot for floor area in excess of 1.5 FAR.

DISCUSSION

The proposed residential building is attractive and, while heavily influenced by extraordinary energy performance measures, has used a variety of architectural approaches to ensure the design meets the intent of the development permit guidelines and is reflective of the existing form and character of the surrounding residential developments. The additional height has been mitigated through the reduction of windows and balconies on this elevation and the increase in setback and substantive landscaping to buffer the adjacent residential buildings. The location of the building on a corner and across from Gates Park limits further impacts of the additional height. The formal entrance and programmed common terrace along Welcher Avenue will provide for

2481 Welcher Avenue – Development Permit and Development Variance Permit Applications

ample opportunities for building community within the building, an attractive pedestrian experience and increase “eyes on the street”.

The development also aligns with the City’s OCP and associated policies to explore and support the development of rental housing, encourage housing affordability and promote a range of housing options to meet the needs of our diverse community.

In accordance with municipal policy, staff recommend the additional 13 units of non-market housing be considered a community benefit and height limits and the \$50 per square foot requirements be waived subject to a Housing Agreement. Staff also recommend the City’s requirements for corner cuts be secured through this process.

Staff recommend Committee provide approval in principle of the development permit (consideration of approval would then be timed with the development variance permit at Council) and recommend approval of the development variance permit to Council.

FINANCIAL IMPLICATIONS

In accordance with the Processing of Development Applications Policy, the City did not require Development Permit application fees, an approximate value of \$9,025. Metro Vancouver Housing may also apply to the City for a grant from the Special Needs Housing Reserve for a maximum of \$63,000 (\$1,000 per dwelling unit).

This property generated \$7,675.22 in Port Coquitlam property tax revenue in 2020, based on an assessment of \$2,920,000. Once the property is developed for the purposes of providing housing, it will be exempt from taxation under section 361 of the Local Government Act which provides exemptions for properties owned or held by a regional district and used for the regional district’s purposes.

PUBLIC CONSULTATION


A sign has been posted on the site to inform area residents of the application. The applicant has also provided a four page informational handout to residents on all sides that are directly impacted by the development. The handout also provided a link to a Metro Vancouver webpage for further information, where residents could contact the applicant to express any concerns or ask questions.

Comments have been received in respect to the proposed height, landscaping, parking and potential tenants. The consultation summary provided by Metro Vancouver Housing indicates residents’ concerns over decreased property value of neighbouring buildings, and loss of existing views. The applicant has amended their application to increase landscaping to buffer units in the adjacent building (including the addition of 10 trees along the northeast edge of the property) and

2481 Welcher Avenue – Development Permit and Development Variance Permit Applications

to reduce the street massing and has provided clarity to neighbouring residents as to the nature of the non-market housing proposal. Further comments expressed from residents included excitement for the project and questions about the tenant selection process, project timelines, and unit and parking confirmation.

OPTIONS (✓ = Staff Recommendation)

	#	Description
	1	Approve Development Permit DP000441 in principle and authorize notification of Development Variance Permit application DVP00073, and recommend Council consider approval of the development variance permit and development permit at a future Council meeting.
	2	Request additional information or amendments if Committee is of the opinion that such information or amendment would assist in its evaluation of how the design complies with the development permit area designation or variances to regulations.
	3	Refuse the applications if the Committee is of the opinion the application does not conform to the design guidelines or does not support the variances to regulations.

ATTACHMENTS

- Attachment 1: Draft Development Permit
- Attachment 2: Draft Development Variance Permit
- Attachment 3: Consultation Package
- Attachment 4: Green Energy Checklist
- Attachment 5: Arborist Report

Lead author(s): Graeme Muir

THE CORPORATION OF THE CITY OF PORT COQUITLAM
"DEVELOPMENT PROCEDURES BYLAW, 2013, NO. 3849"

DEVELOPMENT PERMIT

NO. DP000441

Issued to: Metro Vancouver Housing Corporation, INC. No. 129319
(Owner as defined in the Local Government Act,
hereinafter referred to as the Permittee)

Address: 4730 Kingsway, Burnaby, BC V5H 0C6

1. This Development Permit is issued subject to compliance with all of the Bylaws of the Municipality applicable thereto, except as specifically varied by this Permit.
2. This Development Permit applies to and only to those lands within the Municipality described below, and any and all buildings, structures and other development thereon:

Address: 2481 Welcher Avenue

Legal Description: LOT 1, DISTRICT LOT 174, GROUP 1, NEW WEST DISTRICT, PLAN
EPP91668

P.I.D.: 031-117-490

3. The above property has been designated as a Development Permit Area under Section 9.0 – Development Permit Area in the "Official Community Plan Bylaw, 2013, No. 3838".
4. "Port Coquitlam Zoning Bylaw, 2008, No. 3630" and "Parking and Development Management Bylaw, 2018, No.4078" are varied, supplemented or both in accordance with the following:
 - a. The form and character of the building, including the siting, height and general design, shall be as shown on drawings numbered DP000441 (1) to (21) which are attached hereto and form part of this permit.
 - b. The form and character of on-site landscaping shall be as shown on drawings numbered DP000441 (12) to (20) and the following standards for landscaping are imposed:
 - (i) All landscaping works and planting materials shall be provided in accordance with the landscaping plan and specifications thereon, which form part of this permit and is attached hereto.

(ii) All planting materials shall be able to survive for a period of one year from the date of the site landscape approval by the Municipality.

c. The building and landscaping shall provide the energy conservation, water conservation and GHG emission reduction elements as shown on Schedule A to the drawings which are attached hereto and form part of this permit.

5. **Landscape Security**

(a) As a condition of the issuance of this permit, the security set out below will be held by the Municipality prior to the issuance of a building permit to ensure satisfactory provision of landscaping in accordance with the terms and conditions as set forth in Clause 4 above. There is filed accordingly an irrevocable Letter of Credit or cash security in the amount \$516,058.00 for the purpose of landscaping.

(b) Should any interest be earned upon the security, it shall accrue to the Permittee and be paid to the Permittee if the security is returned. A condition of the posting of the security is that should the Permittee fail to carry out the works or services as hereinabove stated, according to the terms and conditions of this permit within the time provided, the Municipality may use the security to complete these works or services by its servants, agents or contractors, and any surplus shall be paid over to the Permittee.

(c) The Permittee shall complete the landscaping works required by this permit within six months of the final inspection for the final phase of the development. Within the six month period, the required landscaping must be installed by the Permittee, and inspected and approved by the Municipality.

If the landscaping is not approved within the six month period, the Municipality has the option of continuing to hold the security until the required landscaping is completed or has the option of drawing the security and using the funds to complete the required landscaping, and recoup additional costs from the Permittee if necessary. In such a case, the Municipality or its agents have the irrevocable right to enter into the property to undertake the required landscaping for which the security was submitted.

(d) Should the Permittee carry out the works and services permitted by this permit within the time set out above, the security shall be returned to the Permittee.

6. The land described herein shall be developed strictly in accordance with the terms and conditions and provisions of this permit and any plans and specifications attached to this permit, which shall form a part hereof.

7. This permit shall lapse if the Permittee does not substantially commence the construction permitted by this permit within two years of the (issuance) date of this permit.
8. The terms of this permit or any amendment to it, are binding on all persons who acquire an interest in the land affected by this permit.
9. This permit is not a building permit.

APPROVED BY COUNCIL THE _____ DAY OF _____, 2020.

SIGNED THIS _____ DAY OF _____, 2020.

Mayor

Corporate Officer

I ACKNOWLEDGE THAT I HAVE READ AND UNDERSTAND THE TERMS AND
CONDITIONS UPON WHICH THIS PERMIT IS ISSUED.

Applicant (or Authorized Agent or
Representative of Applicant)

WELCHER AVENUE MULTI-FAMILY



Category	Item	Value
CIVIC ADDRESS:	100 S. WEST Hastings Avenue, Port Moody BC	2977 West Hastings Ave., Port Moody, BC
	100 S. WEST Hastings Avenue, Port Moody BC	3517 West Hastings Ave., Port Moody, BC
	PARCEL IDENTIFIER:	091-17-430
LEGAL DESCRIPTION:	LOT 1 DISTRICT 174 GROUP 1	NEW WESTMINSTER DISTRICT PLAN EPP#168
	NEW WESTMINSTER DISTRICT PLAN EPP#168	PARCEL 101
	ZONING:	R1
STATE AREA:	2,700.4sf	
FOOTPRINT:	1,316.1sf	Building (including Deck, Stairs, Excluding Canopy)
	2,252.5sf	Special Independent Facility
	22.8sf	Recycling Facilities Structures
ZONING CALCULATIONS	PERMITTED	PROPOSED
	LOT COVERAGE: 50%	49.8%
FLOOR AREA:	6,409.8sf	4,839.3sf
FLOOR AREA NET TOTAL:	1.52 SFM ²	1.70
MINIMUM INDOOR AIRFLOW AREA:	200sf UNIT (25M ²)	128.8sf
MINIMUM COMMON OUTDOOR AREA:	2.5sf UNIT (225.0M ²)	278.1sf
SETBACKS:		
WEST (Main):	7.6m	5.3m
EAST (Main):	2.8m	3.3m
SOUTH (Main):	4.6m	5.4m
NORTH (Main):	4.9m	4.2m
BUILDING HEIGHT:	15.0m	17.7m
RECYCLING FACILITIES:	0.1sf UNIT - 50% (1.0sf)	0.1sf
PARKING:	REGULATED	PROPOSED
TOTAL:	17 UNIT (R2)	00
RESIDENT:	0	0
VISITOR:	0	0
STAFF:	0	0
SMALL CAR ACCESSIBLE:	40% (1)	20% (0)
LOADING BAY:	0	0
DRIVEWAY:	0.8m WIDTH	0.8m WIDTH
UNIT SUMMARY	PERMITTED	PROPOSED
	1 UNIT (R2)	0
VERTICAL:	100% (0)	0%
TEMPORARY:	0	0

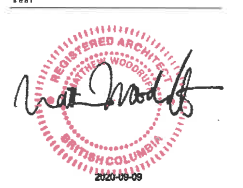
Level	Program Type	Count	Gross Floor Area	Area of Enclosure	Floor Area
Level 01	AVENUE	1	136.0 sf	0.0 sf	136.0 sf
Level 01	CIRCULATION	7	225.2 sf	207.8 sf	93.0 sf
Level 01	COMMON SPACE	2	18.0 sf	0.0 sf	18.0 sf
Level 01	DWELLING UNITS (ACCESS)	2	36.0 sf	0.0 sf	36.0 sf
Level 01	DWELLING UNITS (ADAPT)	0	0.0 sf	0.0 sf	0.0 sf
Level 01	SERVICES	3	12.0 sf	0.0 sf	12.0 sf
Level 02	CIRCULATION	5	180.0 sf	180.0 sf	0.0 sf
Level 02	COMMON SPACE	1	30.0 sf	0.0 sf	30.0 sf
Level 02	DWELLING UNITS (ACCESS)	1	30.0 sf	0.0 sf	30.0 sf
Level 02	DWELLING UNITS (ADAPT)	12	508.1 sf	30.0 sf	902.1 sf
Level 02	SERVICES	2	9.0 sf	0.0 sf	18.0 sf
Level 03	CIRCULATION	5	180.0 sf	180.0 sf	0.0 sf
Level 03	COMMON SPACE	1	30.0 sf	0.0 sf	30.0 sf
Level 03	DWELLING UNITS (ACCESS)	1	30.0 sf	0.0 sf	30.0 sf
Level 03	DWELLING UNITS (ADAPT)	12	508.1 sf	30.0 sf	902.1 sf
Level 03	SERVICES	2	9.0 sf	0.0 sf	18.0 sf
Level 04	CIRCULATION	5	180.0 sf	180.0 sf	0.0 sf
Level 04	COMMON SPACE	1	30.0 sf	0.0 sf	30.0 sf
Level 04	DWELLING UNITS (ACCESS)	1	30.0 sf	0.0 sf	30.0 sf
Level 04	DWELLING UNITS (ADAPT)	12	508.1 sf	30.0 sf	902.1 sf
Level 04	SERVICES	2	9.0 sf	0.0 sf	18.0 sf
Level 05	CIRCULATION	5	180.0 sf	180.0 sf	0.0 sf
Level 05	COMMON SPACE	1	30.0 sf	0.0 sf	30.0 sf
Level 05	DWELLING UNITS (ACCESS)	1	30.0 sf	0.0 sf	30.0 sf
Level 05	DWELLING UNITS (ADAPT)	12	508.1 sf	30.0 sf	902.1 sf
Level 05	SERVICES	2	9.0 sf	0.0 sf	18.0 sf
Total		116	3,969.3 sf	2,372.0 sf	4,000.0 sf

local.
Local Practice Architecture + Design Ltd.
1447 Honey Street, Vancouver BC V6Z 1W8
604-243-4325 localpractice.ca

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DO NOT SCALE DRAWINGS
NOTES
DRAWING - NOT FOR CONSTRUCTION

No.	Description	Date
1	Issued for Development Permit	2020/01/15
2	Reissued for Development Permit	2020/09/09



Code	Description
A001	COVER SHEET
A100	BITE PLAN
A101	PARKING LEVEL PLAN (P1)
A102	DRIVING FLOOR PLAN (D1)
A103	LEVEL 2 FLOOR PLAN (L2)
A104	LEVEL 3 FLOOR PLAN (L3)
A105	LEVEL 4 FLOOR PLAN (L4)
A106	LEVEL 5 FLOOR PLAN (L5)
A107	ROOF PLAN
A200	ELEVATIONS
A300	BUILDING SECTIONS

Discipline	Consultant
ARCHITECTURE	Local Practice Architecture + Design 4322-192 George Street, Vancouver, BC V6A 3L9
LANDSCAPE	Head Collaborative 102-212 West 7th Avenue, Vancouver, BC V5Y 1J8
DEVELOP/ENERGY	RDH Building Science 4335 Siskyou Drive #400 Burnaby, BC V5C 6S6
STRUCTURAL	Fast + Epp 251-1972 West 1st Ave., Vancouver, BC V6J 1J3
MECHANICAL	Rocky Point Engineering 229 2011 126 Avenue, Langley, BC V4Y 3K7
ELECTRICAL	OTB Engineering 5560 Fern Valley Road Burnaby, BC V4N 1V8
CIVIL	H.T. Engineering 4900 - 9728 162 Street, Surrey, BC V4P 4T7

Symbol	Description
	WALL/FLOOR/ROOF/CILING TAG
	WOOD TAG
	ROOM TAG
	LEVEL MARKER
	BUILDING ELEVATION TAG
	INTERIOR ELEVATION TAG
	SECTION MARKER

Abbreviation	Meaning
AL BR	ALUMINUM
ANC	ARCHITECTURAL
BOT	BOTTOM
CIP	CAST-IN PLACE
CL	CLOSET
CMU	CONCRETE MASONRY UNIT
CON	CONCRETE
CONC	CONCRETE
COM	COMPLETE WITH CONTRACTOR
CS	COMPLETE WITH CONTRACTOR
CS/ST	CONCRETE WITH STAINLESS STEEL
CS/S	CONCRETE WITH STAINLESS
CS/S/S	CONCRETE WITH STAINLESS AND SOLAR SHIELD
CS/S/S/S	CONCRETE WITH STAINLESS AND SOLAR SHIELD AND SOLAR SHIELD
HMF	HOLLOW METAL FRAME
IBL	IRON
LAN	LANDSCAPE
LAND	LANDSCAPE
MECH	MECHANICAL
MET	METAL FRAME
MU	MASONRY
M/ST	MASONRY WITH STAINLESS
MC	MECHANICAL
MC/ST	MASONRY WITH STAINLESS
ST	STRUCTURAL
ST/ST	STRUCTURAL WITH STAINLESS
WTF	WATER TIGHT

- ### GENERAL NOTES
- THE GENERAL NOTES ARE TO BE READ IN CONJUNCTION WITH THE PRODUCT SPECIFICATIONS & ALL OTHER SUBMITTALS DOCUMENTS
 - DO NOT SCALE DRAWINGS
 - ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED
 - ALL DIMENSIONS SHALL BE VERIFIED AND COORDINATED BY THE CONTRACTOR ON SITE BEFORE PROCEEDING WITH ANY WORK
 - IT IS THE CONTRACTORS RESPONSIBILITY TO COORDINATE ALL OF THE WORK OF THE CONTRACTOR & ALL OTHER TRADE CONTRACTORS
 - ENSURE ALL FIRESTOPPING OF SERVICES ARE EXECUTED AS SPECIFIED BY THE RESPECTIVE DIVISIONS 1 & 2 AND 8 AND 9
 - ADAPTION AS REQUIRED TO COMPLY WITH REGULATORY REQUIREMENTS
 - ALL WORK IS TO BE IN COMPLIANCE WITH CLIENT'S BUILDING SPECIFICATIONS AND ALL BUILDING REGULATIONS
 - THE ARCHITECT SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES OR INTERPRETATIONS OF ALL ASPECTS OF THE WORK
 - WHERE EXISTING COMPONENTS ARE AFFECTED OR DAMAGED BY THE WORK OF THIS CONTRACT, ALL SUCH AREAS ARE TO BE MADE GOOD
 - CONTROL JOISTS ARE TO BE PROVIDED FOR ALL MATERIALS IN ACCORDANCE WITH ACCEPTED INDUSTRY PRACTICE
 - UNLESS OTHERWISE SPECIFIED, PROVIDE CONTINUOUS SEAL AT JUNT OF WALLS, CEILING, PARTITIONS, PLUMBING AND DOORS TO ENSURE CONTINUITY OF FIRE SEPARATIONS
 - IF FIRE SEPARATIONS ARE TO BE EXTENDED FULL HEIGHT AND BE FIRE STOPPED AT USE OF ROOF ABOVE AND AT ALL PENETRATIONS TO PROVIDE A COMPLETE FIRE-RATED ASSEMBLY, REFER TO WRITTEN SPECIFICATIONS AND DETAILS FOR APPROVED FIRE STOPPING MATERIALS AND REQUIREMENTS. TYPE 'X' GYPSUM WALL BOARD REQUIRED BY ALL FIRE-RATED PARTS ASSEMBLIES AND SHALL BE PENETRATIONS IN RATED ASSEMBLIES TO BE FIRE STOPPED AS SPECIFIED
 - ACCESS PANELS & DRYWALL SURFACES ARE NOT PERMITTED EXCEPT WHERE SHOWN ON ARCHITECTURAL DRAWINGS
 - MANUFACTURER'S LOGS AND SAMPLE MATERIALS AND COMPONENTS ARE NOT ACCEPTABLE IN PUBLIC AREAS
 - WHEN WORKING CONTRACTOR IS TO VERIFY STEEL AND WALL THICKNESSES AND RAUBERS ARE ACCORDANT TO PROJECT STRUCTURAL CONFORMANCE WITH CODES AND STANDARDS FOR THEIR RESPECTIVE SPANS AND TO PROVIDE BRACING AS REQUIRED PER I2C AND BOTH SHOR SPANNERS ARE REQUIRED
 - PROVIDE IMPACT RESISTANT GYPSUM WALL BOARD IN ALL ROOMS
 - ALL EXPOSED EXTERIOR CONCRETE TO BE CLEAR, SEALED, ARCHITECTURAL FRESH CONCRETE WITH ANHYDRIDE FINISH COATING
 - CAST-IN-PLACE CONCRETE: REFER TO STRUCTURAL DRAWINGS FOR CONCRETE TYPES, ARMATURES AND REINFORCEMENT
 - REFER TO STRUCTURAL DRAWINGS FOR ALL CONCRETE THICKNESS, CURES AND REINFORCEMENT. IMMEDIATELY REPORT ANY DISCREPANCIES BETWEEN STRUCTURAL AND ARCHITECTURAL TO ARCHITECT
 - TYPE 'X' IMPACT RESISTANT DRYWALL TO BE USED IN ALL WET AREAS



client
Metro Vancouver Housing Corporation

project
Welcher Avenue Multi-Family

Project No.	Drawn	Reviewed
1904	LFL/SJT	MAW

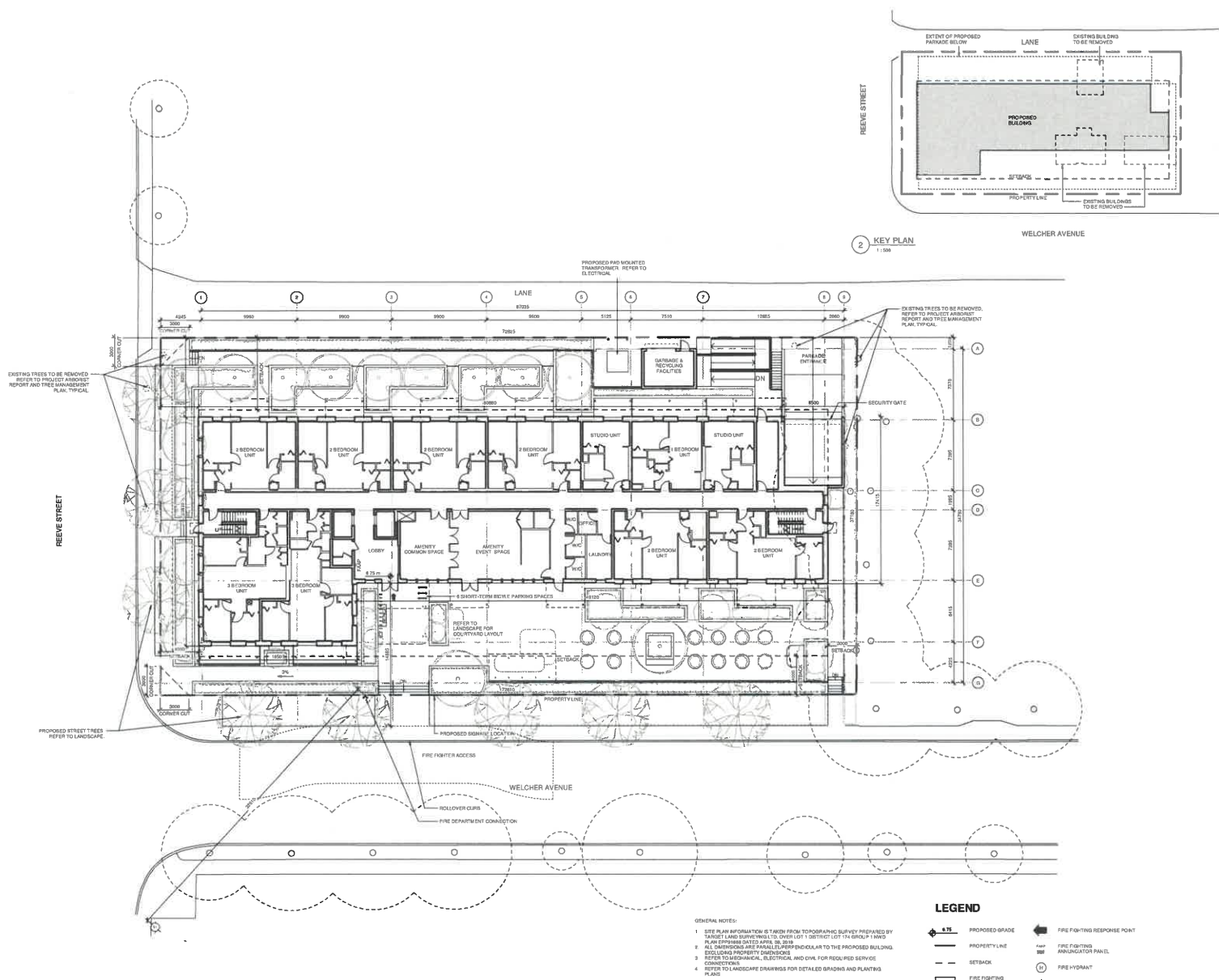
scale: Date: As Indicated 2020/09

title
COVER SHEET

sheet

A001

DR 000 441 (1)



1 Site Plan
1:200

2 KEY PLAN
1:500

local.
Local Praxis Architecture + Design Ltd.
1447 Homer Street, Vancouver BC V6E 1W8
604.243.4525 localpraxis.ca

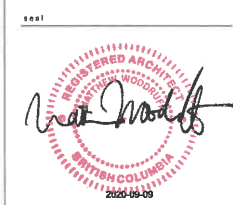
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NOTES
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ISSUE

No.	Issued for	Development Permit	Date
1	Issued for Development Permit		20/07/13
2	Revised for Development Permit		20/09/09



client
Metro Vancouver Housing Corporation

project
Welcher Avenue Multi-Family

project no.	drawn	reviewed
1904	LFLS/UT	MM

scale date
As Indicated 2009/09

1111a
SITE PLAN
sheet

A100

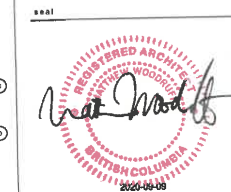
DPO00441(2)

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NOTES
DRAFT-NOT FOR CONSTRUCTION

Issue	No.	Description	Date
1	Issued for Development Permit	20/07/13	
2	Released for Development Permit	20/09/09	



client
Metro Vancouver Housing Corporation

project
Welcher Avenue Multi-Family

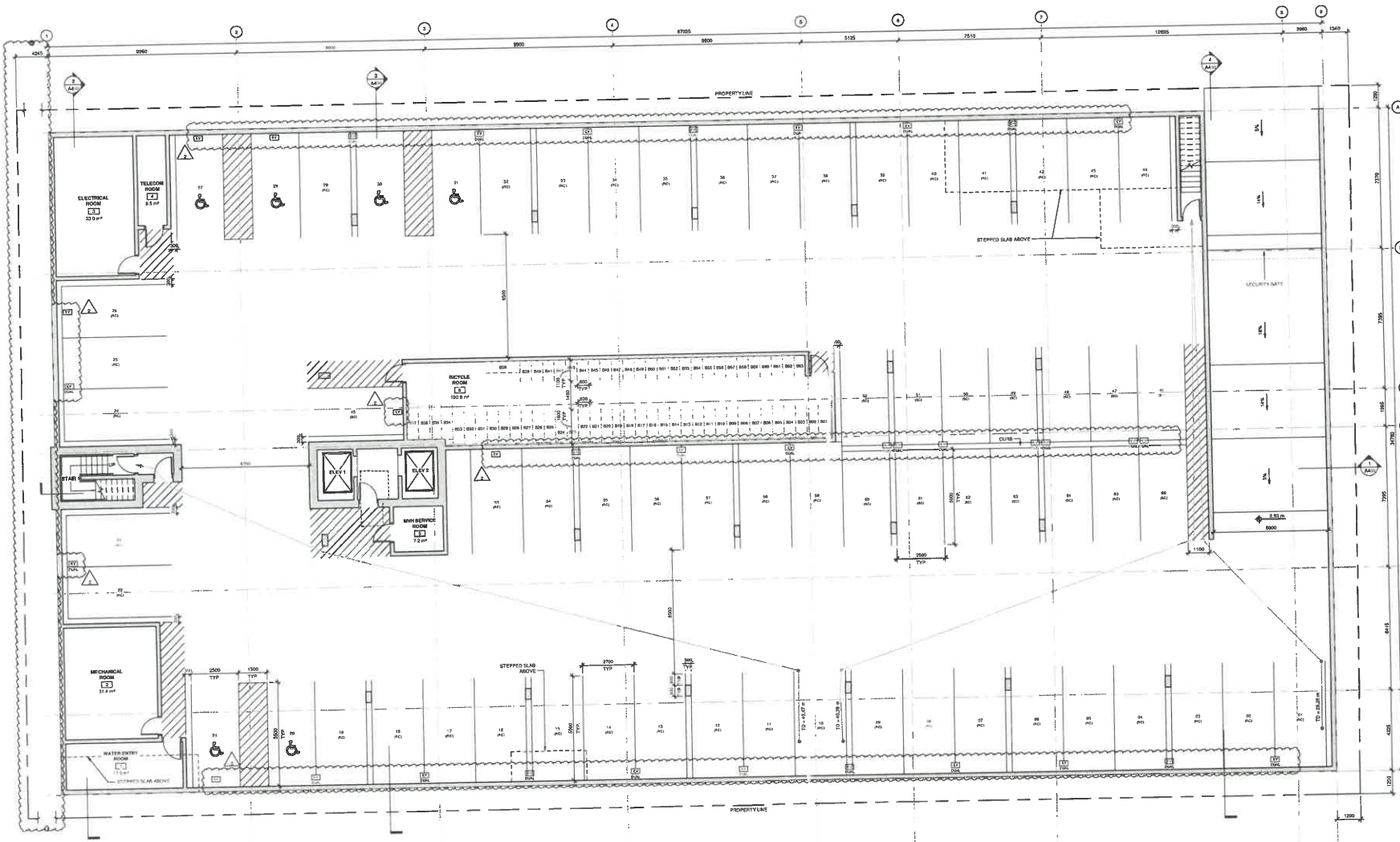
Project No.	Drawn	Reviewed
1904	LY/SJT	MM

scale 1:100
date 20/09/09

title
PARKING LEVEL PLAN (P1)

sheet

A200



1 Parking Level
1:100

LEGEND

- REGULAR CAR STALL
- SMALL CAR STALL
- ACCESSIBLE CAR STALL
- ELECTRIC VEHICLE CHARGER ROUGH-IN
- DUAL ELECTRIC VEHICLE CHARGER ROUGH-IN



DPO0041(3)

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NO105
DRAFT - NOT FOR CONSTRUCTION

No.	Description	Date
1	Issued for Development Permit	20/07/15
2	Released for Development Permit	20/09/09



client
Metro Vancouver Housing Corporation

project
Welcher Avenue Multi-Family

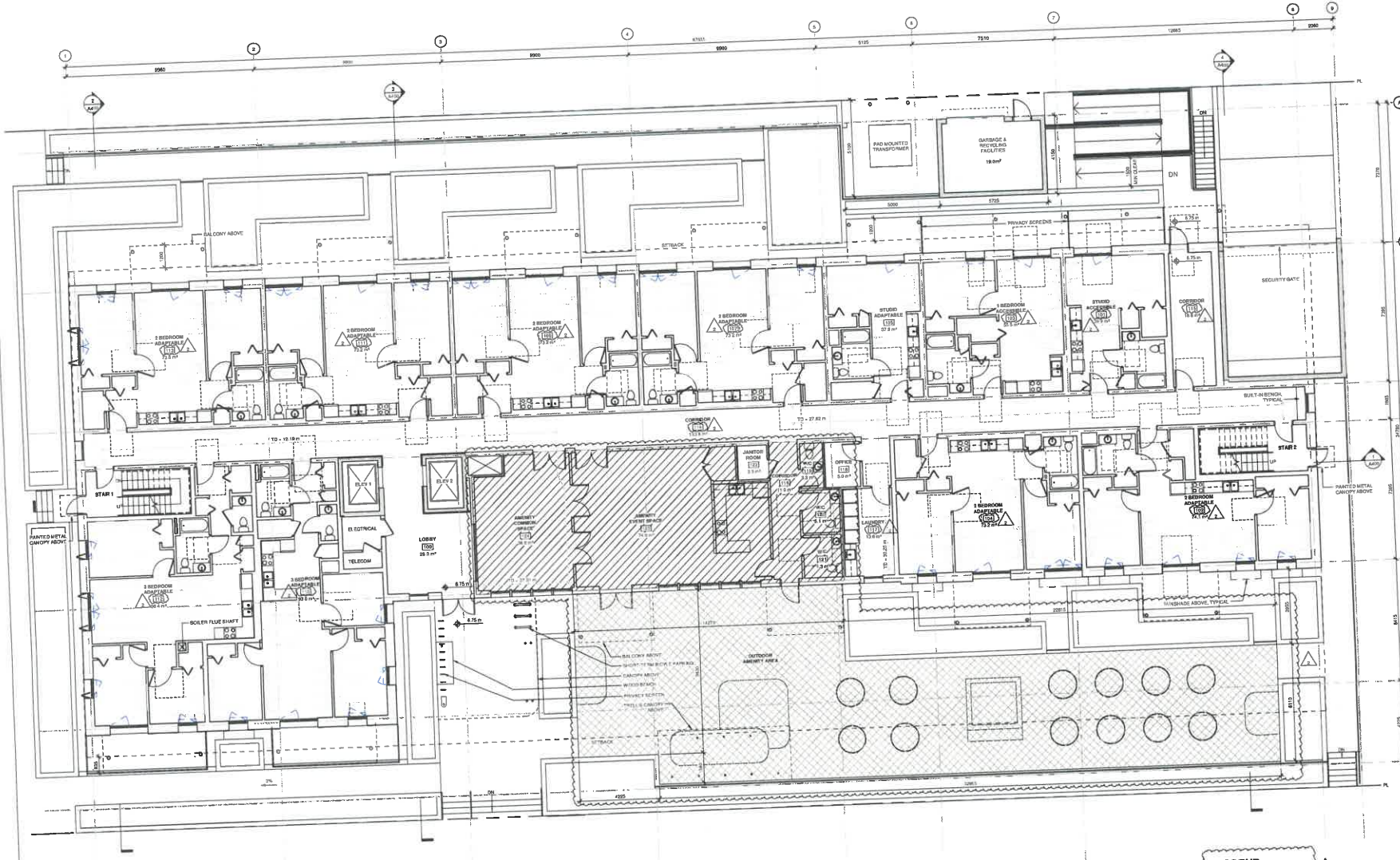
project no.	drawn	reviewed
1904	LFL/SJT	MW

scale	date
1:100	20/09/09

title
GROUND FLOOR PLAN (L1)

sheet

A201



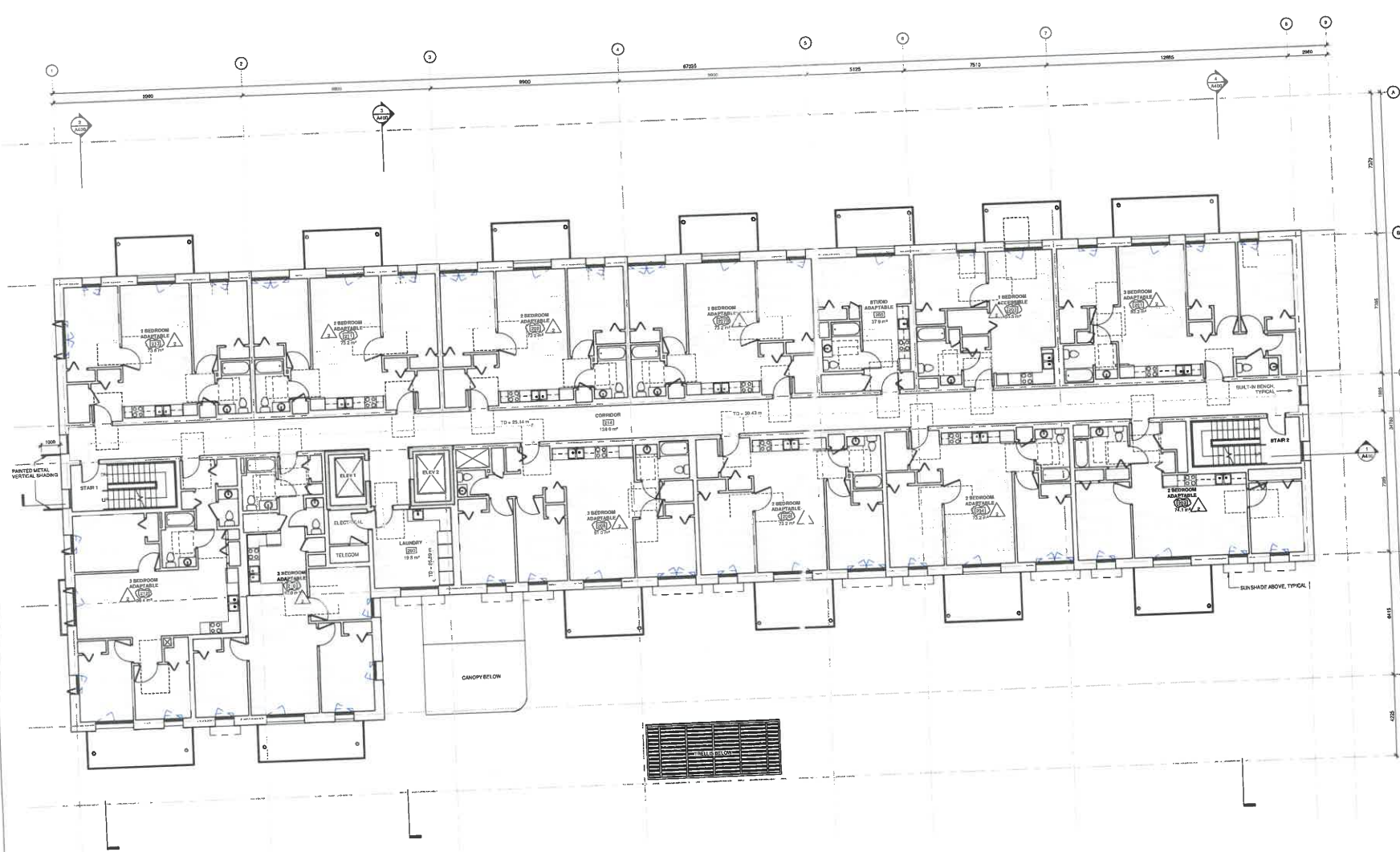
LEGEND

- WOOD AMENITY SPACE
- OUTDOOR AMENITY SPACE

1 Ground Level
 1:100



DPO00441(4)



1 Level 02
1:100

local

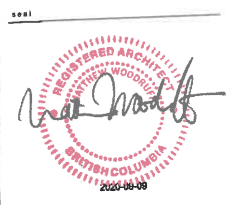
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1447 Stony Street, Vancouver BC V6Z 1W8
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NOTES
DRAFT-NOT FOR CONSTRUCTION

ISSUE	No.	Description	Date
	1	Issued for Development Permit	2007/13
	2	Revised for Development Permit	2009/09



client
Metro Vancouver Housing Corporation

project
Welcher Avenue Multi-Family

PROJECT NO.	OWNER	REVIEWED
1904	LNLSUTT	MM

SCALE
1:100
2009/09

TITLE
LEVEL 2 FLOOR PLAN (L2)

SHEET

A202

DR000441 (5)

local.

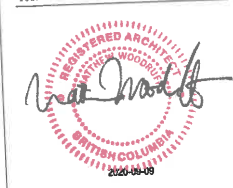
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NOTES
DRAFT - NOT FOR CONSTRUCTION

ISSUE	No.	Description	Date
	1	Issued for Development Permit	20/07/19
	2	Revised for Development Permit	20/09/09



client
Metro Vancouver Housing Corporation

project
Welcher Avenue Multi-Family

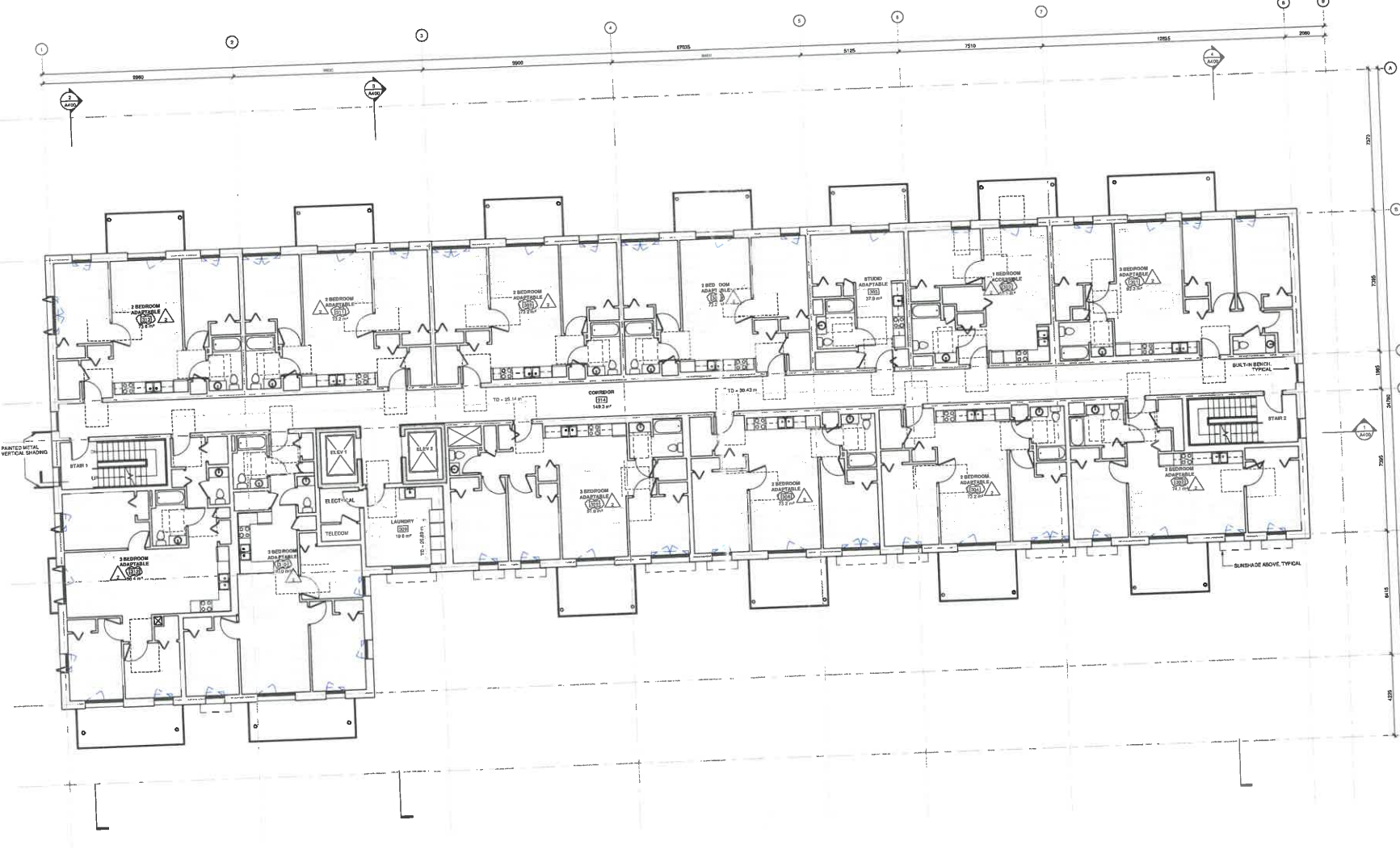
PROJECT NO.	DRAWN	REVIEWED
1904	LPL/SJT	SM

SCALE DATE
1:100 20/09/09

TITLE
LEVEL 3 FLOOR PLAN (L3)

SHEET

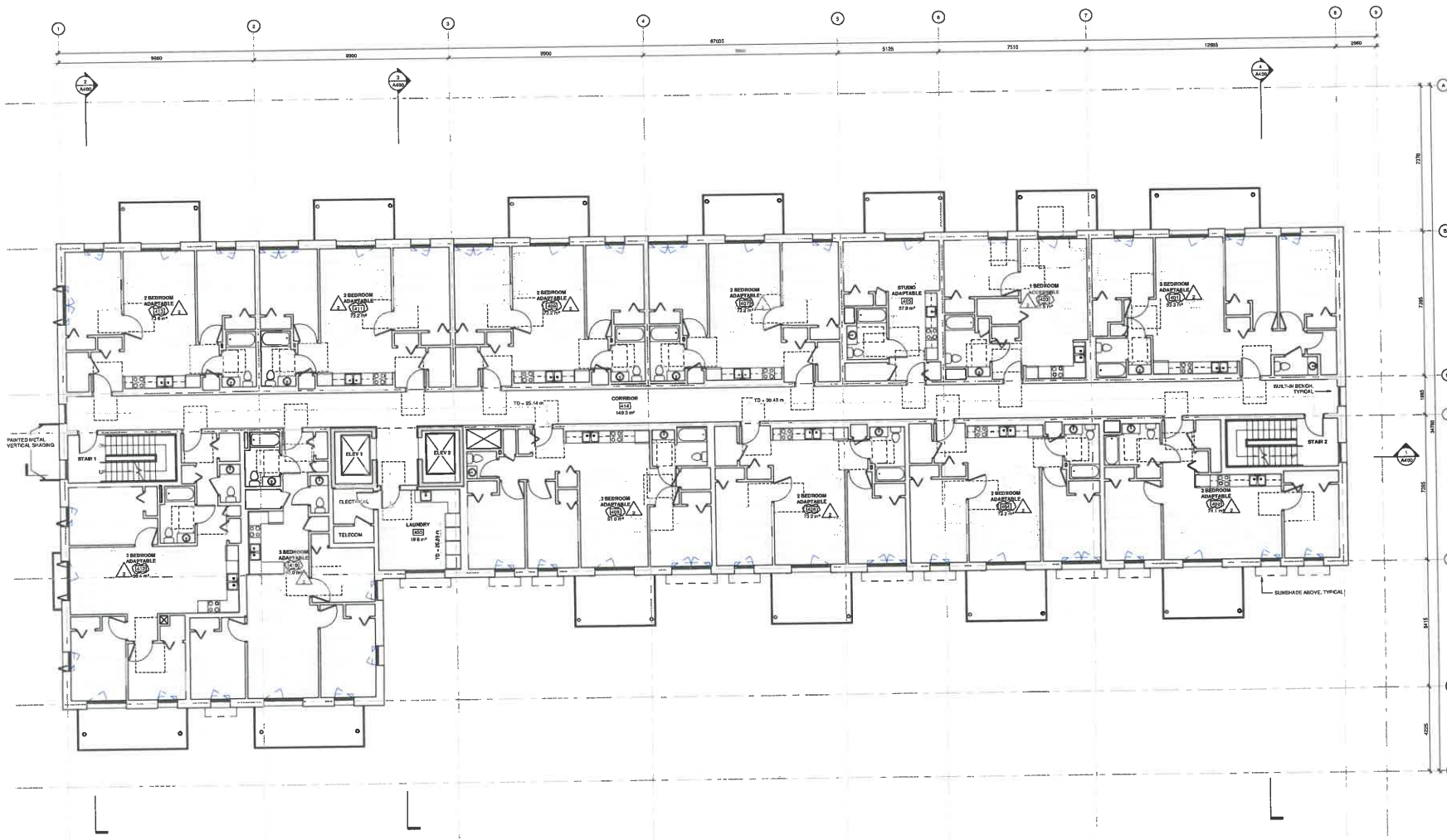
A203



1 Level 03
1:100



DPO00441 (6)



1 Level 04
1:100

local.
Local Practice Architecture + Design Ltd.
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604.343.4555 localpractice.ca

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NOTES
DRAFT - NOT FOR CONSTRUCTION

NO.	DESCRIPTION	DATE
1	Issued for Development Permit	20/07/13
2	Revised for Development Permit	20/09/09



client
Metro Vancouver Housing Corporation

project
Welcher Avenue Multi-Family

PROJECT NO.	DRAWN	REVIEWED
1904	LFL/BJT	MW

scale
1:100

date
20/09/09

title
LEVEL 4 FLOOR PLAN (L4)

sheet



A204

DPO00441(7)

local.

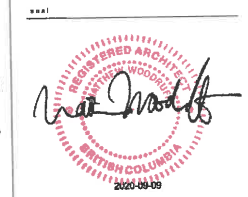
Local Practice Architecture + Design Ltd.
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NOTE
DRAFT - NOT FOR CONSTRUCTION

Issue	No.	Description	Date
1	1	Issued for Development Permit	20/07/13
2	2	Reissued for Development Permit	20/09/09



client
Metro Vancouver Housing Corporation

project
Welcher Avenue Multi-Family

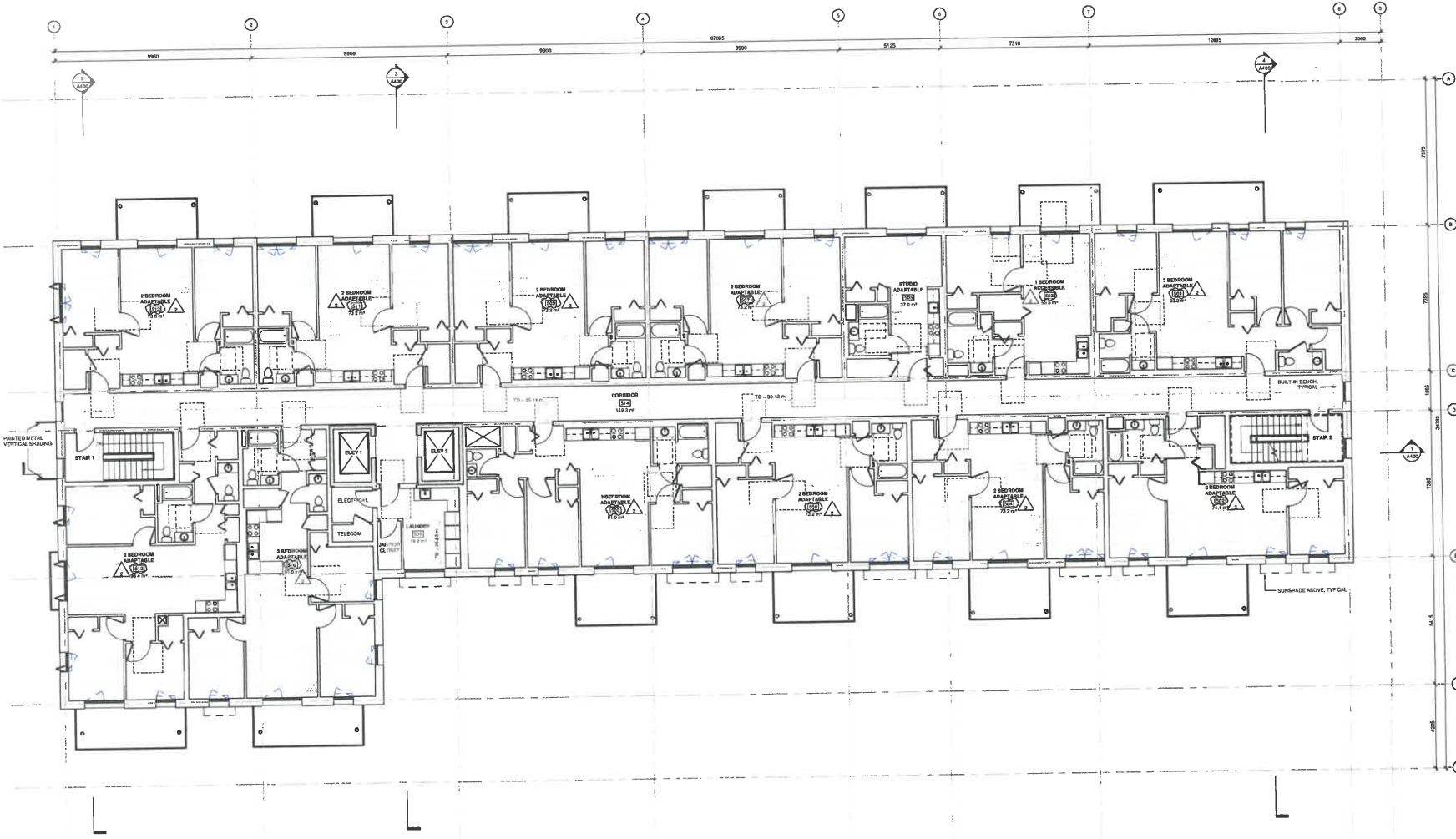
Project No.	Drawn	Reviewed
1904	LFL/SJT	MM

scale
1:100

date
2009/09

title
LEVEL 5 FLOOR PLAN (L5)

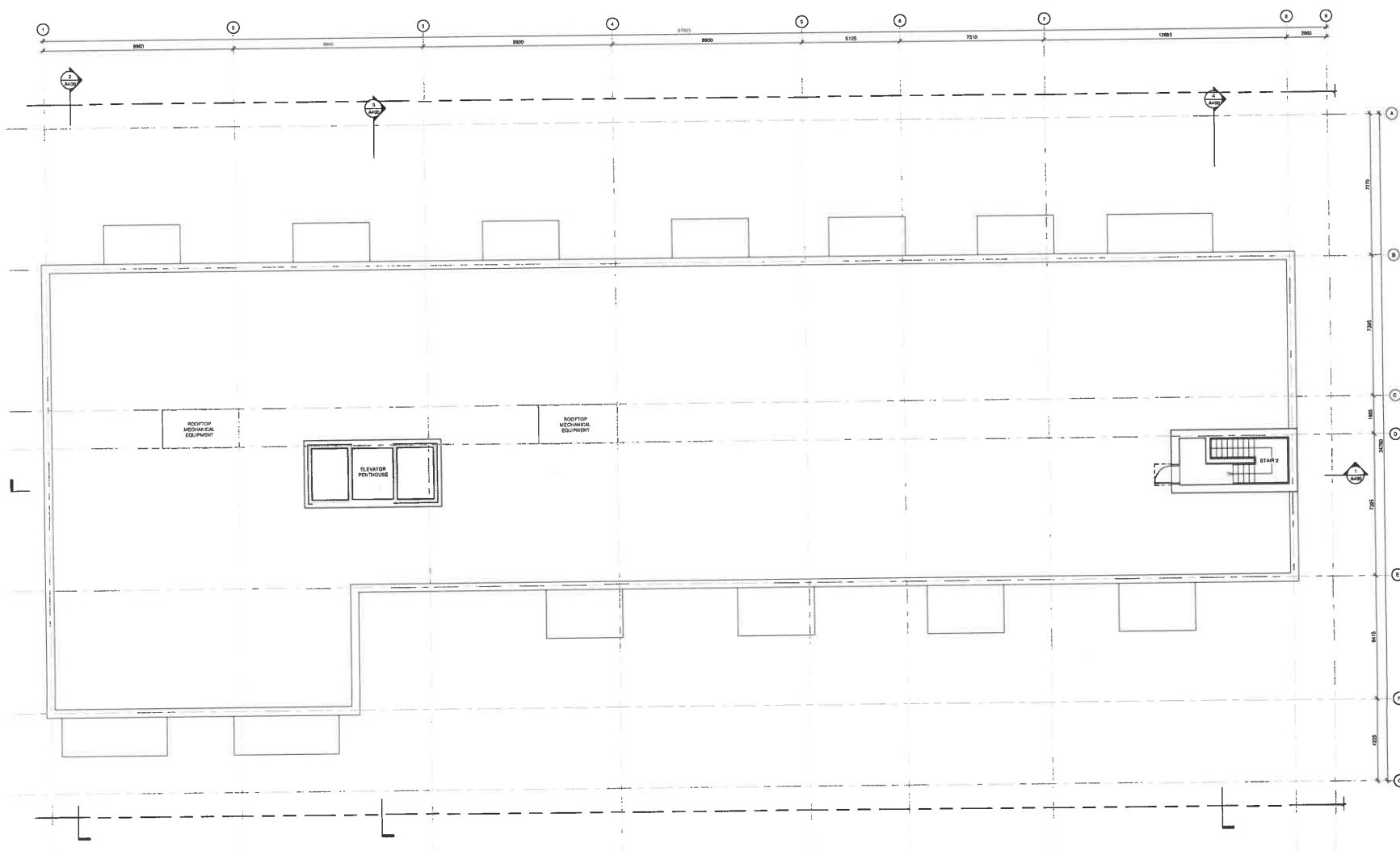
sheet
A205



1 Level 05
1:100



DPO00441(8)



1 Roof Plan
1:100

local.

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604-543-4325 localpractice.ca

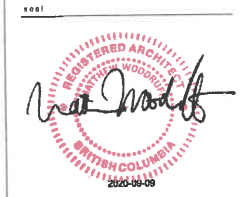
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ISSUE

No.	Description	Date
1	Issued for Development Permit	20/07/13
2	Reissued for Development Permit	20/09/09



client
Metro Vancouver Housing Corporation

project
Welcher Avenue Multi-Family

PROJECT NO.	DRAWN	REVIEWED
1904	LFL/SUT	MW

SCALE	DATE
1:100	20/09/09

title
ROOF PLAN

sheet
A206

DP000441(a)

local.

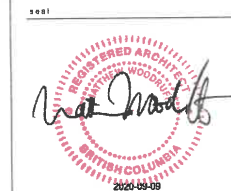
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NOTES
DRAFT-NOT FOR CONSTRUCTION

No.	Description	Date
1	Issued for Development Permit	20/07/13
2	Released for Development Permit	20/09/09



client:
Metro Vancouver Housing Corporation

project:
Welcher Avenue Multi-Family

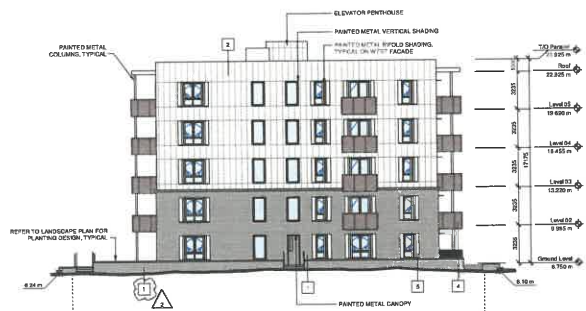
project no.	drawn	reviewed
1904	LRL/SJT	MW

scale	date
As Indicated	2009/09

ELEVATIONS

sheet

A300



1 West Elevation
1:200



2 South Elevation
1:200



3 East Elevation
1:200

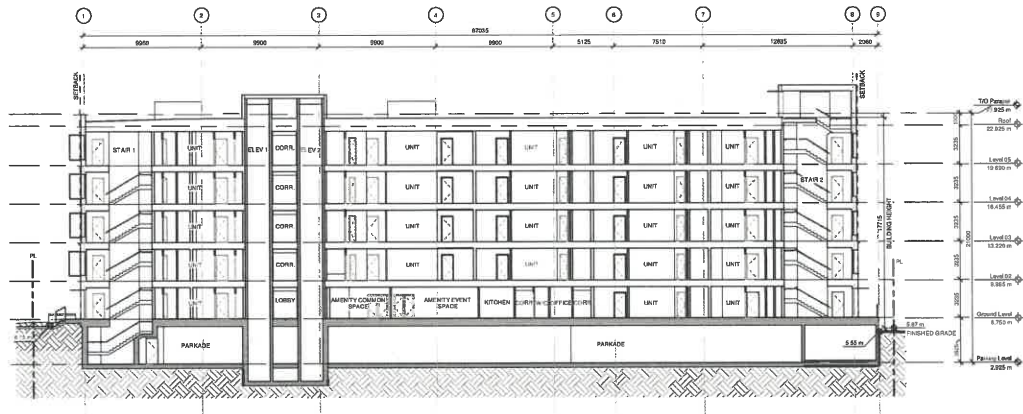


4 North Elevation
1:200

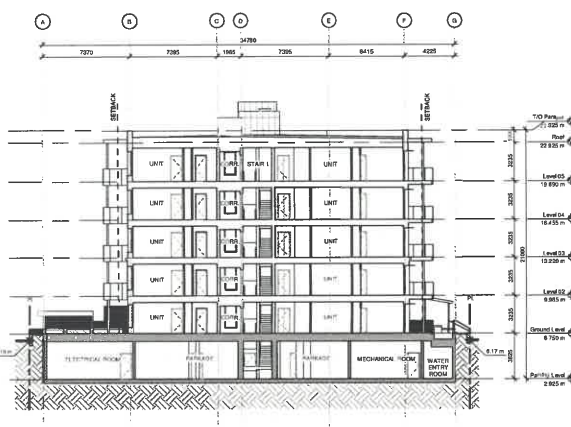
MATERIAL LEGEND

- 1 BRICK - DARK GREY
- 2 LIGHT PANEL - LIGHT GREY
- 3 METAL PANEL - DARK GREY
- 4 PERFORATED PRE-FINISHED METAL - BURGUNDY
- 5 PRE-FINISHED METAL - WHITE

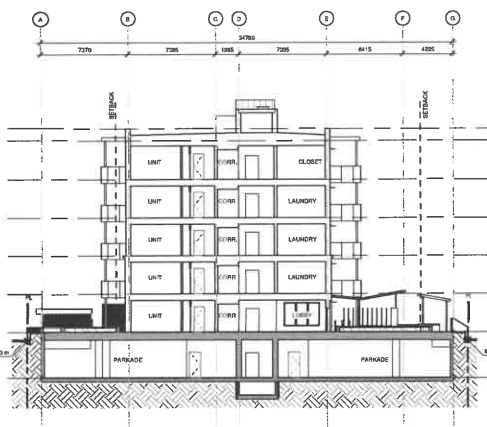
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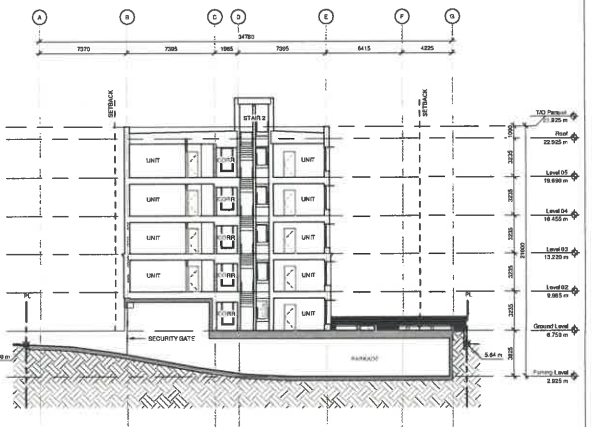
1 West East Section A
1:200



2 North South Section A
1:200



3 North South Section B
1:200



4 North South Section C
1:200

local.

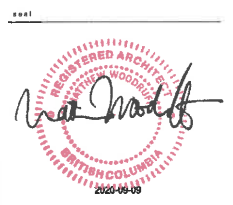
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Issue	No.	Description	Date
1	1	Issued for Development Permit	20/07/13
	2	Reissued for Development Permit	20/09/09



client
Metro Vancouver Housing Corporation

project
Welcher Avenue Multi-Family

project no.	drawn	reviewed
1904	LFL/SJT	MW

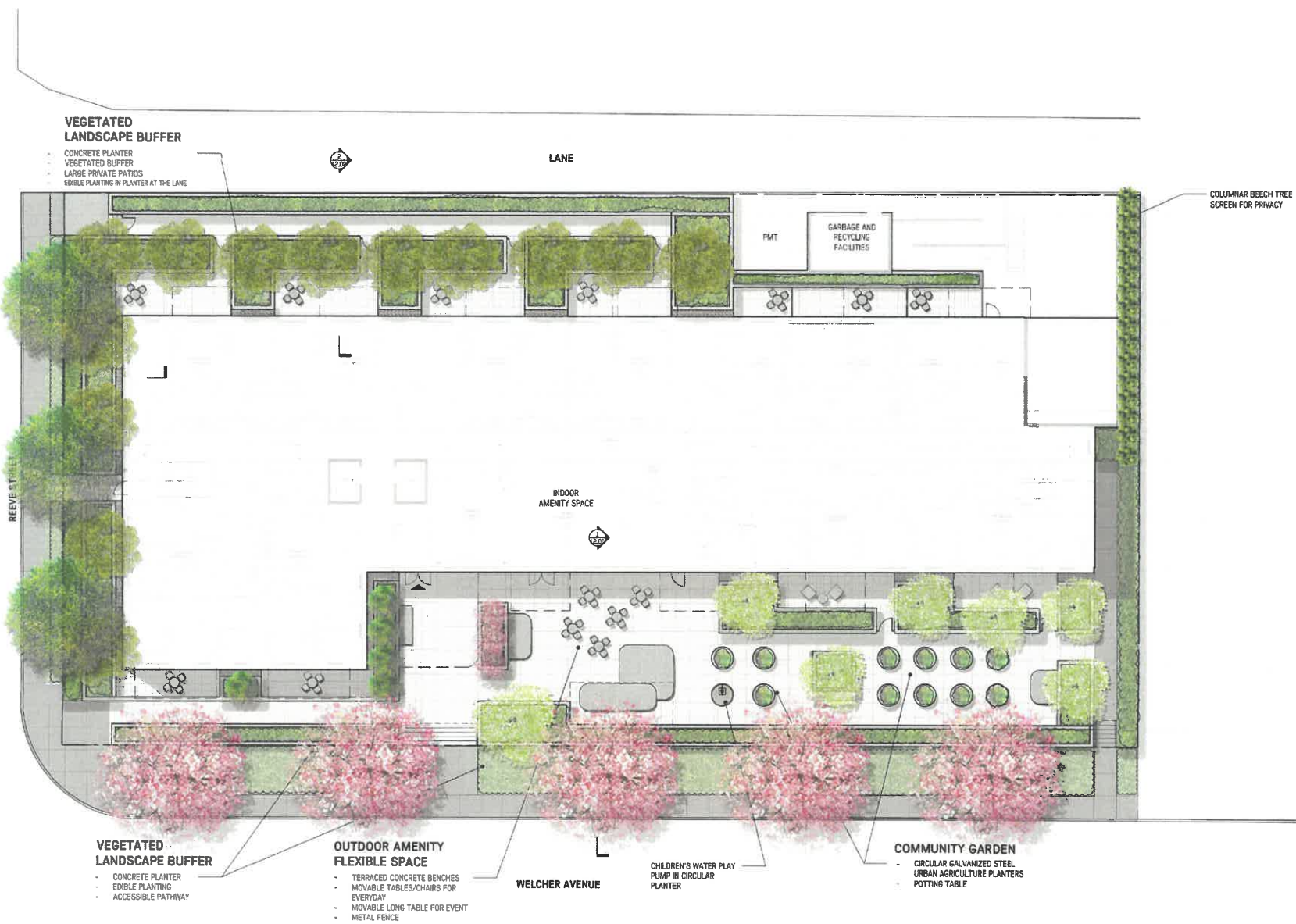
scale: 1:200
date: 20/09/09

title
BUILDING SECTIONS

sheet

A400

DPO000441(11)



3 Re-issued for Development Permit: Sep 11/20
 2 Issued for Development Permit: Aug 28/20
 1 Issued for Development Permit: July 13/20

No.	Description	Date

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**Welcher Avenue
 Multi-Family Residential**
 Port Coquitlam, BC

Concept Plan
 Ground Level

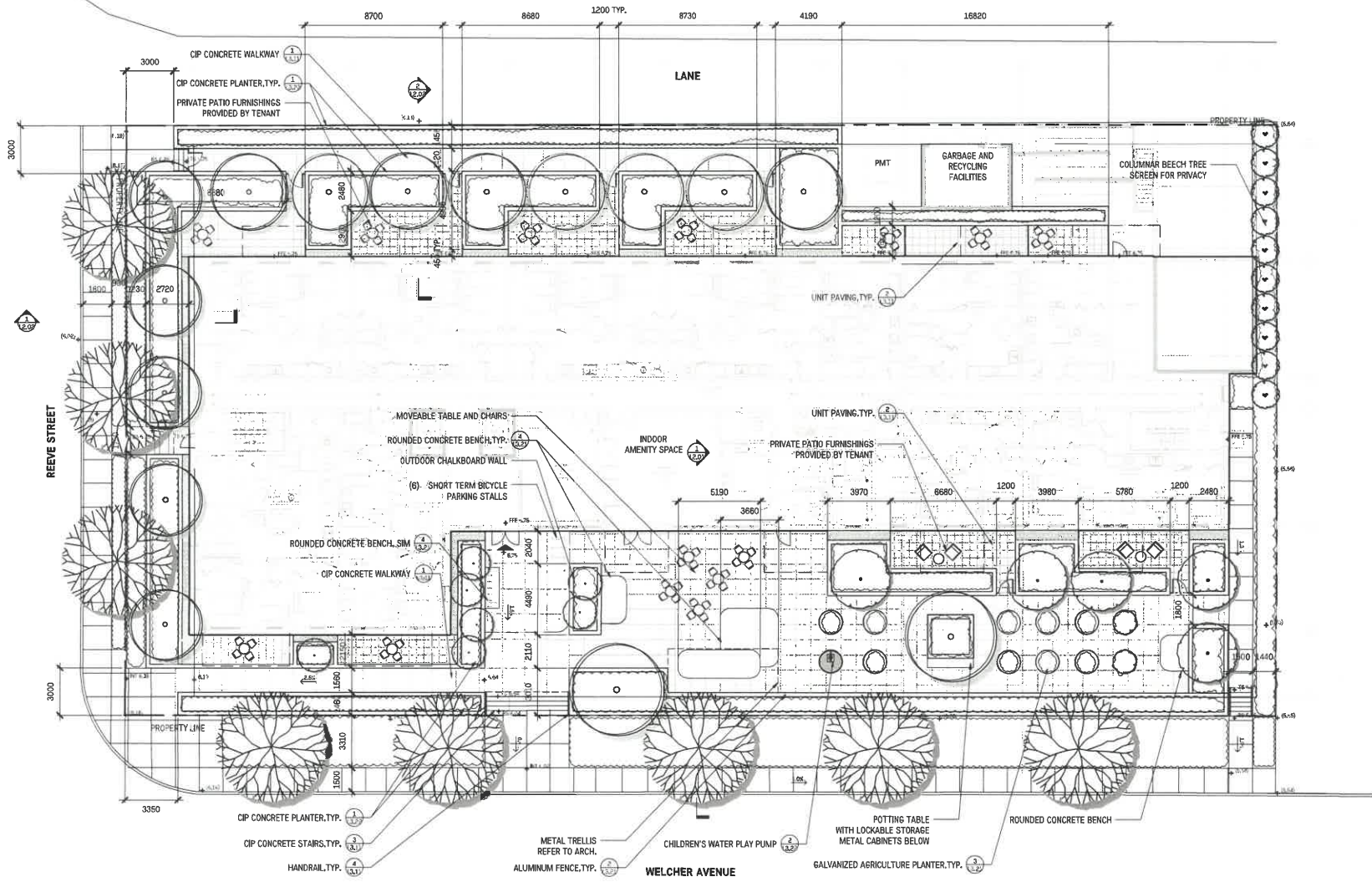
Date	Rev.	Drawing Number
Feb. 10/20		
	1.043	
	1.125	L1.00
Drawn/Checked	pd BC	

DPO000441(12)

LEGEND

DETAIL SECTION	AD	AREA DRAIN	+00.00	PROPOSED ELEVATION	← 0.0 %	DIRECTION OF SLOPE
DETAIL NUMBER	BW	BOTTOM OF WALL	+TW	TOP OF WALL	+TS	TOP OF STAIRS
SHEET ON WHICH DETAIL IS SHOWN	EJ	EXPANSION JOINT	+BW	BOTTOM OF WALL	+BS	BOTTOM OF STAIRS
PRIMARY SECTION	EQ	EQUIDISTANT	+FFE	FINISH FLOOR ELEVATION	+TC	TOP OF CURB
EXTERIOR ELEVATION	PA	PLANTING AREA	+TB	TOP OF BENCH	+BC	BOTTOM OF CURB
REVISION	PD	PLANTER DRAIN	+AD	AREA DRAIN	+100.00	EXISTING SPOT ELEVATION AS PER SURVEY
	RAD	RADIUS	TYP	TYPICAL		
	HB	HOSE BIB	□	TRENCH DRAIN		

1. ALL DIMENSIONS ARE NOMINAL; DIMENSIONS ARE BASED ON ARCHITECTURAL GRID.
2. REFER TO DETAILS AND SECTIONS FOR ALL LANDSCAPE IMPROVEMENTS.
3. REFER TO SPECIFICATIONS FOR MATERIALS AND INSTALLATION REQUIREMENTS. REFER TO SOIL DEPTH DETAILS FOR SOIL DEPTH AND VODING.
4. ALL ELEVATIONS ARE NOMINAL AND ARE BASED ON ARCHITECTURAL GRID AND ELEVATIONS PROVIDED BY ARCHITECT. CONTRACTOR TO VERIFY ALL MEASUREMENTS.
5. ALL PROPOSED ELEVATIONS ARE TO TOP OF FINISHED GRADE UNLESS NOTED OTHERWISE.
6. THIS PLAN IS NOT FOR CONSTRUCTION AND IS TO BE SUBMITTED FOR REVIEW TO ENGINEERING SERVICES A MINIMUM OF 8 WEEKS PRIOR TO THE START OF ANY CONSTRUCTION PROPOSED FOR PUBLIC PROPERTY. NO WORK ON PUBLIC PROPERTY MAY BEGIN UNTIL SUCH PLANS RECEIVE "FOR CONSTRUCTION" APPROVAL AND RELATED PERMITS ARE ISSUED. PLEASE CONTACT ENGINEERING, DEVELOPMENT SERVICES AND/OR YOUR ENGINEERING, BUILDING SITE INSPECTOR FOR DETAILS.



HAPA COLLABORATIVE
 Landscape Architecture
 Urban Design
 403 - 976 West 15th Avenue
 Vancouver BC, V6Z 1A7
 604.909.4150
 hapa.com

3 Re-issued for Development Permit Sep 11/20
 2 Issued for Development Permit Aug 26/20
 1 Issued for Development Permit July 13/20

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Welcher Avenue Multi-Family Residential
 Port Coquitlam, BC

Materials, Layout & Grading Plan
 Ground Level

Date	Feb. 10/20	Drawing Number	
Project No.	1943		
Sheet	1.125		L1.11
Drawn/Checked	pd BC		

DR006441(13)

PLANT SCHEDULE - GROUND LEVEL

SYM	QTY	BOTANICAL NAME	COMMON NAME	PLANTED SIZE	COMMENTS
TREES					
AG	8	ACER GINNALA 'RED NOVEMBER'	RED NOVEMBER AMUR MAPLE	2.4M HT., B&B	WELL BRANCHED, DENSE TREE, SINGLE LEADER
AP	5	ACER 'WARMERED' 'PAINTED SUNSET'	PAINTED MAPLE	80m CAL., B&B	UNIFORM BRANCHING, DENSE TREE, 2.1M STD.
CL	2	CRATAEGUS X LAVALLEI	LAVALLE HAWTHORNE	70m CAL., B&B	UNIFORM BRANCHING, DENSE TREE, 1.8M STD.
FR	3	FRAXINUS OXYCARPA 'RAYWOOD'	RAYWOOD ASH	70m CAL., B&B	UNIFORM BRANCHING, DENSE TREE
FS	10	FABUS SYLVATICA 'FASTIGIATA'	EUROPEAN BEECH	80m CAL., B&B	UNIFORM BRANCHING, DENSE TREE, 6M
MA	6	MALUS X 'ADMIRALCK'	ADMIRALCK CRABAPPLE	50m CAL., B&B	WELL BRANCHED, DENSE TREE
PV	6	PRUNUS X 'VEDDENSCH'	YOSHINO CHERRY	70m CAL., B&B	UNIFORM BRANCHING, DENSE TREE, 1.8M STD.
SHRUBS					
CY	200	CEANOTHUS GRACILIS 'HORIZONTALIS' 'YANKEE POINT'	YANKEE POINT CEANOTHUS	#1 POT, 450 O.C.	FULL
GF	688	GALUThERIA SHALON	SALAL	#3 POT, 600 O.C.	FULL
IC	52	ILEX CRENATA 'SKY PENCIL'	SKY PENCIL JAPANESE HOLLY	1.2M HT., 600 O.C.	FULL
OD	22	OSMANthus DELAVAYI	SWEET OLIVE	#3 POT, 900 O.C.	FULL
VO	11	VIbURNUM X BODANTENSE 'DAWN'	DAWN VIbURNUM	#3 POT, 900 OC	FULL

PERENNIALS / GROUNDCOVERS / GRASSES / VINES

EN	518	EUPHORBIA HYDRICOLORDES 'ROBBIE'	MRS. ROBB'S BONNET	#1 POT, 380 O.C.	FULL, WELL ESTABLISHED
FC	1846	FRACARIA CHLIDENSI	BEACH STRAWBERRY	#1 POT, 300 O.C.	FULL, WELL ESTABLISHED
GP	507	GALUThERIA PROCLAMENS	WINTERGREEN	#1 POT, 300 O.C.	FULL, WELL ESTABLISHED
GP	380	HELLEBORUS 'ROYAL HERITAGE'	ROYAL HERITAGE LENTEN ROSE	#1 POT, 300 O.C.	FULL, WELL ESTABLISHED
HS	254	HELYCTROGLOCH SEMPERVIRENS	BLUE HAT GRASS	#1 POT, 600 O.C.	FULL, WELL ESTABLISHED
JA	184	JUNIPERUS HORIZONTALIS 'MCCOTT'	'MCCOTT' LAMARCK	#1 POT, 400 O.C.	FULL, WELL ESTABLISHED
RS	65	RIBES SANGUINUM 'KING EDWARD VI'	KING EDWARD FLOWERING CURRANT	#2 POT, 1000 O.C.	FULL, WELL ESTABLISHED
RO	37	ROSMARINUS OFFICINALIS 'ARIP'	ARP ROSEMARY	#1 POT, 450 O.C.	FULL, WELL ESTABLISHED
PM	168	POLYSTICHUM MUNITUM	WESTERN SWORD FERN	#1 POT, 450 O.C.	FULL, WELL ESTABLISHED
TP	553	THIMAS PRACIOX 'DODDENEUS'	CREeping THYME	100M POT, 150 O.C.	FULL, WELL ESTABLISHED
VO	400	VACILLUM OVATUM 'THUNDERBIRD'	'THUNDERBIRD' EVERGREEN HUCKLEBERRY	#3 POT, 450 O.C.	FULL, WELL ESTABLISHED

TREES

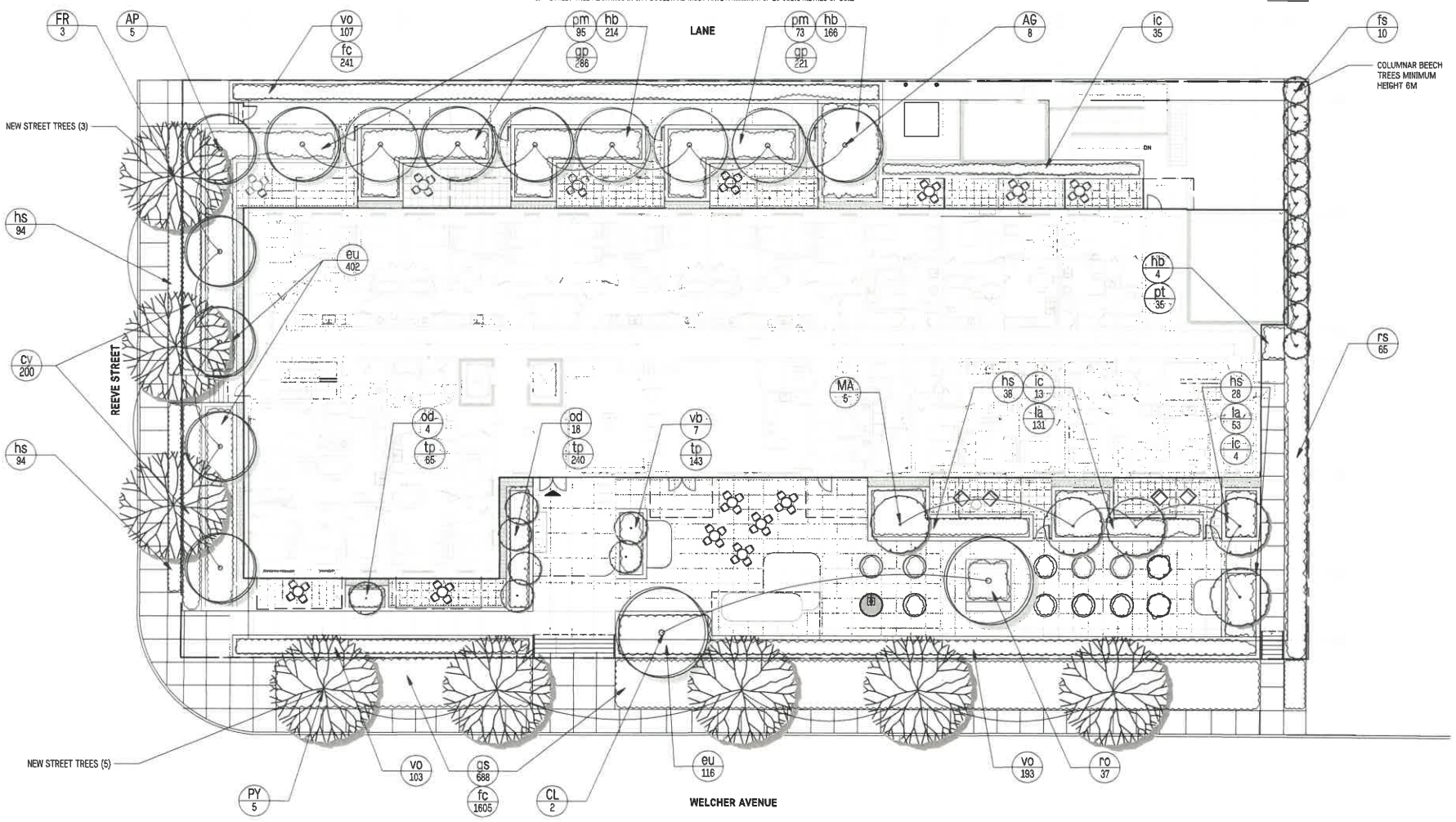


SHRUBS



PLANTING NOTES:

1. ALL PLANT MATERIAL TO BE TO BCSA AND BCCLA STANDARDS. REFER TO THE BCCLA LANDSCAPE STANDARD, LATEST EDITION.
2. SPECIMEN PLANT LOCATION TO BE DETERMINED ON SITE BY LANDSCAPE ARCHITECT.
3. INSTALL ALL PLANT MATERIAL MEETING MUNICIPAL REQUIREMENTS AND BC LANDSCAPE STANDARD, LATEST EDITION.
4. AUTOMATIC HIGH-EFFICIENCY IRRIGATION TO BE PROVIDED FOR ALL PLANTED AREAS.
5. PROVIDE DESIGN BUILD IRRIGATION FOR ALL PLANTER AREAS ON SITE IN COMPLIANCE WITH PROJECT SPECIFICATION.
6. ALL URBAN AGRICULTURE PLANTERS TO BE SERVICED WITH HOSE BIBS FOR HAND-WATERING.
7. FINAL LOCATION, QUANTITY, STREET TREE SPECIES TO THE SATISFACTION OF THE CITY OF PORT COQUITLAM.
8. STREET TREE PLANTINGS IN CITY BOULEVARD MUST HAVE A MINIMUM OF 10 CUBIC METRES OF SOIL.



HAPA COLLABORATIVE
 604.909.4150
 hapa@hapa.com
 403 - 708 West Fifth Avenue
 Vancouver BC, V5Y 1R7
 Landscape Architecture
 Urban Design

3. Re-issued for Development Permit Sep 13/20
 2. Issued for Development Permit Aug 26/20
 1. Issued for Development Permit July 13/20

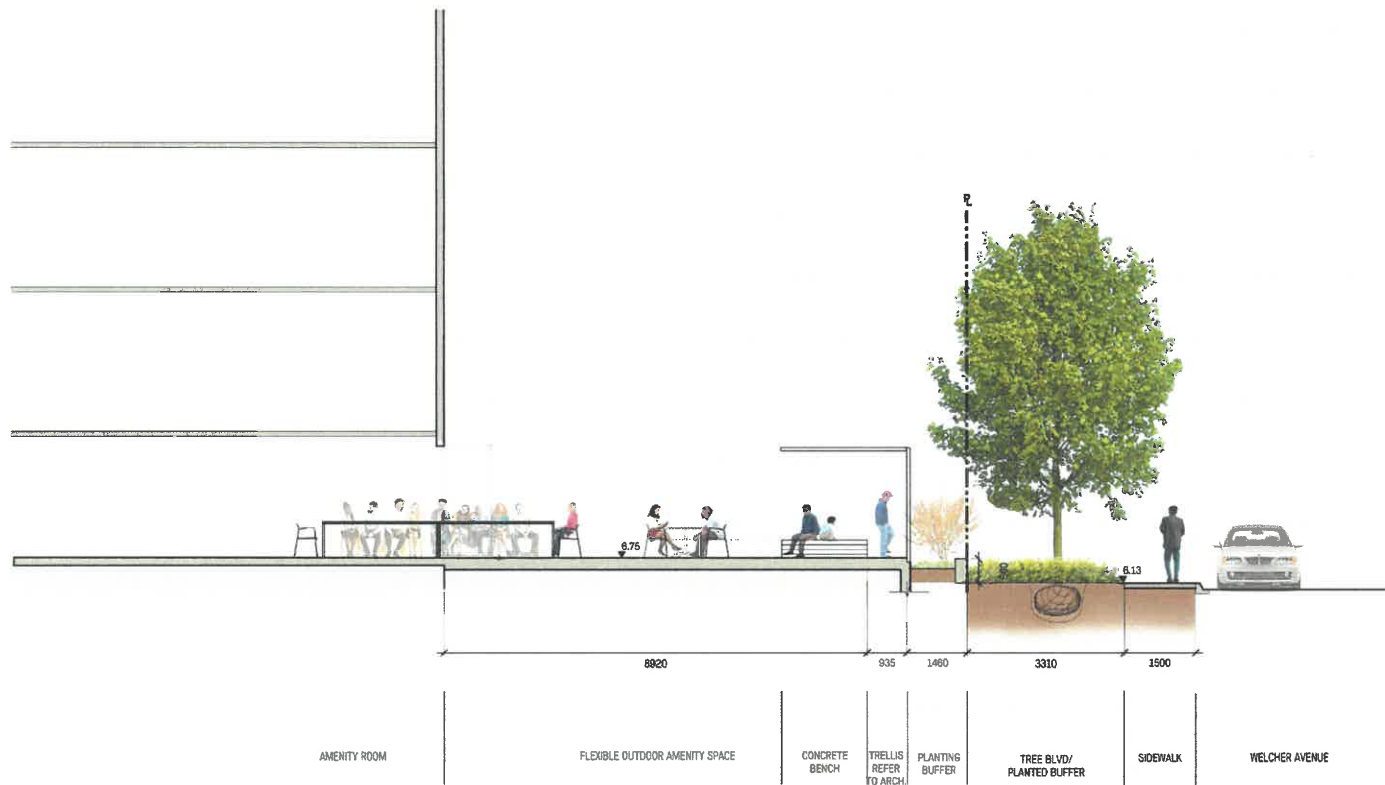
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Welcher Avenue Multi-Family Residential
 Port Coquitlam, BC

Planting Plan
 Ground Level

Date Feb. 10/20 Drawing Number
 Project No. 1943
 Scale 1:325
 Drawn/checked pd | GC **L1.21**

DPO00441(14)



1
2.01
1:50
Ground Floor Section at Welcher Ave.

No.	Description	Date
3	Re-issued for Development Permit	Sep 11/20
2	Issued for Development Permit	Aug 26/20
1	Issued for Development Permit	July 13/20

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**Welcher Avenue
 Multi-Family Residential**
 Port Coquitlam, BC

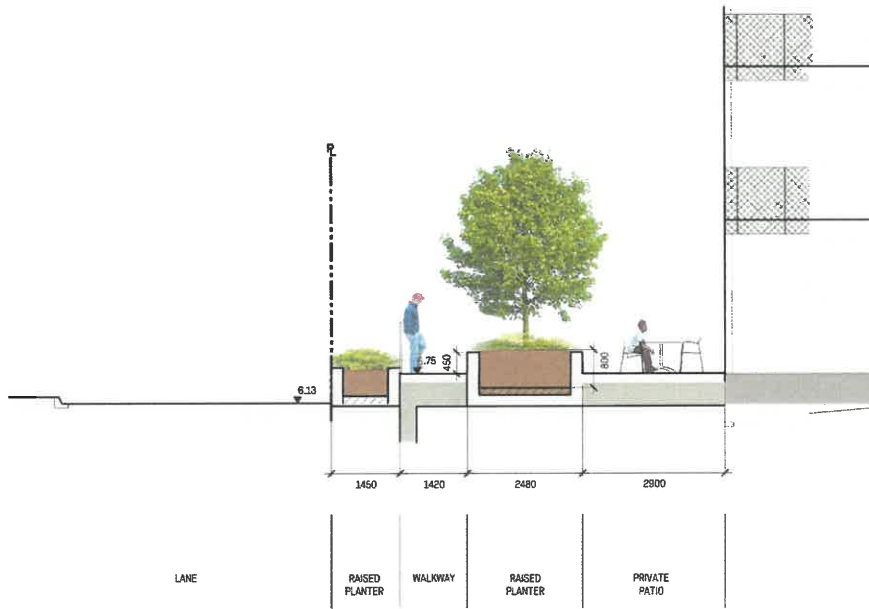
Landscape Section
 Ground Floor

Date	Feb. 10/20	Drawing Number
Project No.	1943	
Scale	as noted	L2.01
Drawn/Checked	pd ec	

DP000441(15)



1
12.02
1:50
Ground Floor Section at Reeve Street



2
12.03
1:50
Ground Floor Section at Lane

- 3 Re-issued for Development Permit Sep 11/20
- 2 Issued for Development Permit Aug 26/20
- 1 Issued for Development Permit July 13/20

No.	Description	Date

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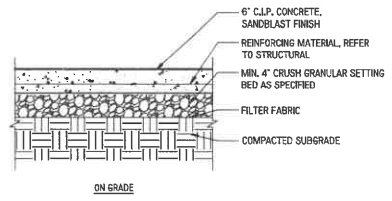
**Welcher Avenue
 Multi-Family Residential**
 Port Coquitlam, BC

Landscape Section
 Ground Floor

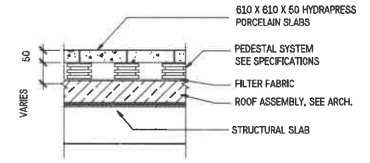
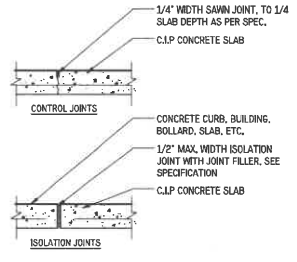
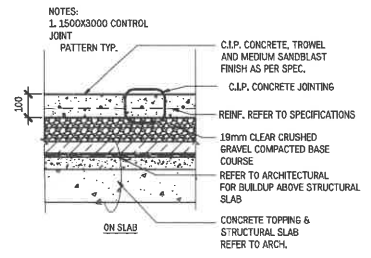
Date	Feb. 10/20	Drawing Number	
Project No.	1943		
Scale	as noted	L2.02	
Drawn/Checked	vs	pd	BC

DP000441(16)

- NOTES:
- REFER TO SPECIFICATION FOR GENERAL CONDITIONS;
 - CONSTRUCT ALL CONTROL JOINTS AT CONSISTENT WIDTH;
 - CUT JOINTS BEFORE RANDOM CRACKING OCCURS.

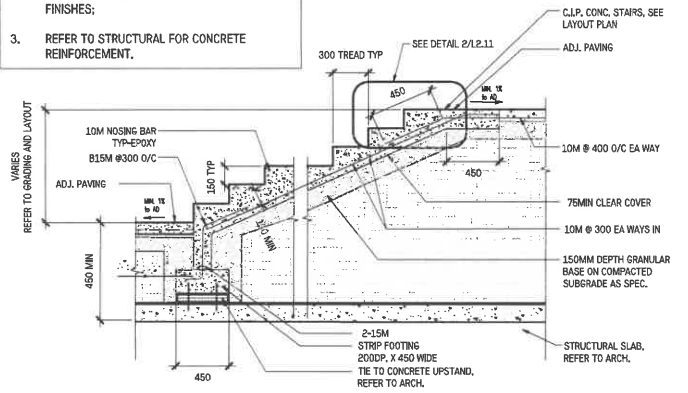


1 C.I.P. CONCRETE, TYP.
1:10

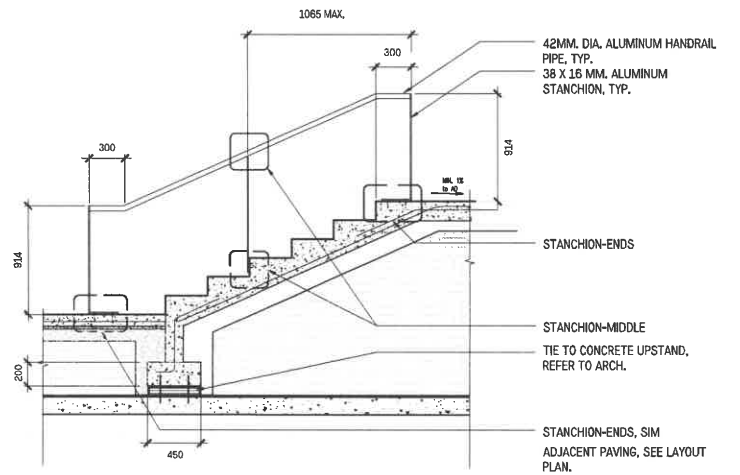


2 PAVING ON PEDESTALS
1:10

- NOTES:
- REFER TO GRADING PLAN FOR TOP/BOTTOM OF STAIR ELEVATIONS;
 - REFER TO SPECIFICATIONS FOR CONCRETE FINISHES;
 - REFER TO STRUCTURAL FOR CONCRETE REINFORCEMENT.



3 C.I.P. CONCRETE STAIRS, TYP.
1:20



4 HANDRAIL, TYP.
1:20

3 Re-issued for Development Permit Sep 11/20
2 Issued for Development Permit Aug 25/20
1 Issued for Development Permit July 13/20

No.	Description	Date
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**Welcher Avenue
Multi-Family Residential**
Port Coquitlam, BC

Details
Paving & Stairs

Date	Feb. 10/20	Drawing Number
Project No.	1043	L3.11
Scale	as noted	
Drawn/Checked	pd / BC	

DPO003441 (17)



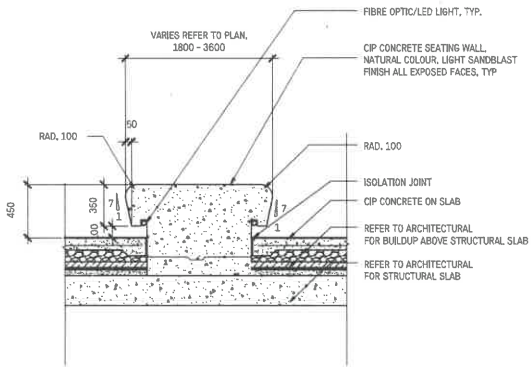
1 METAL TRELLIS PRECEDENT
1:20



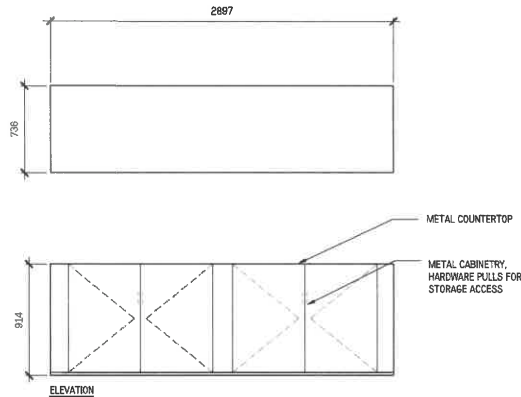
2 ALUMINUM FENCE
NTS



3 GALVANIZED METAL PLANTER, TYP.
1:10



4 CIP CONCRETE ROUNDED BENCHES
1:20



5 POTTING TABLE AND LOCKABLE METAL CABINET STORAGE
1:20



6 OUTDOOR CHALKBOARD WALL PRECEDENT
NTS

No.	Description	Date
3	Re-issued for Development Permit	Sep 11/20
2	Issued for Development Permit	Aug 25/20
1	Issued for Development Permit	July 13/20

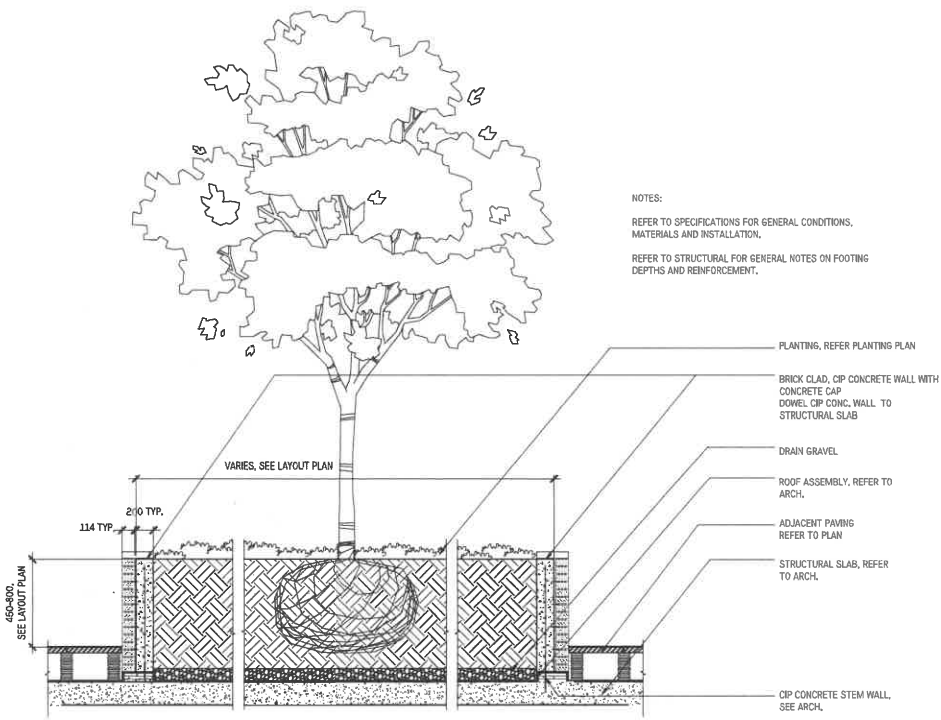
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**Welcher Avenue
Multi-Family Residential**
Port Coquitlam, BC

Details
Site Furnishing

Date	Feb. 10/20	Drawing Number	
Project No.	1943		
Scale	as noted		L3.21
Drawn/Checked	pd BC		

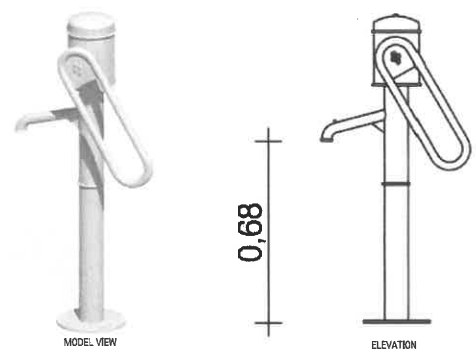
DPO003441 (18)



NOTES:
 REFER TO SPECIFICATIONS FOR GENERAL CONDITIONS,
 MATERIALS AND INSTALLATION.
 REFER TO STRUCTURAL FOR GENERAL NOTES ON FOOTING
 DEPTHS AND REINFORCEMENT.

- PLANTING, REFER PLANTING PLAN
- BRICK CLAD, CIP CONCRETE WALL WITH CONCRETE CAP
DOWEL CIP CONC. WALL TO STRUCTURAL SLAB
- DRAIN GRAVEL
- ROOF ASSEMBLY, REFER TO ARCH.
- ADJACENT PAVING REFER TO PLAN
- STRUCTURAL SLAB, REFER TO ARCH.
- CIP CONCRETE STEM WALL, SEE ARCH.

1 BRICK CLAD, CIP CONCRETE PLANTER, TYP.
 1:20



2 CHILDREN'S WATER PLAY PUMP
 NTS

3 Re-issued for Development Permit	11/20	
2 Issued for Development Permit	08/20	
1 Issued for Development Permit	07/20	
No.	Description	Date

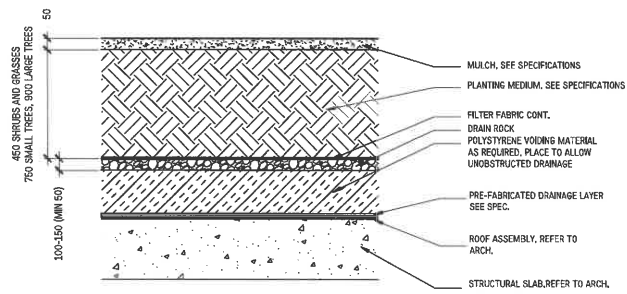
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 a strict confidentiality agreement with the client and
 the client's consent of the Hapa Collaborative.

**Welcher Avenue
 Multi-Family Residential**
 Port Coquitlam, BC

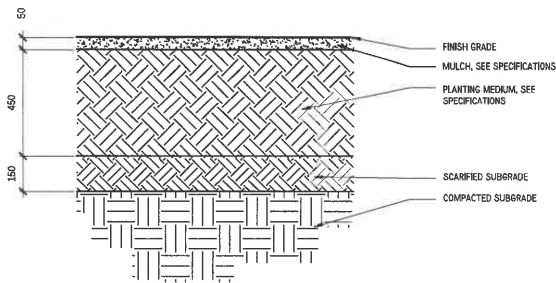
Details
 Site Furnishing

Date	Feb. 10/20	Drawing Number
Project No.	1943	
Title	as noted	L3.22
Drawn	20-0-19	pd bc

DPO00441(19)

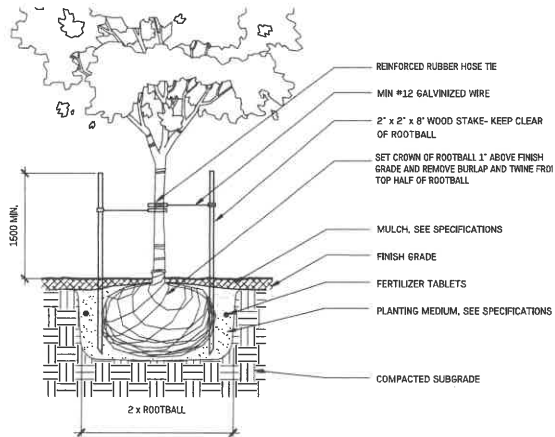


SHRUB AND TREE PLANTING ON SLAB

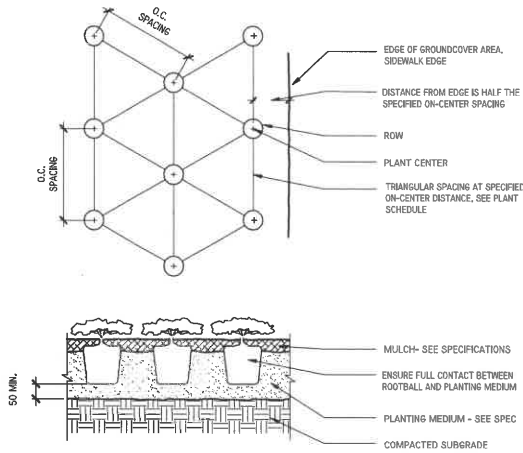


SHRUB PLANTING AREAS

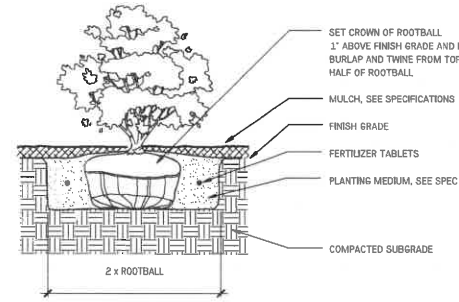
1 SOIL PROFILES
1.3.31 NTS



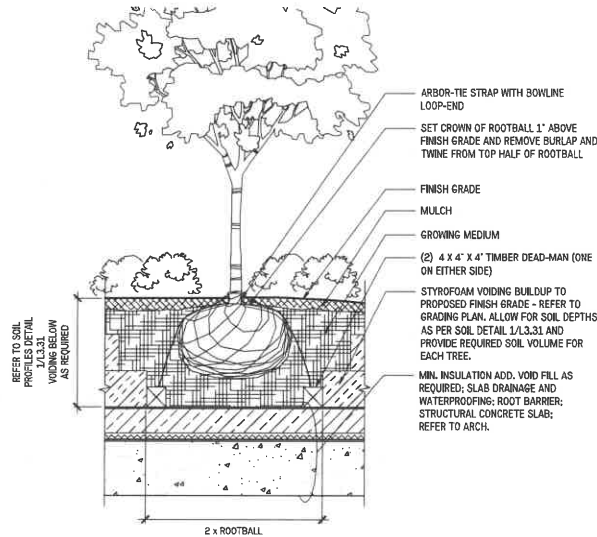
4 TREE PLANTING - ON GRADE
1.3.31 NTS



2 GROUNDCOVER PLANTING
1.3.31 NTS



3 SHRUB PLANTING
1.3.31 NTS



5 TREE PLANTING - ON SLAB
1.3.31 NTS

3 Re-issued for Development Permit Sep 11/20
2 Issued for Development Permit Aug 26/20
1 Issued for Development Permit July 13/20

No.	Description	Date
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**Welcher Avenue
Multi-Family Residential**
Port Coquitlam, BC

Details
Planting

Date	Feb. 16/20	Drawing Number
Project No.	1343	
Scale	as noted	L3.31
Drawn/Checked	pd BC	

DPO00441620

Schedule A

Energy Conservation:

Conservation Measure	Verification Method
Energy Star rated appliances to be used	BP stage; written confirmation by applicant along with staff review of BP submission
Location and size of windows will increase natural ventilation and natural daylight	DP and BP stage; staff review of BP submission
Step 4 of the Energy Step Code will be met	DP and BP stage; staff review of BP submission
High efficiency (COP) mechanical systems with heat recovery	BP stage; staff review of BP submission
Rough in for future photo-voltaic panels	BP stage; staff review of BP submission

Water conservation:

Conservation Measure	Verification Method
Low flow plumbing fixtures	BP stage; written confirmation by applicant along with staff review of BP submission
drought-tolerant and indigenous tree, shrub, and plant species	DP and BP stage; City arborist will review and complete landscape inspection
automated, high-efficiency mechanical irrigation systems;	DP and BP stage; City arborist will review and complete landscape inspection

GHG Reduction:

Conservation Measure	Verification Method
Accessible storage space for garbage and recycling will be provided	DP and BP stage; staff review of BP submission
Electric vehicle charging stations	DP and BP stage; staff review of BP submission
Prioritize reusable, renewable, recyclable and biodegradable materials	BP stage; written confirmation by applicant along with staff review of BP submission
Adequate storage space for garbage, recycling and organic materials provided in easily accessible, secure location.	DP and BP stage; staff review of BP submission

per OCP Sec. 9.11 Environmental Conservation DPA designation

DPO000441 (21)

THE CORPORATION OF THE CITY OF PORT COQUITLAM

“DEVELOPMENT PROCEDURES BYLAW, 2013, NO. 3849”

DEVELOPMENT VARIANCE PERMIT

NO. DVP00073

Issued to: Metro Vancouver Housing Corporation, INC. No. 129319
(Owner as defined in the Local Government Act,
hereinafter referred to as the Permittee)

Address: 4730 Kingsway, Burnaby, BC V5H 0C6

1. This Development Variance Permit is issued subject to compliance with all of the Bylaws of the Municipality applicable thereto, except as specifically varied by this permit.

2. This Development Variance Permit applies to and only to those lands within the Municipality described below, and any and all buildings, structure and other development thereon:

Address: 2481 Welcher Avenue

Legal Description: LOT 1, DISTRICT LOT 174, GROUP 1, NEW WEST DISTRICT, PLAN EPP91668

P.I.D.: 031-117-490

3. The Zoning Bylaw, 2008, No. 3630 is varied as follows:

- Table 2.4: Residential Zones Regulations is varied to permit a maximum height of 17.7 metres.
- Table 2.4: Residential Zones Regulations, Note 10 is varied to permit a maximum floor area ratio of 1.79 without the requirement of providing a contribution in the amount of \$50 per square foot of floor area provided to City reserve funds for community amenities and social housing amenities.

4. The land described herein shall be developed strictly in accordance with the terms and conditions and provisions of this permit.

5. This permit shall lapse if the Permittee does not substantially commence the construction permitted by this permit within two (2) years of the date of this permit.

6. This permit is not a building permit.

APPROVED BY COUNCIL THE _____ DAY OF _____, 2020.

SIGNED THIS _____ DAY OF _____, 2020.

Mayor

Corporate Officer

I ACKNOWLEDGE THAT I HAVE READ AND UNDERSTAND THE TERMS AND CONDITIONS UPON WHICH THIS PERMIT IS ISSUED.

Applicant (or Authorized Agent or Representative of Applicant)

August 17, 2020

CONFIDENTIAL/PERSONAL/REGISTERED MAIL/HAND DELIVERED (or delete if not needed)

Title FirstName Surname, Position (if position title long - move to next line)

Division/Section

Company OR c/o FirstName Surname

Address

City, Prov/State (3 spaces) Postal Code

VIA EMAIL: email.address@metrovancouver.org (or delete if not sending electronically)

Metro Vancouver Housing: Welcher Avenue Affordable Rental Housing Project

Dear Neighbour:

Metro Vancouver Housing is preparing to develop a new affordable, family-oriented, rental housing project at 2481 Welcher Avenue in Port Coquitlam. The development proposal includes 63 homes with a focus on larger family units, and accessible, age-friendly design to support people of all ages and abilities. This will provide much needed homes for families in central Port Coquitlam and delivers on Metro Vancouver Housing's commitment to creating more affordable rental homes across the region.

This project is currently in the design phase, with construction estimated to be complete by 2023.

As a close neighbour, we want to share information with you early on. We will keep you informed and are available to answer any questions you have:

- For questions about the proposed project, contact Metro Vancouver Housing at housing.inquiries@metrovancouver.org or 604-451-6635
- For questions about the City's development approval process, contact the City of Port Coquitlam Planning Division at 604-927-5442

Who is Metro Vancouver Housing?

Metro Vancouver Housing is owned by the Metro Vancouver Regional District and provides affordable rental housing for over 9,400 people on 49 sites throughout the region. Our sites are diverse, mixed-income communities that include families, seniors, and people with disabilities.

Metro Vancouver Housing is actively working to create more affordable rental homes across the region. We work closely with municipalities to identify the specific needs within each community, and develop housing that is affordable, accessible, and sustainable, and fits well within existing neighbourhoods.

Where is the site?

The site is located at the corner of Welcher Avenue and Reeve Street, with Gates Park located directly to the west. The site currently includes two houses and a vacant lot.

Site Map (Site indicated with red dashed outline):



What is being proposed?

The proposed development is a five-storey building with 63 homes and is thoughtfully designed to consider the existing neighbourhood context.

Neighbourhood Fit: The design reflects the style of buildings in the surrounding neighbourhood as well as the City's design guidelines. It includes features to ensure a good fit within the existing neighbourhood, such as:

- An L-shaped building to reduce the building mass near our neighbours to the east
- Brick cladding on lower portions of the building to complement surrounding buildings
- Lighter material on upper stories to reduce the overall visual impact
- Balconies to fit with the existing neighbourhood character and provide an interesting building façade
- A large open courtyard with attractive landscaping, garden space, and an outdoor plaza to support tenants and provide an attractive link to the existing neighbourhood and public space.

Parking: The design meets and exceeds city-required parking. It also includes secure bicycle parking. Neighbourhood impacts for street parking and traffic were thoughtfully considered in the design.

Sustainability: The proposed development will meet BC Energy Code's Step Code 4, balancing affordability with energy-efficient design and features to support tenant comfort and help meet local climate goals. The

project's commitment to sustainability, including the specific requirements for Step Code 4, have played a large role in the design and form of the building.

Units: The homes will include a mix of unit sizes, with over 80% larger family units (2-and 3-bedrooms), adaptable design, and accessible units to support people of all ages and abilities.

Future Tenants: Homes will support a diverse mix of families, couples, singles, and seniors with a mix of incomes.

Affordability: All homes will offer a level of affordability, with some provided at the low-end-of-market, and others provided at rent-geared-to-income. Metro Vancouver is seeking to partner with provincial and federal governments to support deeper affordability.

What is the process and timing?

Metro Vancouver Housing is working closely with the City to ensure the proposed design meets all City requirements and fits well within the existing neighbourhood. Pending the City's approval of the Development Permit and Variance application, Metro Vancouver Housing will apply for a Building Permit and then proceed to construction in spring 2021. If approved, construction is estimated to be complete with residents moving in as of spring 2023.

For more information:

Please visit metrovancover.org and search 'Welcher'. Any feedback or questions are welcome to housing.inquiries@metrovancover.org or 604-451-6635.

Sincerely,



Laurel Cowan
Program Manager, Housing Planning & Policy, Metro Vancouver Housing

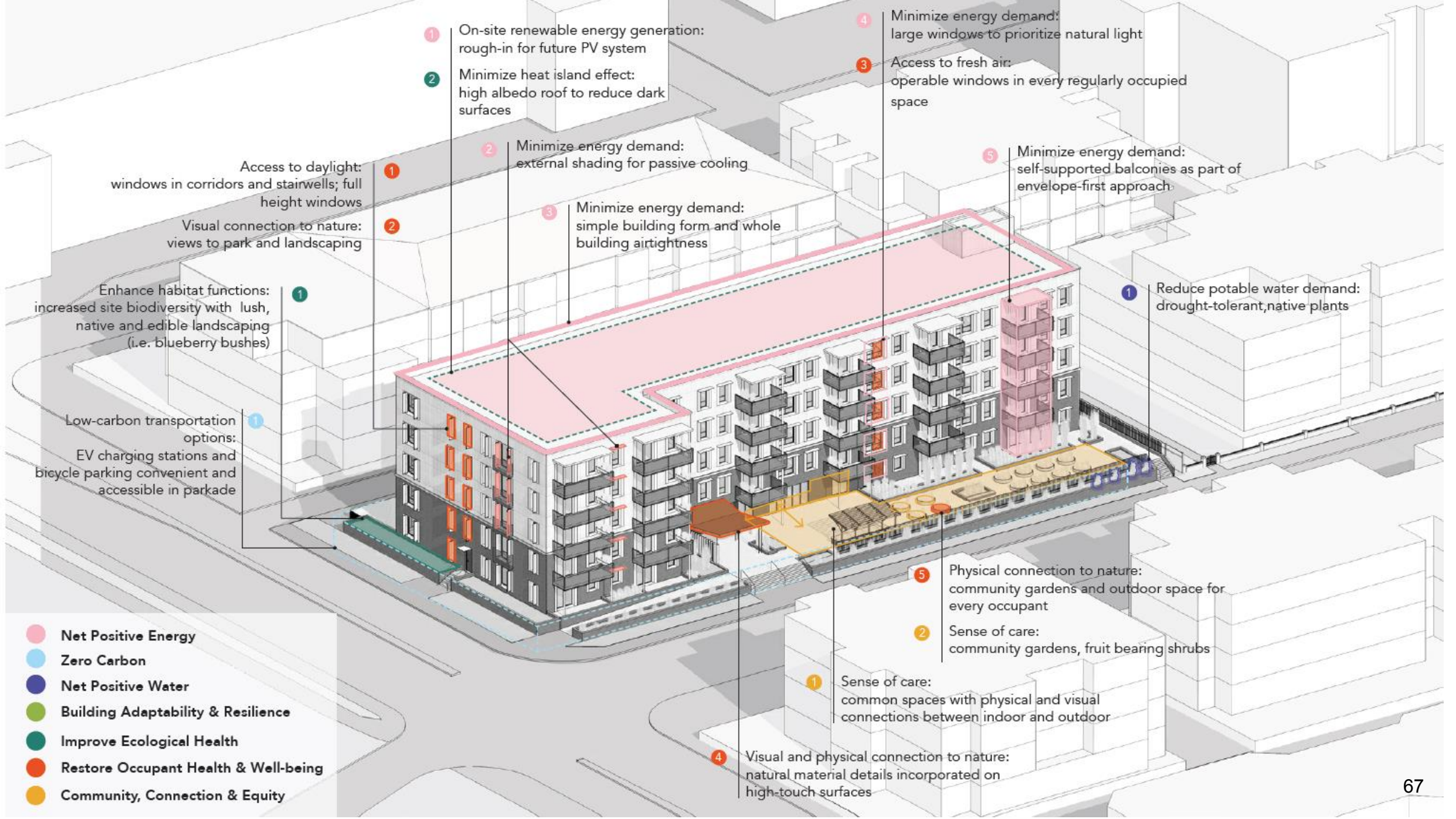
Proposed Building Design



Southeast perspective, along Welcher Avenue



South-west perspective, corner of Reeve Street and Welcher Avenue



1 On-site renewable energy generation: rough-in for future PV system
2 Minimize heat island effect: high albedo roof to reduce dark surfaces

4 Minimize energy demand: large windows to prioritize natural light
3 Access to fresh air: operable windows in every regularly occupied space

1 Access to daylight: windows in corridors and stairwells; full height windows

2 Visual connection to nature: views to park and landscaping

2 Minimize energy demand: external shading for passive cooling

3 Minimize energy demand: simple building form and whole building airtightness

5 Minimize energy demand: self-supported balconies as part of envelope-first approach

1 Enhance habitat functions: increased site biodiversity with lush, native and edible landscaping (i.e. blueberry bushes)

1 Low-carbon transportation options: EV charging stations and bicycle parking convenient and accessible in parkade

1 Reduce potable water demand: drought-tolerant, native plants

5 Physical connection to nature: community gardens and outdoor space for every occupant

2 Sense of care: community gardens, fruit bearing shrubs

1 Sense of care: common spaces with physical and visual connections between indoor and outdoor

4 Visual and physical connection to nature: natural material details incorporated on high-touch surfaces

- Net Positive Energy
- Zero Carbon
- Net Positive Water
- Building Adaptability & Resilience
- Improve Ecological Health
- Restore Occupant Health & Well-being
- Community, Connection & Equity

Arborist Report / Tree Management Plan **For Construction Phase**

**2471, 2477, 2487 & 2495 Welcher Avenue,
Port Coquitlam, B.C.**



Aerial image of the subject property. Source: City of Port Coquitlam public GIS map/image

Prepared for:

Jotty Gill, Dipl.T.
Housing Technician,
Metro Vancouver Housing
c. 604.612.5414 / t. 604.451.6508

Prepared by:

Lucian Serban RPF
Senior Consulting Arborist / Urban Forester
Davey Resource Group
200-8208 Swenson Way, Delta, BC. V4G 1J6
Cell: 604.346.9498
Email: lucian-liviu.serban@davey.com
ISA Certified Arborist Municipal Specialist PN-7558AM

June 2nd, 2020

Check List for City of Port Coquitlam Arborist's Report

<input type="checkbox"/>	Civic address	2471, 2477, 2487 & 2495 Welcher Avenue, Port Coquitlam, BC																								
<input type="checkbox"/>	Site visit dates	January 11 th , 2019 and June 2 nd , 2020																								
<input type="checkbox"/>	Report submission date	<i>(Client to add)</i>																								
<input type="checkbox"/>	Name of Arborist & Company	Lucian Serban RPF/ Davey Resource Group																								
	Address	200-8208 Swenson Way, Delta, BC.																								
	Phone number	604.346.9498																								
	Email	lucian-liviu.serban@davey.com																								
<input type="checkbox"/>	Arborist's ISA Certification Numbers	PN-7558AM																								
<input type="checkbox"/>	City of Port Coquitlam business licence no.	Pending Release																								
<input type="checkbox"/>	Property owner name	Metro Vancouver Housing																								
	Phone number	604.451.6508																								
	Email	Jotty.Gill@metrovancover.org																								
<input type="checkbox"/>	Site conditions & site description	2 undeveloped lots (2487 & 2495) with natural regenerated and unmaintained vegetation. Two previously developed lots with two demolished houses (2471 & 2477). All four lots are intended to be developed under one separate project.																								
<input type="checkbox"/>	Wind-firm boundary assessment	Not applicable																								
<input type="checkbox"/>	Description of work or development	Multi-family housing project on all four lots.																								
<input type="checkbox"/>	Identification and discussion of probable tree impacts	Due to their conflicting location with the proposed development fifty-eight (58) trees (including the trees in the hedge) are recommended for removal. One municipal and all neighboring properties trees to be retained and protected. Two "City" boulevard trees in poor condition are proposed for removal and replacement with good formed trees to serve as boulevard trees. City of Coquitlam approval is requested. Root pruning and tree protection measures are required for neighbours' trees.																								
<input type="checkbox"/>	Tree protection measures for retain trees	See tree protection specifications																								
<input type="checkbox"/>	Tree inventory and assessment (DBH >10 cm)	See attached tree inventory table																								
<input type="checkbox"/>	Tree management plan showing location of all trees and site survey.	See attached site plan (Fig. 1 / Appendix 1)																								
<input type="checkbox"/>	Summary table of quantity of trees removed/retained	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 10%;">Owner</th> <th style="width: 10%;">On Site</th> <th style="width: 15%;">Off-site Municipal boulevard trees</th> <th style="width: 15%;">Neighbouring property</th> <th style="width: 10%;">Total Trees</th> </tr> </thead> <tbody> <tr> <td style="text-align: left;">Trees removed for the DEMOLITION phase are not considered and counted.</td> <td>Removed Trees</td> <td>56</td> <td>2</td> <td>0</td> <td>58</td> </tr> <tr> <td></td> <td>Retained Trees</td> <td>0</td> <td>1</td> <td>4</td> <td>5</td> </tr> <tr> <td></td> <td>Total Trees</td> <td>56</td> <td>3</td> <td>4</td> <td>63</td> </tr> </tbody> </table>		Owner	On Site	Off-site Municipal boulevard trees	Neighbouring property	Total Trees	Trees removed for the DEMOLITION phase are not considered and counted.	Removed Trees	56	2	0	58		Retained Trees	0	1	4	5		Total Trees	56	3	4	63
	Owner	On Site	Off-site Municipal boulevard trees	Neighbouring property	Total Trees																					
Trees removed for the DEMOLITION phase are not considered and counted.	Removed Trees	56	2	0	58																					
	Retained Trees	0	1	4	5																					
	Total Trees	56	3	4	63																					
<input type="checkbox"/>	Tree protection fencing dimensions for on and off-site trees	See attached tree protection measures specifications and the site plan showing the tree protection fence location																								
<input type="checkbox"/>	Requirement for arborist to be on site for excavation in CRZ	See attached tree protection measures specifications																								
<input type="checkbox"/>	Labeled photographs	See attached photos (Appendix 2).																								
<input type="checkbox"/>	Tree replacement requirements for on and off-site trees	Pending the approval of the tree removals, the City of Port Coquitlam representative will determine the number and location of the replacement trees required. The prescribed replacement trees shall be included in the landscaping plan and shall be planted after construction is finalized at the landscaping phase.																								

Summary / Scope of Work

This Arborist Report / Tree Management Plan was developed to assist in managing the subject trees located at 2471, 2477, 2487 & 2495 Welcher Avenue in Port Coquitlam and vicinity and to serve as a guide to ensure tree health, structure and esthetic are protected during proposed development (Fig. 1).

This document addresses tree impacts associated with the construction of a multi-family housing project as proposed for 2471, 2477, 2487 & 2495 Welcher Avenue, Port Coquitlam, BC.

The proposed work requires the removal of fifty-six (56) trees on the subject property and two (2) trees on the City property. All other trees located on the subject property and outside property boundaries will be retained and protected. The proposed construction appears to require excavation within the Critical Root Zones (CRZ) of four (4) trees on neighboring property to the East and one (1) boulevard tree on Welcher Avenue.

Prescribed tree protection measures shall be followed during the construction phase. All soil excavations and soil gradings in the critical root zone of the retained trees will be supervised by the project arborist.

Assignment

The Davey Resource Group (DRG) was contracted by Jotty Gill of Metro Vancouver Housing (herein referred to as the Client) to provide an Arborist's Report and Tree Management Plan for the property at 2471, 2477, 2487 & 2495 Welcher Avenue, Port Coquitlam, BC. to be submitted in support of a Development Permit application.

Limitations of the Assignment

Arborists, tree experts and tree risk assessors are not able to predict with absolute certainty the exact date and conditions of a tree death, health decline or failure. The recommendations in this report are based on observations and data collection reflective of the current state of the subject trees at the time of the site inspection.

This arborist report and tree preservation plan are based on the project scope and details provided in the site plan and discussions with the Client. Estimates, measurements and comments regarding trees preservation are dependent on the accuracy of the site plan provided by the client.

The Client should incorporate the information and recommendations provided in this report into their future tree care plans, in a reasonable manner.

This arborist report was prepared in good faith and to the arboricultural best practices standards within its scope and using the documentation provided by the client.

Methods

- Tree locations are based on supplied Surveyor's plan.
- The subject site and trees were assessed and inventoried by the project arborist.
- Diameters at the breast height (DBH) were measured at a height of 1.4 m from the ground using a metric diameter tape.
- Photos were taken during field visits to better document the findings.

Key Observations

- The City of Port Coquitlam regulates trees on both private and public lands through the Bylaw #3474/2005.
- The proposed development plans require extensive excavations and removal of the trees located in a conflicting position.
- There are 63 inventoried subject trees on or adjacent to the subject property (trees to be removed for demolition were not considered).
- Fifty-six (56) trees are located on the subject property, forty (40) of them are located along the Reeves Street and planted in a row as a hedge.
- Three (3) trees are located on the municipal property as boulevard trees. One of these trees is in good condition and located on the Welcher Avenue. Two mountain ash trees, both in poor condition are located on Reeve Street.
- Four (4) trees in good condition are located on the neighboring property to the East.
- The proposed construction requires the removal of 56 trees on the subject property.
- The proposed development requires excavation within the Critical Root Zone (CRZ) of one (1) boulevard and four (4) neighboring trees.
- There are no significant trees identified on the subject property or vicinity.
- Root pruning of trees along the line of excavation can mitigate some of the root damage and negative health effects.
- The total proposed development area size is 2694 m².
- Pending the approval of the tree removal application, the City of Port Coquitlam representative will determine the number and location of the replacement trees required. All replacement planting shall be included in the Landscaping Plan and to be completed after the construction is completed (see the proposed Landscaping Plan for details).

Key Recommendations

- Construction phase: Apply for permits to remove a total of fifty-six (56) trees from the subject site and two (2) boulevard trees (#230 and 231).
- Confer with City of Port Coquitlam and neighbor to the East regarding development impacts to trees located adjacent to the excavation (trees "A" respectively "B", "C", "D" and "E") (Fig. 1).
- Review the Tree Management Plan and recommendations with the site supervisor.
- Remove trees once permits are issued.
- Engage a Certified Arborist to lay out tree protection zones and direct the tree protection fence installation. The tree protection fence shall be installed parallel to the Eastern property boundary at 1 m West from the property line, as shown on the TMP and Fig. 1.
- Engage a Certified Arborist to pre-cut roots within the CRZ of neighboring trees prior to excavation (trees "A", "B", "C", "D" and "E").
- After excavation is complete, engage a Certified Arborist with Tree Risk Assessor qualification to assess the neighbor's retained trees for safety.
- Monitor, water and aerate impacted neighboring trees to help mitigate root loss.

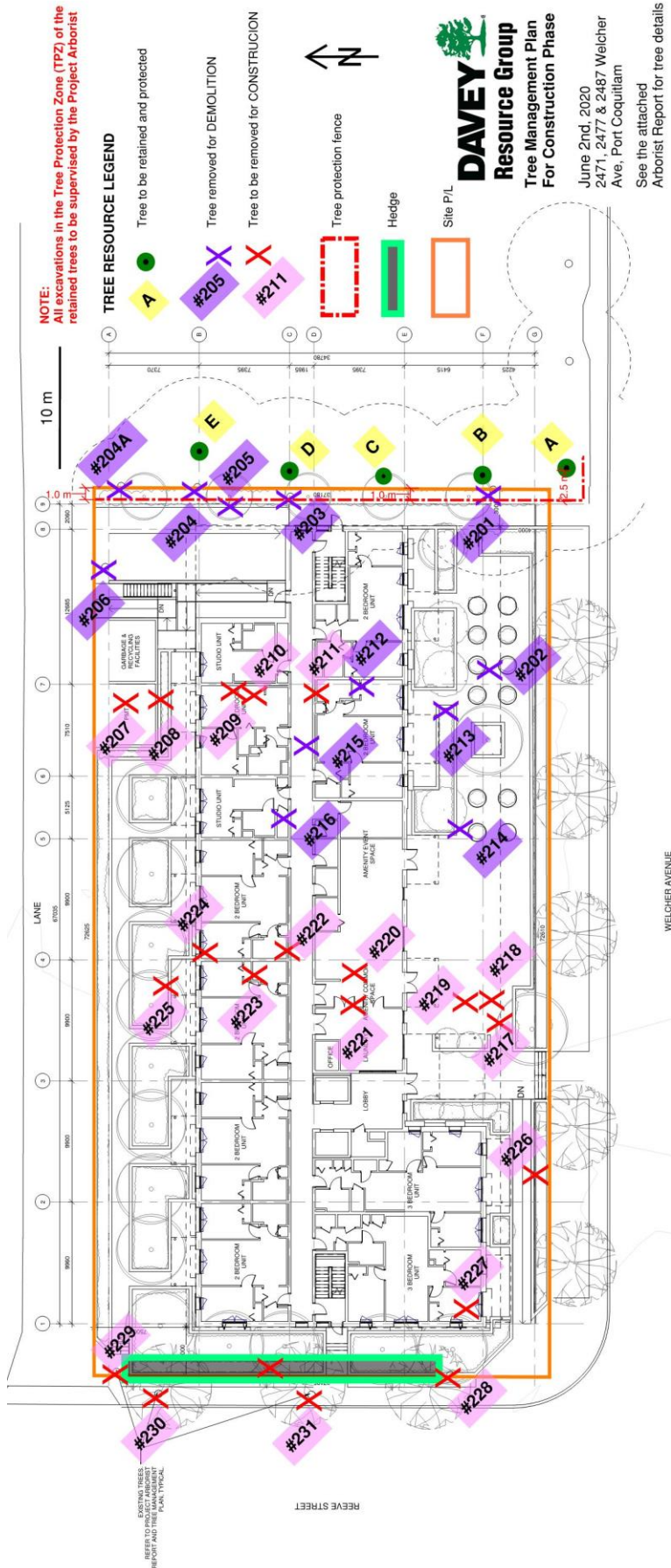


Fig. 1: Subject site outlined in orange (not to scale) and subject trees identified and represented with their tag number.

Trees proposed for protection are represented by green round symbols.

Trees proposed for removal at the construction phase are represented by red "X" and pink ID label. The trees removed at the demolition stage are identified with purple ID and "X".

(The site plan provided by Local Practice Architecture + Design Ltd. Was used as base map for this Tree Management Plan.)

Table 1: Tree Inventory Table

Tree ID	Old Tree Tag	Species	Tree location	DBH (cm)	Protected Root Zone Radius (dripline) (m)	Crown Radius (m)	Health (Good, Fair, Poor, Dead)	Structural Condition (Good, Fair, Poor)	Bylaw Protected Tree?	Bylaw Significant Tree?	Comments	Recommendations
201	N/A	Cascara	2471 Welcher Ave.	30	4	4	Fair	Fair	Yes	No	Multi-stem tree	Tree removed for DEMOLITION
202	N/A	Red maple	2471 Welcher Ave.	12	1	1	Good	Good	No	No	Planted	Tree removed for DEMOLITION
203	N/A	Cottonwood	2471 Welcher Ave.	80	6	6	Fair	Fair	Yes	No	Scar of a large limb failure	Tree removed for DEMOLITION
204	N/A	Cherry	2471 Welcher Ave.	22	3	3	Poor	Poor	Yes	No		Tree removed for DEMOLITION
204A	N/A	Birch	2471 Welcher Ave.	22	3	3	Fair	Fair	Yes	No	No tag	Tree removed for DEMOLITION
205	N/A	Laurel	2471 Welcher Ave.	24	4	4	Good	Fair	Yes	No	Multi-stem tree	Tree removed for DEMOLITION
206	N/A	Laurel	2471 Welcher Ave.	26	4	4	Good	Fair	Yes	No		Tree removed for DEMOLITION
207	N/A	Laurel	2471 Welcher Ave.	28	4	4	Good	Fair	Yes	No	Tree location in conflict with construction	Tree to be removed for CONSTRUCTION
208	N/A	Pyrenean oak	2471 Welcher Ave.	34	4	4	Fair	Fair	Yes	No	Tree location in conflict with construction	Tree to be removed for CONSTRUCTION
209	N/A	Birch	2471 Welcher Ave.	42	5	5	Poor	Poor	Yes	No	Tree location in conflict with construction	Tree to be removed for CONSTRUCTION
210	N/A	Laurel	2471 Welcher Ave.	22	5	5	Poor	Poor	Yes	No	Tree location in conflict with construction	Tree to be removed for CONSTRUCTION
211	N/A	Laurel	2471 Welcher Ave.	28	5	5	Poor	Poor	Yes	No	Tree location in conflict with construction	Tree to be removed for CONSTRUCTION
212	N/A	Arborvitae X3	2471 Welcher Ave.	28	1	1	Good	Fair	Yes	No		Tree removed for DEMOLITION
213	N/A	English oak	2477 Welcher Ave.	30	3	3	Good	Good	Yes	No		Tree removed for DEMOLITION
214	N/A	Bigleaf maple	2477 Welcher Ave.	24	4	4	Good	Fair	Yes	No		Tree removed for DEMOLITION
215	N/A	Apple	2477 Welcher Ave.	24	3	3	Poor	Poor	Yes	No		Tree removed for DEMOLITION
216	N/A	Dwarf spruce	2477 Welcher Ave.	24	1	1	Good	Fair	Yes	No		Tree removed for DEMOLITION
217	N/A	Cottonwood	2487 Welcher Ave.	16	2	2	Good	Fair	No	No	Natural regenerated Tree location in conflict with construction	Tree to be removed for CONSTRUCTION
218	N/A	Cottonwood X2	2487 Welcher Ave.	24	3	3	Good	Fair	Yes	No	Natural regenerated Tree location in conflict with construction	Tree to be removed for CONSTRUCTION
219	N/A	Cottonwood x4	2487 Welcher Ave.	40	4	4	Good	Fair	Yes	No	Natural regenerated Tree location in conflict with construction	Tree to be removed for CONSTRUCTION
220	N/A	Cottonwood x2	2487 Welcher Ave.	38	5	5	Good	Fair	Yes	No	Natural regenerated Tree location in conflict with construction	Tree to be removed for CONSTRUCTION
221	N/A	Cottonwood x2	2487 Welcher Ave.	30	3	3	Good	Fair	Yes	No	Natural regenerated Tree location in conflict with construction	Tree to be removed for CONSTRUCTION
222	N/A	Cottonwood x2	2487 Welcher Ave.	32	3	3	Good	Fair	Yes	No	Natural regenerated Tree location in conflict with construction	Tree to be removed for CONSTRUCTION
223	N/A	Cottonwood	2487 Welcher Ave.	24	3	3	Good	Fair	Yes	No	Natural regenerated Tree location in conflict with construction	Tree to be removed for CONSTRUCTION
224	N/A	Cottonwood x2	2487 Welcher Ave.	28	3	3	Good	Fair	Yes	No	Natural regenerated Tree location in conflict with construction	Tree to be removed for CONSTRUCTION
225	N/A	Cottonwood x3	2487 Welcher Ave.	30	3	3	Good	Fair	Yes	No	Natural regenerated Tree location in conflict with construction	Tree to be removed for CONSTRUCTION
226	N/A	Cottonwood x8	2495 Welcher Ave.	42	5	5	Good	Fair	Yes	No	Natural regenerated Tree location in conflict with construction	Tree to be removed for CONSTRUCTION
227	N/A	Cottonwood x9	2495 Welcher Ave.	34	4	4	Good	Fair	Yes	No	Natural regenerated Tree location in conflict with construction	Tree to be removed for CONSTRUCTION
228	N/A	Western hemlock	2495 Welcher Ave.	20	2	2	Fair/Poor	Fair/Poor	Yes	No	South end of the hedge 40+ stem planted as a hedge 10 to 20cm DBH; some dead or dying Trees location in conflict with construction	Trees to be removed for CONSTRUCTION
229	N/A	Western hemlock	2495 Welcher Ave.	20	3	3	Fair	Fair	Yes	No	North end of the hedge Trees inventoried as a hedge group Trees in the middle not tagged Trees location in conflict with construction	Trees to be removed for CONSTRUCTION
230	N/A	Mountain ash	Boulevard tree Reeve Str.	26	2	2	Poor	Poor	Yes	No	Advanced health decline Trees location in conflict with construction Obtain approval from the City of Port Coquitlam for this tree removal.	Tree to be removed for CONSTRUCTION
231	N/A	Mountain ash	Boulevard tree Reeve Str.	28	2	2	Poor	Poor	Yes	No	Advanced health decline Trees location in conflict with construction Obtain approval from the City of Port Coquitlam for this tree removal.	Tree to be removed for CONSTRUCTION
A	N/A	Red maple	Boulevard tree Welcher Ave.	35	4	4	Good	Good	Yes	No	No tag	Retain and protect
B	156	Sweetgum	2435 Welcher Ave.	16	3	3	Good	Good	No	No		Retain and protect
C	157	Red maple	2435 Welcher Ave.	18	2	2	Good	Good	No	No		Retain and protect
D	158	Sweetgum	2435 Welcher Ave.	25	3	3	Good	Good	Yes	No		Retain and protect
E	159	Sweetgum	2435 Welcher Ave.	28	3	3	Good	Good	Yes	No		Retain and protect

Note: Metal tags were attached to the trees above the yes level.

Legend: Trees removed for demolition phase.

Discussion

Tree Removal

Construction of the multi-family housing project requires the removal of 56 trees located on the subject property and 2 boulevard trees in poor condition.

Due to the size and location of these trees, we recommend the tree removal be completed by a certified arborist. If removed with care, we do not anticipate any damage to the remaining tree inventory or adjacent buildings.

Tree Protection Measures

Tree preservation starts at the development's planning stage and follows through excavation, construction, grading, landscaping, acceptance and into post construction. The goal is that each retained tree remains a long-term asset to the community.

One key strategy to achieve this goal is minimizing damage and disturbance to the above ground tree and its underground roots. The objectives of this strategy are to protect:

- Tree roots from: Ripping/Tearing, Suffocation, Drought and desiccation;
- Tree trunks from: Vascular and structural damage;
- Tree branches from: Breakage and tearing;
- Tree buds and leaves from: Scorching and desiccation

Another key strategy to attain the goal is to direct tree protection funds where they will do the most good.

The objectives of this strategy are to:

- Preserve the healthiest, most structural sound trees.
- Protect the species the most tolerant of construction disturbance.
- Maintain or mimic natural process need for tree health
- Provide the best growing conditions for replacement trees
- Educate site workers

Tree Protection Zone

The Tree Protection Zone is a volume both above and below the ground that is to be left undisturbed. This volume is primarily defined by a Tree Protection Zone fence placed some distance from the trunk. The City of Port Coquitlam requires the minimum distance for barrier fencing is a tree's drip line. The City of Port Coquitlam also requires an additional 1 m distance directly outside the fence to be a "hand dig zone". Together the drip line and the hand dig zone define the Critical Root Zone (CRZ).

Critical Root Zone (CRZ)

Work within the CRZ of any tree would be considered to have the potential for serious root injury and would leave the tree with a high risk of structural failure or serious decline. Fence surrounding existing trees on the TMP are based on the drip-lines recorded in the field and represent a 'best case scenario' for tree protection needs. The on-site project arborist will have final approval of tree protection requirements.

If operationally necessary, removal or relocation of the tree protection fence shall be discussed and pre-approved by the project arborist.

Root Pruning Protocol

The roots provide nutrients and water to the leaves and branches while supporting the tree in wind storms and preventing failure. Trees are remarkable, in that the upper canopy can be completely green and full while most of the roots below have been removed; leaving the tree highly prone to failure and imminent death within a few years. Once a tree is injured, that injury is never completely "healed" but instead the tree allocates a great deal of energy to try and repair itself, often at the expense of its vitality and sometimes leading to a mortality spiral that may not be noticed until years later.

Root pruning is a practice to minimize injuries to trees. Roots in comparison to upper canopy limbs store a great deal of energy and reserves for trees to survive and must be removed with the utmost care and consideration. Like pruning the upper canopy of the tree, roots are best removed (if needed) via target pruning practices and not by being torn off. Roots must be assessed by a qualified and experienced arborist and then pruned properly with a sharp tool.

Root pruning is not a common skill set and should be performed by a qualified arborist familiar with root excavation and root pruning. Tree's roots are underground and are otherwise not detectible without physical exploration – i.e., using a Supersonic Air Tool (SSAT) such as an AirSpade® or Daylighting vehicle (Hydro-Vac with pressure not to exceed 500 psi inside any TPZ). Root pruning trenches must be at least the depth of the deepest root (usually 30-60 cm) and about 15 cm wide.

Roots are assessed by the arborist regarding the effects construction may have on the tree, and then either pruned with a sharp tool, possibly recommended for removal, or a design change may be needed on-site to accommodate. The use of a rotary saw is not acceptable to prune the roots of trees.

Tree Protection Fence

Tree protection barriers shall be installed as outlined in the tree protection plan and maintain in good shape during the entire project period. Tree Protection Fencing (TPF) is used on construction sites to ensure that damage to the tree and its root zone is prevented. This distance is typically located by the CRZ. However, it must be understood that sometimes this distance is not achievable due to infrastructure being too close. It must be further understood the fence distance sometimes must accommodate a larger TPZ (than the typical CRZ distance) due to a limited root growing area/volume (this area is typically defined by the project arborist.) Fence locations should be field marked by the project arborist, and fence installation will be installed by the contractor. This fence must be anchored to the ground and must be installed to the lines defined by the project arborist.

Problems will arise for tree preservation efforts when anyone removes the hoarding, even temporarily. It takes one instance of soil compaction from a heavy machine for roots to suffer from air and water deprivation and for the tree to become stressed. It is imperative to install and maintain in good condition the fence to prevent this from happening before and throughout the entire Demolition. For this project Tree Protection Fence should be aligned as shown on the site plan (Fig. 1) for the duration of the project.

Arborist's Tree Monitoring

Roots are buried, out-of-site and unpredictable. It is possible that even the best application of Tree Friendly excavation techniques can still damage a tree to the point of destabilization. During excavation within the Tree Protection Zone a Certified Arborist, with Tree Risk Assessment Qualifications should be present on site to monitor the stability and safety of protected trees.

If excavation risks destabilizing the tree the arborist may stop the work and advise on possible risk mitigation techniques including tree removal.

Branch Pruning

Tree branches within the TPZ should be selectively pruned under the supervision of a Certified Arborist to facilitate construction clearances. The project arborist and the construction contractor should work together to determine necessary construction clearances. It is unlikely that retained trees on neighbor's land will require clearance pruning.

Vehicle Idling

Vehicle and equipment exhaust can damage the tender tree parts such as leaves and buds can be scorch and/or desiccate if exposed to prolonged exhaust gases. Therefore, idling the engines of vertically piped vehicles such as heavy trucks and equipment such as compressors or excavators is prohibited under tree canopies.

Post construction Care

The proposed construction work, specifically during the excavations and soil gradings, will remove an estimated 5 to 10% of the neighbor's trees' roots. Therefore, these subject trees require supplementary care to help mitigate the damage. Three activities required: supplementary watering.

- Supplementary Water - Adding irrigation water as required to ensure that root zone is at field capacity.

The owners of neighboring trees impacted by the work should be provided aftercare instructions. Roots damaged by excavation are subject to decay. Decaying roots may destabilize a tree and place the tree at risk of failure. The trees should be routinely monitored in 3 to 5 future years by a Qualified Tree Risk Assessor for changes. Additionally, tree owners should be instructed to routinely monitor the trees for changes after extreme wind and or rain events.

Tree Protection Signage

It is recommended for the Client to post Tree Protection Signs displayed on the tree protection fencing. These signs could be made in bulk at a discounted rate and installed on the fence in various locations. Signage informs the public and reminds the contractors the significance of the TPZs and the efforts put forward by the Client in tree preservation.

Staging Areas

All staging areas are understood to be outside the TPZ. At no time are materials, vehicles, traffic or debris to be stacked, staged, or piled inside the Tree Protection Fencing.

If the tree preservation measures specified in this plan will be implemented with care, we do not anticipate negative impact on the health or structural conditions of the retained trees.

Conditions of Assessment Agreement

This Conditions of Assessment Agreement is made pursuant to and as a provision of Davey Resource Group, a division of The Davey Tree Expert Co. of Canada, Limited ("Davey"), providing tree assessment services as agreed to between the parties, the terms and substance of which are incorporated in and made a part of this Agreement (collectively the "Services").

Trees are living organisms that are subject to stress and conditions and which inherently impose some degree or level of risk. Unless a tree is removed, the risk cannot be eliminated entirely. Tree conditions may also change over time even if there is no external evidence or manifestation. In that Davey provides the Services at a point in time utilizing applicable standard industry practices, any conclusions and recommendations provided are relevant only to the facts and conditions at the time the Services are performed. Given that Davey cannot predict or otherwise determine subsequent developments, Davey will not be liable for any such developments, acts, or conditions that occur including, but not limited to, decay, deterioration, or damage from any cause, insect infestation, acts of god or nature or otherwise.

Unless otherwise stated in writing, assessments are performed visually from the ground on the above-ground portions of the tree(s). However, the outward appearance of trees may conceal defects. Therefore, to the extent permitted by law, Davey does not make and expressly disclaims any warranties or representations of any kind, express or implied, with respect to completeness or accuracy of the information contained in the reports or findings resulting from the Services beyond that expressly contracted for by Davey in writing, including, but not limited to, performing diagnosis or identifying hazards or conditions not within the scope of the Services or not readily discoverable using the methods applied pursuant to applicable standard industry practices. Further,

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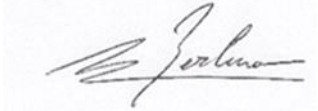
This document must be used in whole with all pages and in conjunction with all support documents and plans.

Davey's liability for any claim, damage or loss caused by or related to the Services shall be limited to the work expressly contracted for.

In performing the Services, Davey may have reviewed publicly available or other third- party records or conducted interviews and has assumed the genuineness of such documents and statements. Davey disclaims any liability for errors, omissions, or inaccuracies resulting from or contained in any information obtained from any third- party or publicly available source.

Except as agreed to between the parties prior to the Services being performed, the reports and recommendations resulting from the Services may not be used by any other party or for any other purpose. The undersigned also agrees, to the extent permitted by law, to protect, indemnify, defend and hold Davey harmless from and against any and all claims, demands, actions, rights and causes of action of every kind and nature, including actions for contribution or indemnity, that may hereafter at any time be asserted against Davey or another party, including, but not limited to, bodily injury or death or property damage arising in any manner from or in any way related to any disclaimers or limitations in this Agreement.

Submitted on behalf of Davey Resource Group,



Lucian Serban, RPF
Senior Consulting Arborist / Urban Forester
ISA Certified Arborist Municipal Specialist PN-7558AM
ISA Tree Risk Assessment Qualified (TRAQ)
ISA Professional Member #215405
Association of BC Forest Professionals Member #5179

Appendix 2 - Tree Photos



Trees #207, 208, 209 and 210 – REMOVE



Trees "A" and "B" – RETAIN and PROTECT



Tree #217 to 225 Natural regenerated cottonwood - REMOVE

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Tree #226, 228 Natural regenerated cottonwoods - **REMOVE**



Tree #228 the hedge, tree #229 Western hemlocks and the boulevard trees #230 & 231 - **REMOVE**



Trees #230 Boulevard mountain ash – REMOVE



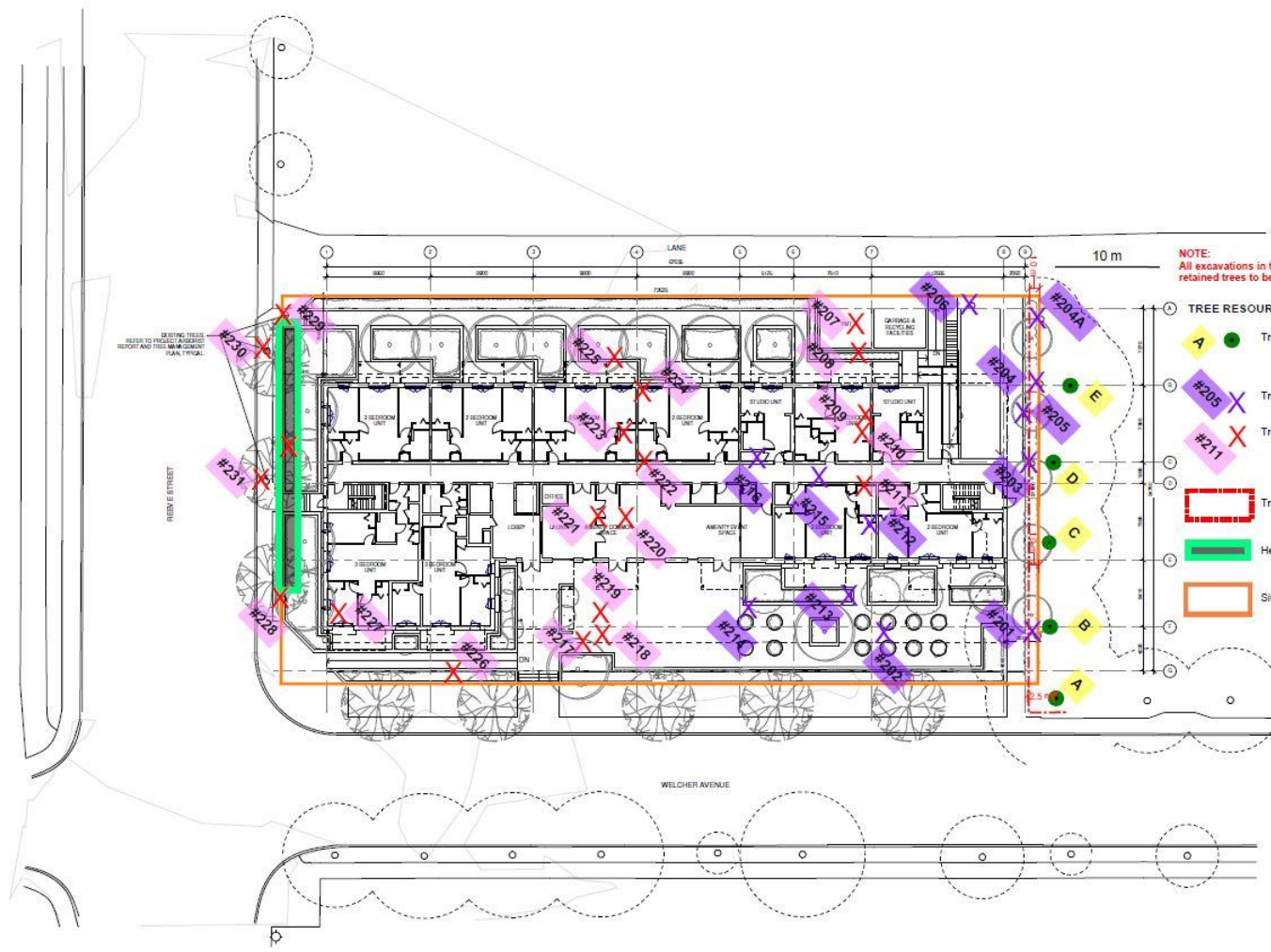
Trees #230 Boulevard mountain ash – REMOVE



Trees #230 Boulevard mountain ash – REMOVE



Trees #230 Boulevard mountain ash – REMOVE



NOTE:
All excavations in the Tree Protection Zone (TPZ) of the retained trees to be supervised by the Project Arborist

- TREE RESOURCE LEGEND**
- Tree to be retained and protected
 - ✕ Tree removed for DEMOLITION
 - ✕ Tree to be removed for CONSTRUCTION
 - Tree protection fence
 - Hedge
 - Site P/L

local.
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DO NOT SCALE DRAWINGS

notes

DRAFT - NOT FOR CONSTRUCTION

No.	Description	Date
-----	-------------	------

consultants

DAVEY 
Resource Group
Tree Management Plan
For Construction Phase

June 2nd, 2020
2471, 2477 & 2487 Welcher
Ave, Port Coquitlam
See the attached
Arborist Report for tree details
Original plan size: 34 X 22 inch

project

Welcher Avenue Multi-Family

PROJECT NO.	DATE	BY	REV	BY	DATE
1004	JR/SLS	JT			

scale

DATE

1:200 20/05/20

title

SITE PLAN

sheet

A100

1 Site Plan
1:200



2019 Traffic Count Results

RECOMMENDATION:

None.

PREVIOUS COUNCIL/COMMITTEE ACTION

None.

REPORT SUMMARY

Traffic circulation throughout the City's road network is periodically evaluated to consider growth and measure the ability of roadways to regulate traffic in a safe and effective manner. This report presents the results of the 2019 traffic count program and identifies operational and capital improvements.

BACKGROUND

Previous annual traffic counts have taken a somewhat regular, but more reactive and intuitive approach to traffic data collection and analysis. However, in 2018, a traffic count program was established to align with industry standards and provide a more consistent, thorough, and proactive approach. The rotating program collects data on north-south arterials in year one, east-west arterials in year two, and collector roads in year three. Data for arterial roads is collected more frequently because they carry more traffic and have more traffic controls. Consequently, they pose a higher risk and are more likely to require road capacity or intersection control upgrades. The City has 14 arterial roads and the program allows for counts on each arterial road every three years which is consistent with industry standards. The City has 40 collector roads and the program allows for pick up on each collector road every six years, consistent with industry standards. Local roads are not typically included in annual traffic counts due to the lower volume of traffic. However, problem locations, specific requests and local roads may be added to the program in any given year or carried out independently. Counts to support traffic calming applications are also carried out independent of the annual traffic count program.

The 2018 traffic count program focused on north-south arterials in the City, while the 2019 program focused on east-west arterials. The primary function of arterial roads is to convey larger volumes of traffic at higher speeds – from 10,000 to 30,000 vehicles at speeds of 50 km/hr or more. Posted arterial road speeds in the City of Port Coquitlam range from 50-60km/hr. Property access and interruptions to traffic flow are avoided on arterial roads to preserve their function as the fastest route for through traffic. If this function is compromised, drivers may use other less desirable routes which are not designed to carry large volumes of traffic in order to reduce their trip time (e.g. local road network).

2019 Traffic Count Results

DISCUSSION

The 2019 traffic count program evaluated the following east-west arterials in the City (Figure 1):

- 1) Pitt River Road
- 2) McLean Avenue
- 3) Lincoln Avenue
- 4) Prairie Avenue
- 5) Dominion Avenue
- 6) Sherling Avenue

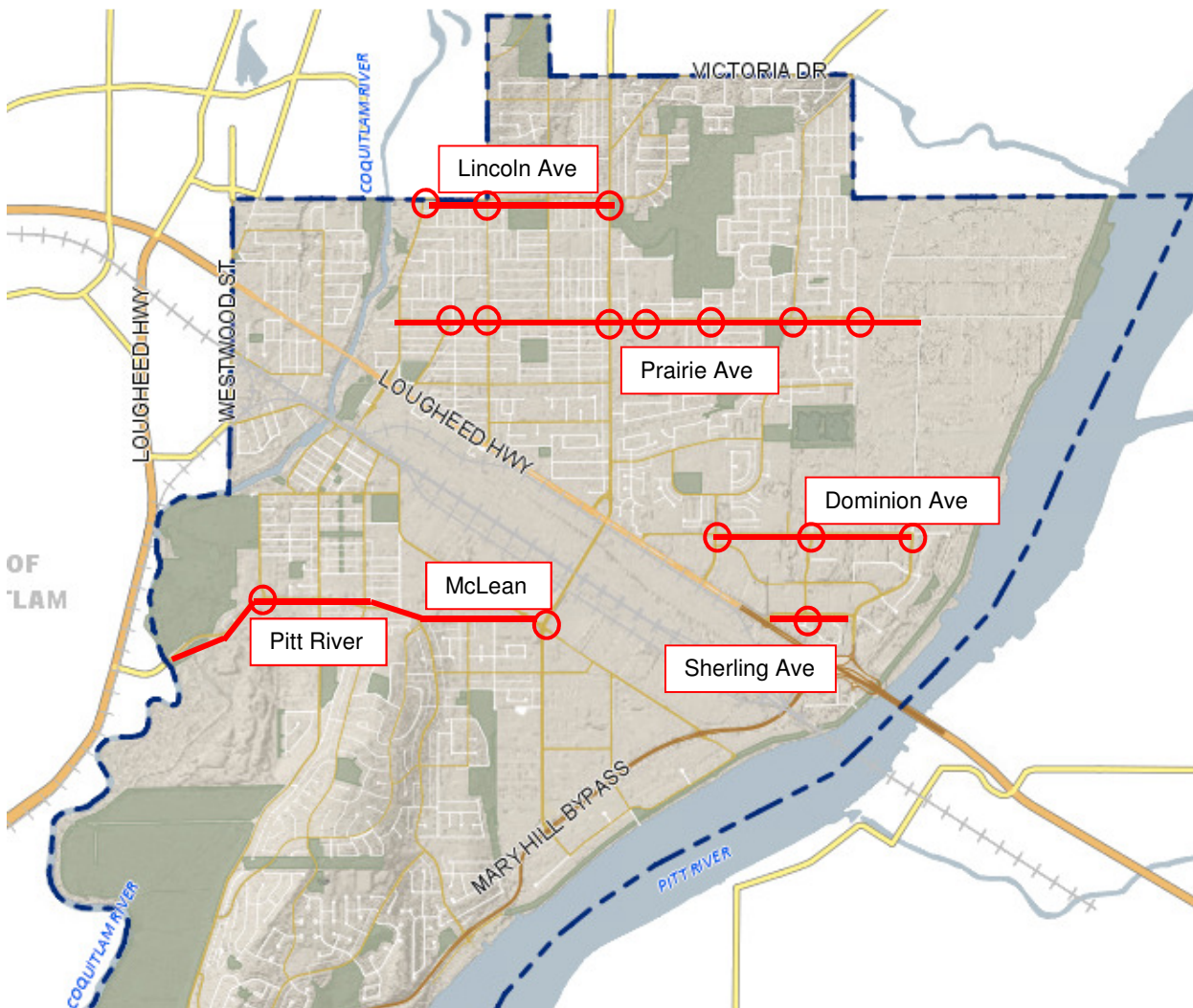


Figure 1: 2019 Traffic Count Locations

2019 Traffic Count Results

Kingsway Avenue was not included in the 2019 program as counts were recently collected to support the Kingsway improvement project that is currently under detail design.

Volume and speed are measured to determine if signal adjustments or capacity enhancements are required for the efficient flow of traffic. The data also supplements intersection analysis to determine if traffic control upgrades or operational improvements are required. Counts were conducted over several days from November 29, 2019 to December 4, 2019 during peak weekday hours in order to capture the highest volume of school and work traffic. Weekend counts were also included for commercial areas as they typically experience higher traffic volumes during the weekend due to shopping trips.

Speed is measured on arterial roads as a way to measure congestion and to determine if enforcement efforts are required. Speeds of up to 20% over the limit are considered acceptable, classified as 'no speeding', and do not warrant action. Speeds of 20-24% over the posted limit are classified as 'marginal speeding' and suitable for soft enforcement measures such as Operation Scarecrow or Tri-City Speed Watch. Speeds of 25% plus over the posted limit are classified as 'speeding' and warrant RCMP enforcement and additional measures such as digital speed signage.

Intersection capacity is evaluated by the ability to accept and discharge traffic volume, and to control traffic movements in a safe and efficient manner. Intersection control effectiveness is determined by measuring capacity, volume, speed, and level of service data.

Tables with the technical data are presented in Appendix A and a summary of the results is provided below.

1) Pitt River Road

The east-west segment of Pitt River Road is an arterial road with four travel lanes from Lougheed Highway to Shaughnessy Street and two travel lanes from Shaughnessy Street to McLean Avenue. Pitt River Road serves as a connection point to downtown via Shaughnessy Street arterial and Reeve Street collector. It also provides a secondary route from south Port Coquitlam to downtown via Mary Hill Road, and Pitt River Road (north-south segment). The north-south segment of Pitt River Road was included with the 2018 annual traffic count along with other north-south arterials in the City.

a) Volume, Growth and Speed

Annual growth, volume and speed was measured on Pitt River Road in two segments: from Lougheed Highway to Shaughnessy Street and from Shaughnessy Street to McLean Avenue

Pitt River Road - Lougheed Highway to Shaughnessy Street

Traffic counts were conducted between the Red Bridge and Parkview Lane to measure the average volume, growth and speed in this segment of Pitt River Road. The design capacity for this four-lane segment of Pitt River Road is 30,000 vehicles per day and adjacent land use is mixed townhouse and apartment residential. Parking is restricted on both sides of the road. The total volume was measured at 60% capacity with an average of 16,744 vehicles per day. There has been a 12% reduction in traffic volume since the last count in 2013. Drivers may be using alternate routes such as the Mary Hill Bypass to avoid congestion on Lougheed Highway (due to development in Coquitlam), increased train crossings at Pitt River Road or construction interruptions on Pitt River Road fronting the KFN development.

The posted speed is 50 km/hr and the 85th percentile speed measured was 63 km/hr. The results indicate marginal speeding in this segment of Pitt River Road.

Pitt River Road - Shaughnessy Street to McLean Avenue

Traffic counts were conducted between Mary Hill Road and Tyner Street to measure the average volume, growth and speed in this segment of Pitt River Road. The design capacity for this segment of Pitt River Road is 20,000 vehicles per day. The adjacent land use is high density residential on the north side and small lot residential on the south side. There is parking on one side of the street alternating between the north and south sides. The volume was measured at 60% of capacity with an average of 11,041 vehicles per day. There has been a 13% reduction in traffic volume since the last count in 2013 which may be due to the same factors mentioned above.

The posted speed is 50 km/hr and the 85th percentile speed measured was 55 km/hr. The results indicate that speeding is not an issue in this segment of Pitt River Road.

b) Intersection Control

The Pitt River Road at Reeve Street intersection was included with the 2019 counts. The intersections of Shaughnessy Street and Mary Hill Road were assessed in 2018.

Pitt River Road at Reeve Street

Pitt River Road at Reeve Street is a three-legged signalized intersection with crosswalks on the east, west and north legs. The south leg of the intersection is a driveway entrance to a multi-family complex and Riverside Secondary is located to the north. At the busiest point (PM peak), there are 212 pedestrians using the intersection per hour, with the dominant use on the north crosswalk (80 pedestrians/hour) and west crosswalk (73 pedestrians/hour).

The intersection is operating at an acceptable level of service and no signal timing adjustments are required.

Pitt River Road at Shaughnessy Street

Pitt River Road at Shaughnessy Street is a signalized intersection with crosswalks on all four legs. Counts conducted in 2018 showed the intersection is operating at an acceptable level of service and no signal timing adjustments are required.

Pitt River Road at Mary Hill Road

Pitt River Road at Mary Hill Road is a signalized intersection with crosswalks on all four legs. Counts conducted in 2018 showed the intersection is operating at an acceptable level of service and no signal timing adjustments are required.

c) Pitt River Road Improvements

Pitt River Road is functioning with adequate capacity and no signal timing upgrades are required. Enforcement measures such as Operation Scarecrow or Tri-City Speed Watch are recommended to address marginal speeding in the Lougheed Highway to Shaughnessy Street segment. A shared left turn lane to facilitate access to the developments on Pitt River Road just west of Reeve Street is planned with the KFN Business Park road improvements.

2) McLean Avenue

McLean Avenue is an arterial road with two lanes and a design capacity of 20,000 vehicles per day. McLean Avenue connects Pitt River Road on the west end with Kingsway Avenue on the east end. Adjacent land use is primarily light industrial with a portion of residential area on the west end accessed via Brown Street and Taylor Street. There is parking on the south side of the road and adjacent land access is permitted.

a) Volume, Growth and Speed

Annual volume, growth and speed was measured on McLean Avenue to evaluate the capacity of the road to meet traffic demand and to determine if signal time adjustments are required.

McLean Avenue – Pitt River Road to Kingsway Avenue

Traffic counts were conducted between Brown Street and Taylor Street to measure the average volume, growth and speed on McLean Avenue. Total volume is operating at 48%

of design capacity with an average of 9,853 vehicles per day. There has been typical growth of 1% per year since the last traffic count in 2014.

The posted speed is 50 km/hr and the 85th percentile speed measured was 62 km/hr. The results indicate marginal speeding in this segment of McLean Avenue.

b) Intersection Control

The McLean Avenue at Kingsway Avenue intersection was included with the 2019 count. The Pitt River Road intersection was assessed in 2018.

McLean Avenue at Pitt River Road

McLean Avenue at Pitt River Road is a signalized intersection with crosswalks on all three legs. Counts conducted in 2018 showed the intersection is operating at an acceptable level of service and no signal timing adjustments are required.

McLean Avenue at Kingsway Avenue

The McLean Avenue at Kingsway intersection is a signalized intersection with right-in and right-out free flow lanes from Kingsway Avenue, dedicated left turn lanes, and access to an industrial property on the north leg. All movements with the exception of westbound left turn movements are operating at acceptable levels. There are crosswalks on the north, east and south legs. At the busiest point (AM peak), there are 18 pedestrians using the intersection per hour, with the dominant use on the south crosswalk (10 pedestrians/hour) and west leg (7 pedestrians/hour). There is no crosswalk on the west leg and it is a high-risk location where pedestrians are jaywalking.

The westbound left turn movement from Kingsway Avenue to McLean Avenue has exceeded acceptable levels in both the am and pm peak periods. This is due, in part, to the commuter traffic that McLean Avenue carries from the Coast Meridian Overpass to Lougheed Highway and the Mary Hill Bypass, coupled with a lack of left turn storage space due to the closely spaced intersection at Broadway Street. Improvements at this intersection are incorporated with the Kingsway Avenue corridor improvement project to address capacity and improve traffic flow.

c) McLean Avenue Improvements

McLean Avenue is functioning with adequate capacity and no signal timing upgrades required. Enforcement measures such as Operation Scarecrow or Tri-City Speed Watch are recommended to address the marginal speeding in the Pitt River Road to Kingsway Avenue segment.

Redesign of the McLean and Kingsway intersection is included with the Kingsway Avenue corridor improvement project to address capacity issues and improve traffic flow. Installation of baffles on the NW and SW corners of the McLean/Kingsway will be included with the intersection modifications to prevent pedestrians from jaywalking on the west leg of the intersection and encourage them to use of the east leg crossing instead.

3) Lincoln Avenue

Lincoln Avenue from Shaughnessy Street to Coast Meridian Road is a two-lane arterial road with a design capacity of 20,000 vehicles per day. The section from Shaughnessy Street to Oxford Street is an inter-municipal road shared with the City of Coquitlam. Future extension of the Lincoln Avenue across the Coquitlam River Bridge was identified in the Master Transportation Plans for Coquitlam and Port Coquitlam to provide an additional east-west connection between the cities and address congestion on Lougheed Highway.

a) Volume, Growth and Speed

Annual volume, growth and speed were measured on Lincoln Avenue to evaluate the capacity of the road to meet traffic demand and to determine if signal time adjustments are required.

Lincoln Avenue - Shaughnessy Street to Coast Meridian Road

Lincoln Avenue from Shaughnessy Street to Coast Meridian Road is a two lane arterial road with a design capacity of 20,000 vehicles per day. Land use is predominantly single family residential with Coquitlam River Park on the north side and Wellington Park on the south side. Traffic counts were conducted between Oxford Street and Wellington Street to measure the average volume, growth and speed on this segment of Lincoln Avenue. Traffic volume is operating at 20% of design capacity and has stayed relatively steady since the last count in 2012.

The posted speed is 50 km/hr with a speed restricted park zone of 30 km/hr fronting Wellington Park. The 85th percentile speed measured was 52.4 km/hr.

The results indicated speeding of 22 km/hr in the speed restricted park zone. Physical traffic calming infrastructure is not suitable on arterial roads, and the Transportation Association of Canada (TAC) does not recommend speed restrictions on arterial roads fronting schools or parks as it compromises the function of the road and is reliant on enforcement or signage, which are relatively ineffective tools. To ensure pedestrian safety and maintain traffic flow, it is recommended instead to separate pedestrians from the traffic flow with a barrier separated facility (e.g. curb, sidewalk, boulevard), and establish controlled or enhanced crosswalks at any crossing points. Currently, there is no sidewalk or

pedestrian pathway in the section of Lincoln Avenue from Wellington Street to Coast Meridian Road. Sidewalks on at least one side of the road are considered a minimum requirement on arterial and collector roads due to the volume and speed of traffic which present a higher risk to pedestrians. If the speed is retained at 30 km/hr, additional enforcement measures will be required as an ongoing effort to enforce the speed limit and meet resident expectations.

b) Intersection Control

The intersections on Lincoln Avenue at Shaughnessy Street, Wellington Street and Coast Meridian Road were included with the 2019 counts. The intersection at Oxford Street was assessed in 2018.

Lincoln Avenue at Shaughnessy Street

Lincoln Avenue at Shaughnessy Street is a three-legged stop controlled intersection with a crosswalk on the south leg. At the busiest points (AM and PM peaks), there are 3 pedestrians using the crosswalk per hour. The intersection is operating at an acceptable level of service and no adjustments are required.

There is an entrance to the Traboulay PoCo Trail at Flint Street but no crosswalk provided for pedestrians to get from the sidewalk on the south side to the trail entrance on the north side. Enhanced or stop controlled crossings are recommended on arterial or collector roads due to the volume and speed of traffic that presents a higher risk. A crosswalk and pedestrian flashing beacon is recommended at this location for pedestrian safety.

Lincoln Avenue at Oxford Street

Lincoln Avenue at Oxford Street is a four-way stop controlled intersection with crosswalks on the north, east and south legs. Counts conducted in 2018 showed the intersection is operating at an acceptable level of service.

Lincoln Avenue at Wellington Street

Lincoln Avenue at Wellington Street is a 4-way stop controlled intersection with crosswalks on the west and south legs. At the busiest point (PM peak), there are 70 pedestrians using the intersection per hour, with the dominant use on the west crosswalk (65 pedestrians/hour). The intersection is operating at an acceptable level of service and no adjustments are required.

Lincoln Avenue at Coast Meridian Road

Lincoln Avenue at Coast Meridian Road is a signalized intersection with crosswalks on all four legs. At the busiest point (PM peak), there are 35 pedestrians using the intersection per hour, with the dominant use on the east crosswalk (20 pedestrians/hour). The intersection is operating at an acceptable level of service and no signal timing adjustments are required.

c) Lincoln Avenue Improvements

A review is recommended through the Master Transportation Plan for consideration of a sidewalk or multi-use path on Lincoln Avenue from Wellington Street to Coast Meridian Road. It could be constructed to the ultimate road cross-section for the future Lincoln Connector, or a temporary pedestrian facility in the interim. As there are also no cycling facilities along the entire corridor, a multi-use path should be considered to facilitate both cycling and pedestrian movements. The road right-of-way and boulevard lend itself to a multi-use path on the entire Lincoln corridor from Shaughnessy Street to Coast Meridian Road.

RCMP speed enforcement is recommended to address speeding and resident expectations in the 30 km/hr speed restricted zone fronting Wellington Park. This will be required until a pedestrian facility is constructed and the speed limit established at 50 km/hr, or in perpetuity if the speed is left restricted.

A crosswalk and pedestrian flashing beacon at Lincoln Avenue and Flint Street will be brought forward as a future capital project to provide safe pedestrian crossing to the Traboulay PoCo trail entrance.

4) **Prairie Avenue**

Prairie Avenue is an arterial road with two travel lanes and a design capacity of 20,000 vehicles per day. It primarily services north Port Coquitlam but also provides a connection point to a number of north-south arterials in and out of Port Coquitlam. Adjacent land use is a mix of residential and commercial. Parking is permitted on both sides of the road.

a) Volume Growth and Speed

Annual volume, growth and speed were measured on Prairie Avenue in four segments: Shaughnessy Street to Oxford Street, Oxford Street to Coast Meridian Road, Coast Meridian Road to Fremont Street and Fremont Street to Burns Road.

Prairie Avenue - Shaughnessy Street to Oxford Street

Traffic counts were conducted between Shaughnessy Street and Flint Street to measure the average volume, growth and speed in this segment of Prairie Avenue. Total volume is operating at 52% of designed capacity with an average of 10,472 vehicles per day. Previous traffic counts for this segment of Prairie Avenue were not available to measure growth.

The posted speed is 50km/hr and the 85th percentile speed measured was 57.6 km/hr. The results indicate that speeding is not an issue in this segment of Prairie Avenue.

Prairie Avenue - Oxford Street to Coast Meridian Road

Traffic counts were conducted between Wellington Street and Coast Meridian Road to measure the average volume, growth and speed in this segment of Prairie Avenue. Total volume is operating at 58% of designed capacity with an average of 11,508 vehicles per day. There has been 35% growth in traffic volume since the last count in 2014.

The posted speed is 50km/hr and traffic speed was measured at 54.6 km/hr. The results indicate that speeding is not an issue in this segment of Prairie Avenue.

Prairie Avenue - Coast Meridian Road to Cedar Drive

Traffic counts were conducted between Kilmer Street and Newberry Street to measure the average volume, growth and speed in this segment of Prairie Avenue. Total volume is operating at 56% of design capacity with an average of 11,289 vehicles per day. Total volume has increased 8% since the last count in 2014.

The posted speed is 50km/hr and the 85th percentile speed measured was 55.9 km/hr. The results indicate that speeding is not an issue in this segment of Prairie Avenue.

Prairie Avenue - Cedar Drive to Burns Road

Traffic counts were conducted between Fremont Street and Devon Road to measure the average volume, growth and speed in this segment of Prairie Avenue. Total volume is operating at 36% of design capacity with an average of 7,190 vehicles per day. There has been a 146% growth in traffic volume since the last count in 2014. Volume has grown by 24% per year (4.264 vehicles per day) due to the commercial densification in the Dominion triangle and residential development in Northeast Coquitlam. The Fremont Connector is planned to address this volume growth.

The posted speed is 50km/hr and the 85th percentile speed measured was 51.5km/hr. The results indicate that speeding is not an issue in this segment of Prairie Avenue.

b) Prairie Avenue Intersections

The intersections of Prairie Avenue at Shaughnessy Street, Oxford Street, York Street and Regina Street were counted in recent previous years. The intersections are operating at an acceptable level and no improvements are required. The intersections at Flint Street, Wellington Street, Coast Meridian Road, Toronto Street, Newberry Street, Cedar Drive and Fremont Street were included with the 2019 counts. The results were used to inform traffic control and intersection modifications as part of the Prairie Avenue Road improvements.

c) Prairie Avenue Road Improvements

A number of improvements are planned on Prairie Avenue including a multi-use path, parking pockets, pedestrian flashing beacons, boulevards, street trees and roundabouts. No additional improvements are recommended at this time.

5) Dominion Avenue

From Ottawa Street to the Fremont Connector, Dominion Avenue is classified as an arterial road and serves the northern boundary of the Dominion Triangle commercial area. The sections of Dominion Avenue from Lougheed Highway to Ottawa Street, and east of the Fremont Connector are classified as collector roads.

a) Volume, Growth and Speed

Annual growth, volume and speed was measured on the arterial segment of Dominion Avenue from Ottawa Street to the Fremont Connector to evaluate the capacity of the road to meet traffic demand and to determine if signal timing adjustments are required.

Annual volume, growth and speed were measured on the arterial section of Dominion Avenue in two segments: Ottawa Street to Hawkins Street, and Hawkins Street to the Fremont Connector.

Dominion Avenue – Ottawa Street to Hawkins Street

This section of Dominion Avenue is classified as an arterial road with a design capacity of 20,000 vehicles per day. Adjacent land use includes multi-family residential on the north side of the road and commercial on the south side. The corridor is currently operating at 21% of its design capacity (4,234 vehicles per day) There are no previous traffic counts in this segment to measure growth. Future growth is anticipated with the construction of the Fremont Connector.

The posted speed is 50 km/hr and the 85th percentile speed measured was 62 km/hr. The results indicate marginal speeding in this segment of Dominion Avenue.

Dominion Avenue – Hawkins Street to Fremont Connector

This section of Dominion Avenue is classified as an arterial road with a design capacity of 20,000 vehicles per day. Adjacent land use is multi-family residential and golf course on the north side and commercial on the south. The results indicate that the corridor is currently operating at 14% of its capacity during the week (2,843 vehicles per day) and 12% during the weekend (2,332 vehicles per day). Since 2013, weekday growth has been significant at 7% per year, while the weekend traffic has seen a more typical annual increase of 2.84%. Future growth on the corridor is anticipated with the construction of the Fremont Connector.

There is currently a shared turn lane in this segment of Dominion Avenue that is no longer required due to the removal of access to adjacent commercial land during redevelopment. Removal of the shared turn lane markings and reallocation of the road space to provide more functional use is recommended and will be considered with the Master Transportation Plan that is currently under development. There has been a strong demand from residents in the adjacent townhomes for additional on-street parking which will be considered along with future traffic growth and active transportation needs on the corridor.

The posted speed is 50km/hr and the 85th percentile speed measured was 63 km/hr. The results indicate marginal speeding in this segment of Dominion Avenue.

b) Intersection Control

The three intersections along the arterial section of Dominion Avenue at Ottawa Street, Avon Place and the Fremont Connector were not included in the 2019 program as they were assessed in 2018.

Dominion Avenue at Fremont Connector

The Dominion/Fremont intersection met the warrant for signalization in 2018. A signal was recommended and will be considered with the Fremont Connector road design/construction. There is an average of 14 pedestrians using the intersection per hour, with the dominant use on the north leg (12 pedestrians/hour). However, there is presently one crosswalk on the south leg of the intersection. Crosswalks are recommended on the north, east and west legs to support safe pedestrian passage prior to the future signalization improvements.

c) Dominion Avenue Improvements

Dominion Avenue is functioning with adequate capacity. Enforcement measures such as Operation Scarecrow or Tri-City Speed Watch are recommended to address marginal speeding in the Ottawa to Fremont Connector segment.

An intersection control upgrade from a 4-way stop is required at Dominion/Fremont and will be considered with the Fremont Connector road design. In the interim, crosswalks are recommended on the north east and west legs of the intersection to support safe pedestrian crossing

Eradication of the shared turn lane and reallocation of the road space in the section of Dominion Avenue from Hawkins Street to Fremont Street will be considered with the Master Transportation Plan which is currently underway.

6) Sherling Avenue

Sherling Avenue is an arterial road with four lanes and a design capacity of 30,000 vehicles per day. This arterial serves the Dominion Triangle shopping area and provides a connection point to Hawkins Street.

a) Volume, Growth and Speed

Average volume, growth and speed was measured on Sherling Avenue from Hawkins Street to the Fremont Connector. Weekend counts were included due to the adjacent commercial area. Total volume is operating at 11% of design capacity (9,270 vehicles per day). Since the last traffic count in 2014, weekday and weekend volume has increased by 56% and 45% respectively. This is expected due to continued commercial development in the Dominion Triangle and residential development in Northeast Coquitlam.

The posted speed is 50km/hr and the 85th percentile speed measured was 57 km/hr. The results indicate that speeding is not an issue in this segment of Sherling Avenue.

b) Intersection Control

Sherling Avenue at Hawkins Street is a signalized intersection with dedicated left and right turn bays and crosswalks on all four legs. At the busiest point (PM peak), there are 44 pedestrians using the intersection per hour, with the dominant use on the east crosswalk (12 pedestrians/hour). All movements are operating at an acceptable level of service during the week. On the weekend in the PM peak, the eastbound left turn movement (from Sherling Avenue to Hawkins Street) is operating over capacity with a V/C of 1.07.

c) Sherling Avenue Improvements

A signal timing review at the Sherling/Hawkins intersection is recommended to determine if adjustments can be made to better accommodate heavy turning movements during the weekend PM peak.

NEXT STEPS

Improvements identified by the 2019 annual traffic count and outlined in this report are listed below:

- Lincoln/Flint: install crosswalk and pedestrian flashing beacon
- Lincoln - Wellington to Coast Meridian: install sidewalk or MUP, and request RCMP speed enforcement in the 30 km/hr speed restricted park zone
- Kingsway/McLean: install baffles on the NW and SW corners of the intersection to address high risk jaywalking
- Dominion/Fremont: install crosswalks on the north east and west legs of the intersection to facilitate safe pedestrian passage
- Dominion: Hawkins to Fremont - eradicate the shared turn lane and reallocate road space (review with the Master Transportation Plan).
- Sherling/Hawkins - signal timing review to facilitate heavy turn movements
- Enforcement measures such as Operation Scarecrow or Tri-City Speed Watch to address marginal speeding in the following road segments: Pitt River Road - Lougheed Highway to Shaughnessy Street, McLean Avenue - Pitt River Road to Kingsway Avenue, Dominion Avenue – Hawkins Street to Fremont Connector.

Public Works staff will carry out the signal timing review. Areas requiring speed enforcement will be communicated to Community Police and RCMP. Infrastructure improvements will be brought forward for consideration with future capital plans (e.g. sidewalks, crosswalks, pedestrian flashing beacons).

FINANCIAL IMPLICATIONS

Recommended capital improvements will be brought forward through the capital planning process.

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Appendix A – Technical Information

Appendix A – Technical Information

Volume and speed are measured to determine if signal adjustments or capacity enhancements are required for the efficient flow of traffic. The data also supplements intersection analysis to determine if traffic control upgrades or operational improvements are required. Counts were conducted during peak weekday hours in order to capture the highest volume of school and work traffic. Weekend counts are included for commercial areas which experience higher traffic volumes during the weekend.

Annual growth and volume is measured to evaluate the capacity of the road to meet traffic demand and to determine if signal timing adjustments are required. Volumes over the design limit of the road indicate that improvements are required to provide additional capacity and are seen as slow traveling speeds and congestion. Speed is measured over a 7 day, 24 hour period and presented as values in the tables as the 85th percentile speeds. The design speed selected for arterial roads depends on the spacing of signalized intersections, the median cross section, the presence of curb and gutter, the amount and type of access to the street, and how pedestrians and cyclists are accommodated.

Intersection capacity is evaluated by the ability to accept and discharge traffic volume, and to control traffic movements in a safe and efficient manner. Intersection control effectiveness is determined by measuring capacity, volume, speed, and level of service data. Signalized intersections were reviewed for their level of service during peak hours and the critical movement values are presented in the tables. Level of service is indicated by degree of saturation (V/C), which is a measure of traffic volume and signal timing allotted for vehicle movements. A V/C value greater than 0.9 indicates that traffic demand is nearing capacity and operational signal adjustments should be considered.

Pedestrian and stop warrants are based on a measurement of gaps in traffic flow and collision trends. Transportation Association of Canada signal warrant guidelines are used to determine if a higher level of traffic control is warranted. A value of 100 points indicates that signalization is required; the City has typically considered signalization for values over 80.

Table 1 – Volume: Pitt River Road – Lougheed Highway to Shaughnessy Street

Lougheed to Shaughnessy	Vehicles/Day (30,000 design)			Change
	EB	WB	2 Way	
2013	9,429	9,570	18,999	
2019	8,250	8,494	16,744	-2,255
			Capacity	56%
			Annual Growth	-2%
			6 Year Total Growth	-12%

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Table 2 – Speed: Pitt River Road – Loughheed Highway to Shaughnessy Street

Loughheed to Shaughnessy	Speed (km/hr) - 85% Percentile		
	EB	WB	2 Way
2013	66.8	61.9	64.4
2019	62.7	63.6	63.2

Table 3 – Volume: Pitt River Road – Shaughnessy St to McLean Avenue

Mary Hill Rd to Tyner St	Vehicles/Day (20,000 design)			Change
	EB	WB	2 Way	
2013	6,009	6,675	12,684	
2019	5,742	5,299	11,041	-1,643
	Capacity			55%
	Annual Growth			-2%
	6 Year Total Growth			-13%

Table 4 – Speed: Pitt River Road – Shaughnessy Street to McLean Avenue

Mary Hill Rd to Tyner St	Speed (km/hr) - 85% Percentile		
	EB	WB	2 Way
2013	48.8	45.2	47
2019	55.4	54.6	55

Table 5 - Pitt River Road Intersection Performance

Intersection	Performance
Reeve Street (AM)	WB=0.69, EB=0.26, SBLT=0.59, SBRT = 0.44, EBLT=0.26
Reeve Street (PM)	WB = 0.69, EB=0.28, SBLT=0.62 SBRT=0.35 EBLT=0.48
Pedestrians (PM Peak)	N=80, S=51, W=73, E=8

Table 6 – Volume: McLean Avenue – Pitt River Road to Kingsway Avenue

Brown St to Taylor St	Vehicles/Day (20,000 design)			Change
	EB	WB	2 Way	
2014	4,231	4,892	9,123	
2019	4,402	5,180	9,582	459
	Capacity			49%
	Annual Growth			1%
	5 Year Total Growth			5%

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Table 7 – Speed: McLean Avenue – Pitt River Road to Kingsway Avenue

Brown St to Taylor St	Speed (km/hr) - 85% Percentile		
	EB	WB	2 Way
2014	59.3	59.2	59.3
2019	61	62.6	61.8

Table 8 - McLean Avenue Intersection Performance

Intersection	Performance
Kingsway (AM)	NBR= 0.42, SB=0, WBLT=0.87, WBT=0.35, EBLT=0.05, EBT=0.63
Kingsway (PM)	NBR= 0.56, SB=0.03, WBLT=0.88, WBT=0.29, EBLT=0.01, EBT=0.75
Pedestrians (AM Peak)	N=0 S=10, W=7, E=1

Table 9 – Volume: Lincoln Avenue – Oxford Street to Wellington Street

Oxford to Wellington	Vehicles/Day (20,000 design)			Change
	EB	WB	2 Way	
2012	1,912	2,154	4,066	
2019	2,034	2,018	4,052	-14
			Capacity	21%
			Annual Growth	-0.05%
			6 Year Total Growth	-0.34%
			Weekend Annual Growth	2.9%
			Weekend 6 Year Total Growth	17.2%

Table 10 – Speed: Lincoln Avenue – Oxford Street to Wellington Street

Oxford to Wellington	Speed (km/hr) - 85% Percentile		
	EB	WB	2 Way
2014	55.4	57.2	56.6
2019	44.9	56.3	52.4

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Table 11: Lincoln Avenue Intersection Performance

Intersection	Performance
Shaughnessy	Unsignalized, W=37
Shaughnessy Pedestrians (PM)	N=1 S=3, W=0, E=1
Wellington	Unsignalized, W=28
Wellington Pedestrians (PM Peak)	N=1, S=4, W=65, E=0
Coast Meridian (AM)	NB = 0.37, SB=0.53, WB=0.44 WBRT=0.30
Coast Meridian (PM)	NB = 0.36, SB=0.59, WB=0.52, WBRT=0.27
Pedestrians (AM Peak)	N=0 S=10, W=7, E=1

Table 12– Volume: Prairie Avenue Volume – Shaughnessy Street to Oxford Street

Shaughnessy St to Flint	Vehicles/Day (20,000 design)			Change
	EB	WB	2 Way	
2019	4,973	5,499	10,472	N/A
	Capacity			52%
	Annual Growth			N/A
	Total Growth			N/A

Table 13 – Speed: Prairie Avenue – Shaughnessy St to Oxford St

Shaughnessy to Flint	Speed (km/hr) - 85% Percentile		
	EB	WB	2 Way
2019	57.2	57.9	57.6

Table 14 – Volume: Prairie Avenue – Oxford St to Coast Meridian Rd

Wellington to Coast Meridian	Vehicles/Day (20,000 design)			Change
	EB	WB	2 Way	
2014 (Vincent to Wellington)	4420	4094	8514	
2019	6,190	5,318	11,508	+2944
	Capacity			58%
	Annual Growth			6.9%
	5 Year Total Growth			35%

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Table 15 – Speed: Prairie Avenue – Oxford St to Coast Meridian Rd

Wellington to Coast Meridian	Speed (km/hr) - 85% Percentile		
	EB	WB	2 Way
2014	59.6	58.3	58.9
2019	54.6	54.7	54.6

Table 16 – Volume: Prairie Avenue – Coast Meridian Rd to Cedar Drive

Prairie	Vehicles/Day (20,000 design)			Capacity
Kilmer to Newberry	EB	WB	2 Way	
2013	5,030	5,408	10,438	
2019	5,511	5,778	11,289	+851
	Capacity			56%
	Annual Growth			1%
	6 Year Total Growth			8%

Table 17 – Speed: Prairie Avenue – Coast Meridian Rd to Cedar Drive

Prairie	km/hr - 85% Speed		
Kilmer to Newberry	EB	WB	2 Way
2013	49.7	54.8	52.5
2019	55.7	56	55.9

Table 18– Volume/Growth: Prairie Avenue – Cedar Drive to Burns Road

Prairie Avenue	Vehicles/Day (20,000 design)			Change
Fremont St to Devon Rd	EB	WB	2 Way	
2013	1355	1571	2926	
2019	3528	3662	7190	+4,264
	Capacity			36%
	Annual Growth			24%
	6 Year Total Growth			146%

2019 Traffic Count Results

Table 19 – Speed: Prairie Avenue – Cedar Drive to Burns Road

Prairie Avenue	km/hr - 85% Speed		
Fremont St to Devon Rd	EB	WB	2 Way
2013	57.3	56.8	57.1
2019	52.7	49.6	51.5

Table 20 – Volume/Growth: Dominion Avenue - Ottawa St to Hawkins St

Dominion Avenue	Vehicles/Day (20,000 design)			Capacity
Ottawa St to Hawkins St	EB	WB	2 Way	
2019	2147	2087	4234	22%
2019 Weekend	1842	1814	3656	18%

Table 21 – Speed: Dominion Avenue – Ottawa St to Hawkins St

Dominion Avenue	km/hr - 85% Speed		
Ottawa St to Hawkins St	EB	WB	2 Way
2019	63.3	60.7	62
2019 Weekend	64	60.6	62.3

Table 22 – Volume/Growth: Dominion Avenue - Hawkins St to Fremont Connector

Avon to Fremont	Vehicles/Day (30,000 design)			Change
	EB	WB	2 Way	
2013 Weekday	977	1030	2007	
2019 Weekday	1595	1248	2843	+836
2013 Weekend	1114	876	1990	
2019 Weekend	1314	1018	2332	+1,314
	Capacity			9.5%
	Weekday Annual Growth			6.9%
	Weekday 6 Year Total Growth			42%
	Weekend Annual Growth			2.9%
	Weekend 6 Year Total Growth			17%

2019 Traffic Count Results

Table 23 – Speed: Dominion Avenue – Hawkins Street to Fremont Connector

	Speed (km/hr) - 85% Percentile		
Avon to Fremont	EB	WB	2 Way
2013 Weekday	55.4	49.4	52.4
2019 Weekday	62.6	65.1	63.9
2013 Weekend	61.3	65.2	63.3
2019 Weekend	61.3	65.2	63.3

Table 24 – Volume/Growth: Sherling Avenue – Hawkins St to Fremont Connector

	Vehicles/Day (30,000 design)			
Hawkins to Fremont	EB	WB	2 Way	Change
2014 Weekday	3,093	2,824	5,917	
2019 Weekday	4,299	4,971	9,270	+3,353
2014 Weekend	3,066	2,703	5,769	
2019 Weekend	3,899	4,487	8,386	+2,617
			Capacity	11%
			Weekday Annual Growth	11%
			Weekday 5 Year Total Growth	56%
			Weekend Annual Growth	9%
			Weekend 5 Year Total Growth	45%

Table 25 – Speed: Sherling Avenue – Hawkins St to Fremont Connector

	Speed (km/hr) - 85% Percentile		
Hawkins to Fremont	EB	WB	2 Way
2014 Weekday	59.5	54.9	57.2
2019 Weekday	60.4	55.7	58
2014 Weekend	59.4	58.2	58.8
2019 Weekend	59.3	54.6	56.9

2019 Traffic Count Results

Table 26: Sherling Avenue Intersection Performance

Intersection	Performance
Hawkins (AM) - Weekday	NB = 0.16, NBLT=0.1, SB=0.1, SBLT=0.12, SBRT=0.36, EB=0.09, EBLT=0.31, WB=0.13, WBLT=0.03
Hawkins (PM) - Weekday	NB=0.11, NBLT=0.08, SB=0.08, SBLT=0.04, SBRT=0.27, EB=0.04, EBLT=0.18, WB=0.13, WBLT=0.03
Hawkins (AM) - Weekend	NB=0.59, NBLT=0.31, SB=0.16, SBRT=0.61, EB=0.14, EBLT=0.59, WB=0.24, WBLT=0.14
Hawkins (PM) - Weekend	NB=0.37, NBLT=0.36, SB=0.2, SBRT=0.64, EB=0.17, EBLT=1.07, WB=0.23, WBLT=0.13
Pedestrians (Wknd, PM Peak)	N=10, S=11 W=11, E=12

Oxford Street and Coquitlam Avenue Intersection Control

RECOMMENDATION:

That Committee of Council approve staff to proceed with detailed design of a traffic signal at the intersection of Oxford Street and Coquitlam Avenue as presented in this report; and

That the 2021-2025 Financial Plan include \$49,600 in funding from the General Capital Reserve to the Oxford Street and Coquitlam Avenue Intersection Control project for construction in 2021.

PREVIOUS COUNCIL/COMMITTEE ACTION

At the November 5, 2019 Committee of Council meeting, the following motions were passed:

That \$40,000 be approved in 2020 and \$200,000 in 2021 for Intersection Control – Oxford St at Coquitlam Ave; and

That staff provide a future report with intersection control options.

REPORT SUMMARY

Further to the November 5, 2019 Committee of Council meeting where staff recommended a signalized intersection at Oxford Street and Coquitlam Avenue, this report provides a synopsis of the intersection assessment conducted, which investigates the use of a signal or a roundabout at this location. Additionally, it provides a recommendation on the most appropriate treatment type to proceed with detailed design in 2020 and construction in 2021.

BACKGROUND

The 2018 traffic count results report delivered to Council in June 2019, recommended that the Oxford Street and Coquitlam Avenue intersection be signalized as it met criteria for a higher level of control than the existing 4-way stop configuration, as determined by performing a Transportation Association of Canada traffic signal warrant analysis. Staff were subsequently asked by Council to review the use of a roundabout as an alternative control type to the proposed signal.

As part of the 2020 capital program, staff retained and have been working with a professional traffic engineering consultant to conduct an in depth analysis of the intersection and to investigate the feasibility of the roundabout and traffic signal options.

Oxford Street and Coquitlam Avenue Intersection Control

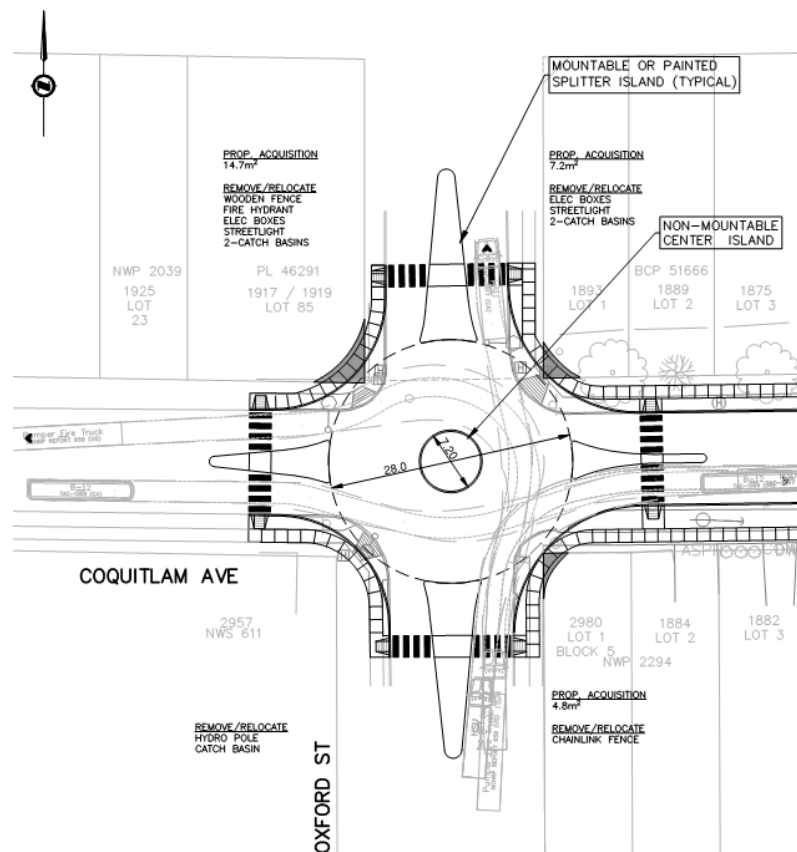
DISCUSSION

Capacity

Detailed traffic volume data was collected and utilized to perform capacity analysis for a single lane roundabout and a traffic signal for the years 2020, 2025 and 2030. Strictly based on capacity only, the results found that both options will accommodate traffic volumes in the future with very good to excellent levels of service.

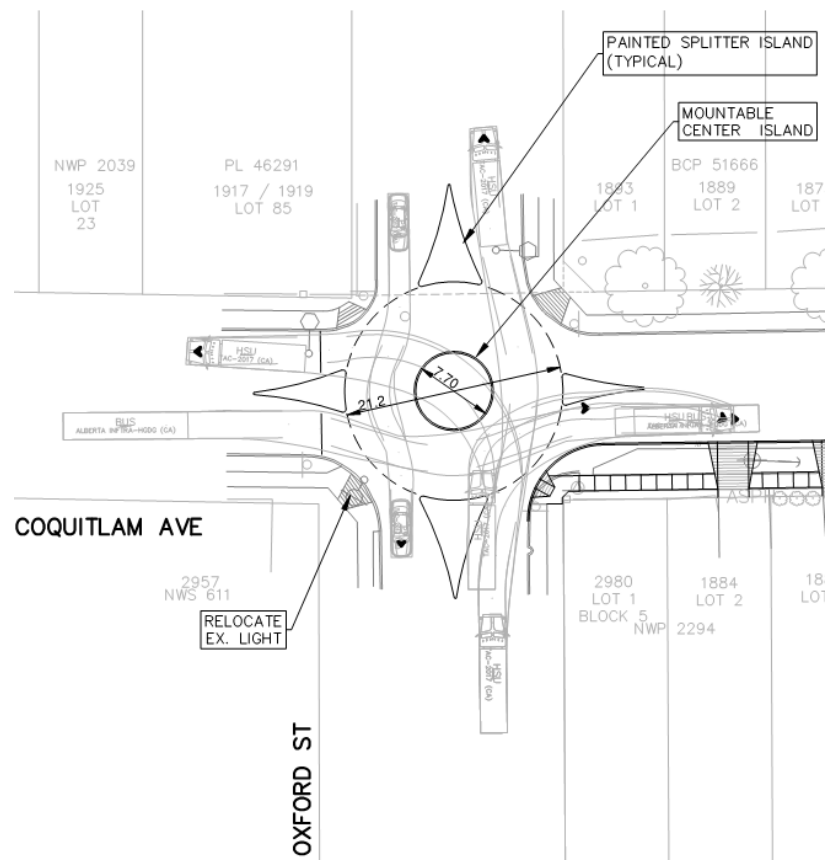
Geometry Constraints

The existing road allowance (distance between property lines) on all four approaches of the intersection is 20m. The minimum diameter required to construct a full sized roundabout to accommodate larger vehicles such as buses, firetrucks and heavy single unit trucks is 28m and the City would therefore need to acquire a minimum of 26.7m² of land valued at approximately \$62,250 (BC Assessment value) in order to construct the roundabout and associated pedestrian facilities. Roundabout construction would require: installation of new curb and gutter and sidewalk and relocation of fences, a hydrant, BC Hydro infrastructure, streetlights and catch basins. The acquisition areas and impacts for a full sized roundabout are shown in the following figure:



Oxford Street and Coquitlam Avenue Intersection Control

The available road allowance however, is able to accommodate a single lane 'mini' roundabout. As demonstrated in the figure below, larger vehicles are able to make straight through movements but would need to mount the splitter islands in order to make right turns; alternatively, the splitter islands could be painted rather than raised concrete. Larger vehicles are not able to make left turns as their turning radii does not accommodate this movement and they would be forced to fully mount the center median, damaging the signage located on all four legs of the intersection within the center median. Fire trucks could make a left turn by mounting a splitter island and driving in the opposite direction of traffic flow, if the intersection were clear to do so, in the event of an emergency. Through consultation with the Fire Department, neither option (mountable or painted splitter islands) is supported as they add additional driver risk and potentially increased response time. The mini roundabout concept is shown in the following figure:



A signal could be accommodated within the existing road allowance and there would therefore be no property impact or land acquisition required for this option.

Vehicle, Pedestrian and Cyclist Safety Considerations

Roundabouts reduce the frequency and severity of vehicle on vehicle collisions when compared to stop or signal controlled intersections for a variety of reasons:

- Travel speeds are reduced as vehicles approach to enter roundabouts;
- Travel is one way, reducing contact points with other vehicles;
- Flow of traffic is continuous and thus drivers are not encouraged to speed as they may at a stale green light; and
- When used along a busy corridor, they can act as “choke points” slowing the overall movement of vehicles along a corridor.

However, roundabouts are not as friendly for pedestrians compared to signalized intersections, as they are yield controlled which results in lower compliance rates from motorists. Additionally, cyclists are required to share the travel lane with motorists while travelling through the intersection which is uncomfortable for non advanced cyclists who are more familiar with sharing the road with other vehicles. At signalized intersections, vehicles are required to stop completely at red lights and can even be programmed to provide fully advanced phases for pedestrians, whereby vehicles are stopped completely and pedestrians can cross. Furthermore, crosswalks at roundabouts are usually set back, outside of the vehicle path, which can be unsettling to pedestrians, especially those who are visually impaired and not familiar with the unique geometry which differs from a typical intersection.

User characteristics and demographics are also a factor. This intersection is within 400m of McLean Park, PoCo Happy Times Preschool and James Park Elementary School. This is a high pedestrian location used often by younger children accessing these facilities who are less likely to negotiate a roundabout with familiarity and skill as compared to young or middle aged adults.

Recommendation

Considering the pedestrian and cyclist safety implications related to roundabouts and the close proximity of the park and schools, and high pedestrian use, this intersection would be better suited as signal controlled rather than with a roundabout. Unlike the roundabouts proposed on Prairie Avenue, there is no multiuse path along Oxford Street or Coquitlam Avenue to buffer cyclists and other forms of active transportation from the road. A mini roundabout is not recommended as it is not functional for larger vehicles trying to make left turns and right turns would require them to drive outside of the regulated travel lanes. Furthermore, a full size roundabout which is capable of accommodating traffic volumes with high levels of surface is cost prohibitive (see Financial Implications) as it involves a significant amount of removals and concrete work to match up with existing, additional gravel and paving for the widened sections, relocation of existing City owned and third party infrastructure, and an estimated \$62,250 in land acquisition and impacts to the four

Oxford Street and Coquitlam Avenue Intersection Control

corner properties. A signal provides a high level of pedestrian safety and traffic flow capacity and minimal impacts to the four corner lots and is therefore recommended for intersection control at Oxford Street and Coquitlam Avenue.

FINANCIAL IMPLICATIONS


The following table summarizes the estimates for each of the three options discussed in this report:

Option	Cost
Full Size Roundabout	\$379,000*
Mini Roundabout	\$112,000
Traffic Signal	\$249,600

*Includes cost for land acquisition

The 2021 approved capital plan includes \$200,000 for construction of this project, therefore the full size roundabout would require an additional \$169,000 and the traffic signal an additional \$49,600 in funding.

OPTIONS (✓ = Staff Recommendation)

	#	Description
	1	Approve the recommendation as presented in this report to proceed with detailed design of a traffic signal at the intersection of Oxford Street and Coquitlam Avenue and approve the financial plan amendment.
	2	Direct staff to proceed with detailed design of a full size roundabout at the intersection of Oxford Street and Coquitlam Avenue and amend the financial plan accordingly.
	3	Direct staff to proceed with detailed design of a mini roundabout at the intersection of Oxford Street and Coquitlam Avenue.

ATTACHMENTS

Att#1: Intersection Assessment Report

Lead author(s): Jason Daviduk, Sarb Attwal

Date: June 26, 2020
File No: 7226-01

BY EMAIL

City of Port Coquitlam
c/o
Tim Jorgensen
Wedler Engineering LLP
#202, 10216 - 128 Street
Surrey, BC
V3T 2Z5

Dear Mr. Jorgensen:

Re: Oxford Street at Coquitlam Avenue, Port Coquitlam – Intersection Assessment

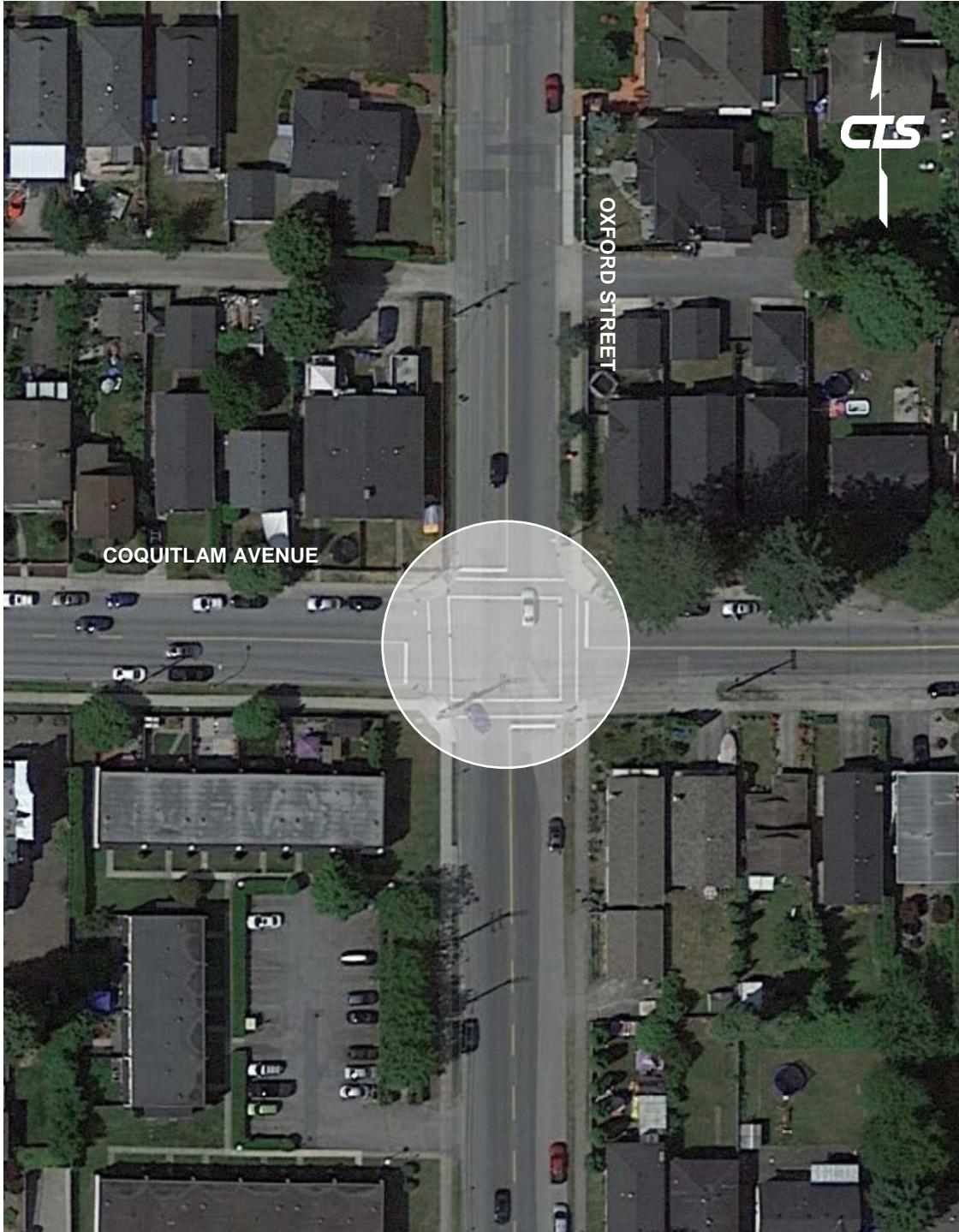
1.0 BACKGROUND

The City of Port Coquitlam is considering changing the traffic control at the intersection of Oxford Street and Coquitlam Avenue from four-way STOP control to a:

1. Single lane roundabout; or
2. Traffic signal.

The study intersection is illustrated by **FIGURE 1**.

**FIGURE 1
STUDY INTERSECTION**



2.0 SCOPE OF WORK

CTS understands the assignment to be an analysis supporting the construction of a single lane roundabout or traffic signal at the intersection of Oxford Street and Coquitlam Avenue in the City of Port Coquitlam.

CTS undertook the collection and projection of traffic volume data and utilized that data to perform capacity analysis for a single lane roundabout and a traffic signal for the years 2020, 2025 and 2030.

3.0 STUDY INTERSECTION

- Oxford Street is classified as an arterial road whereas Coquitlam Avenue is classified as a collector road.
- Both Oxford Street i.e. south approach, and Coquitlam Avenue i.e. east approach, are transit routes: #173 – Coquitlam Central Station/Cedar.
- Both Oxford Street and Coquitlam Avenue are truck routes per PoCoMaps.
- The road right-of-way on each approach is 20 meters.
- On all approaches to the intersection there is a shared left turn/through/right turn lane and a parking lane.
- The intersection of Oxford Street and Coquitlam Avenue is currently controlled by a four-way STOP.
- The posted speed is 50 km/h on Oxford Street and Coquitlam Avenue.
- The intersection is illuminated on three of four quadrants. The southeast quadrant is not illuminated.
- There are sidewalks on all approaches to the intersection other than along the west boulevard on Oxford Street.
- There is a signed and marked crosswalk on each approach to the intersection.

4.0 TRAFFIC VOLUME DATA COLLECTION

CTS collected traffic volume data on Wednesday, April 15, 2020 for the 0700 to 0900, 1100 to 1300 and 1500 to 1800 time periods. A copy of the traffic volume data summary sheets is included as **APPENDIX A**.

Note – The COVID19 viral epidemic has resulted in a significant decrease in traffic volume on roads. The decrease is reflected in the traffic volume data.

To account for the decrease in traffic volume, CTS compared peak hour traffic volume data collected on Wednesday, April 15, 2020 with historical peak hour traffic volume data collected on Thursday, October 12, 2017 and projected using an annual traffic volume

growth factor of 1.5% per annum, to 2020. The 2017 factored traffic volume data is summarized by **TABLE 1** and the 2020 traffic volume data is summarized by **TABLE 2**.

**TABLE 1
2017 FACTORED TRAFFIC VOLUME DATA**

PEAK HOUR	North Approach		East Approach		South Approach		West Approach		All Approaches	
	2017	2020	2017	2020	2017	2020	2017	2020	2017	2020
AM	454	474	130	136	362	378	48	50	994	1038
MD	230	240	82	86	314	328	53	55	679	709
PM	277	289	92	96	587	613	120	125	1076	1123

**TABLE 2
2020 TRAFFIC VOLUME DATA**

PEAK HOUR	PEAK HOUR ENTERING INTERSECTION TRAFFIC VOLUME										
	North Approach		East Approach		South Approach		West Approach		All Approaches		
	Est.	Counted	Est.	Counted	Est.	Counted	Est.	Counted	Est.	Counted	Reduction
AM PEAK	474	137	136	47	378	101	50	25	1038	310	70.1%
MD PEAK	240	181	86	49	328	206	55	49	709	485	31.6%
PM PEAK	289	195	96	56	613	359	125	47	1123	657	41.5%

From the preceding, CTS derived the following adjustment factors for each peak hour:

AM Peak Hour	3.35
Midday Peak Hour	1.46
PM Peak Hour	1.71

The 2020 traffic volume data was factored using the preceding adjustment factors and projected using an annual traffic volume growth factor of 1.5% per annum to give year 2025 and 2030 estimated traffic volume data.

5.0 CAPACITY ANALYSIS

CTS undertook capacity analysis for the AM, Midday and PM peak hours with the year 2020, 2025 and 2030 factored and projected traffic volume data for each traffic control scenario i.e. four –way STOP, single lane roundabout and traffic signal. CTS performed the capacity analysis with HCS 7.85.

The capacity analysis for each peak hour is summarized by **TABLE 3**, **TABLE 4** and **TABLE 5**.

Copies of the capacity analysis summary sheets are included as **APPENDIX B**.

**TABLE 3
AM PEAK HOUR - CAPACITY ANALYSIS SUMMARY**

Year	Type Of Control	Eastbound			Westbound			Northbound			Southbound		
		v/c	delay	LOS	v/c	delay	LOS	v/c	delay	LOS	v/c	delay	LOS
2020	4-Way Stop	0.01	10.5	B	0.29	12.0	B	0.54	14.7	B	0.72	20.6	C
	Roundabout	0.12	6.0	A	0.17	5.4	A	0.29	5.5	A	0.42	7.6	A
	Signal	0.19	7.9	A	0.42	13.3	A	0.37	7.5	A	0.49	9.1	A
2025	4-Way Stop	0.17	11.1	B	0.33	12.8	B	0.60	16.9	C	0.80	26.5	D
	Roundabout	0.13	6.5	A	0.19	5.7	A	0.31	5.8	A	0.46	8.2	A
	Signal	0.20	8.1	A	0.45	14.1	B	0.40	7.9	A	0.52	9.8	A
2030	4-Way Stop	0.20	11.9	B	0.37	14.0	B	0.68	20.5	C	0.89	37.9	E
	Roundabout	0.15	6.9	A	0.21	6.0	A	0.34	6.1	A	0.50	9.0	A
	Signal	0.21	8.9	A	0.47	15.7	B	0.42	8.4	A	0.55	10.5	B

Intersection approaching capacity (LOS 'D' or 'E'); or approach demand near capacity (v/c 0.85 to 0.99); or medium approach delays (25 sec to <50sec)

Intersection equals or exceeds capacity (LOS 'F'); or high approach demand over capacity (v/c => 1.0) or high approach delays (=> 50sec).

**TABLE 4
MIDDAY PEAK HOUR - CAPACITY ANALYSIS SUMMARY**

Year	Type Of Control	Eastbound			Westbound			Northbound			Southbound		
		v/c	delay	LOS	v/c	delay	LOS	v/c	delay	LOS	v/c	delay	LOS
2020	4-Way Stop	0.13	9.3	A	0.14	9.6	A	0.48	12.0	B	0.43	11.5	B
	Roundabout	0.09	4.7	A	0.09	4.5	A	0.29	5.5	A	0.26	5.2	A
	Signal	0.19	6.6	A	0.22	9.0	A	0.27	4.3	A	0.24	4.3	A
2025	4-Way Stop	0.15	9.6	A	0.15	10.0	A	0.52	13.1	B	0.47	12.3	B
	Roundabout	0.10	4.9	A	0.10	4.7	A	0.31	5.7	A	0.28	5.5	A
	Signal	0.20	6.8	A	0.23	9.4	A	0.29	4.5	A	0.26	4.4	A
2030	4-Way Stop	0.16	9.9	A	0.17	10.3	B	0.57	14.4	B	0.51	13.4	B
	Roundabout	0.11	5.1	A	0.11	4.9	A	0.33	6.0	A	0.30	5.7	A
	Signal	0.22	7.8	A	0.27	11.0	B	0.35	5.9	A	0.32	5.8	A

Intersection approaching capacity (LOS 'D' or 'E'); or approach demand near capacity (v/c 0.85 to 0.99); or medium approach delays (25 sec to <50sec)

Intersection equals or exceeds capacity (LOS 'F'); or high approach demand over capacity (v/c => 1.0) or high approach delays (=> 50sec).

**TABLE 5
PM PEAK HOUR - CAPACITY ANALYSIS SUMMARY**

Year	Type Of Control	Eastbound			Westbound			Northbound			Southbound		
		v/c	delay	LOS	v/c	delay	LOS	v/c	delay	LOS	v/c	delay	LOS
2020	4-Way Stop	0.17	11.2	B	0.20	11.6	B	0.97	50.0	F	0.58	16.0	C
	Roundabout	0.10	5.1	A	0.15	6.8	A	0.56	9.3	A	0.31	5.8	A
	Signal	0.25	13.0	B	0.33	15.9	B	0.59	8.6	A	0.34	5.8	A
2025	4-Way Stop	0.18	11.4	B	0.22	11.9	B	1.07	77.9	F	0.62	17.6	C
	Roundabout	0.11	5.4	A	0.17	7.4	A	0.60	10.3	B	0.33	6.2	A
	Signal	0.27	13.9	B	0.35	17.0	B	0.63	9.3	A	0.36	5.9	A
2030	4-Way Stop	0.20	11.7	B	0.24	12.3	B	1.18	115.3	F	0.68	20.0	C
	Roundabout	0.13	5.7	A	0.19	7.9	A	0.65	11.5	B	0.36	6.5	A
	Signal	0.28	14.2	B	0.37	17.9	B	0.67	10.8	B	0.38	6.3	A

Intersection approaching capacity (LOS 'D' or 'E'); or approach demand near capacity (v/c 0.85 to 0.99); or medium approach delays (25 sec to <50sec)

Intersection equals or exceeds capacity (LOS 'F'); or high approach demand over capacity (v/c => 1.0) or high approach delays (=> 50sec).

Based on the capacity analysis, the following can be stated:

Four-Way STOP

The four-way STOP control begins experiencing delay on the north approach in the year 2025 and 2030 AM peak hour and failure on the south approach in the year 2020, 2025 and 2030 PM peak hour. The delay and failure coincides with north/south AM and PM peak hour commuter traffic volume.

Single Lane Roundabout

The single lane roundabout operates at acceptable levels of service i.e. LOS A (Excellent) or LOS B (Very Good), on all approaches for all scenarios.

Traffic Signal

The traffic signal operates at acceptable levels of service i.e. LOS A (Excellent) or LOS B (Very Good), on all approaches for all scenarios.

6.0 OTHER CONSIDERATIONS

In addition to capacity analysis, CTS considered the following factors:

Right-Of-Way

The road right-of-way on all approaches to the intersection of Oxford Street and Coquitlam Avenue is 20 meters. Per the Transportation Association of Canada (TAC) *Geometric Design Guide for Canadian Roads 2017, Table 9.21.1: Roundabout Categories and Characteristics*, an inscribed circle having a diameter between 28 and 60 meters is required for a single lane roundabout. The inscribed circle bound by the sidewalks on each approach to the intersection, is approximately 22 meters. This road geometry would accommodate a mini-roundabout having an inscribed circle of between 14 and 27 meters.

Given no requirement for additional laning, a traffic signal could be accommodated within the existing right-of-way and road geometry.

Operation

Both Oxford Street (east approach) and Coquitlam Avenue (south approach) are transit routes and truck routes. Turns by busses and trucks would not be easily accommodated by a single lane roundabout whereas a traffic signal within the existing right-of-way and road geometry would more easily accommodate turns by busses and trucks.

Pedestrians and Cyclists

A single lane roundabout typically incorporates an offset signed and marked crosswalk on each approach for pedestrians. Cyclists are typically accommodated within the turning roadway.

A traffic signal accommodates pedestrians and cyclists typically within signal phasing and a marked crossing.

Both types of control have their pros and cons. Roundabouts have been shown to significantly decrease vehicle speed as well as crash type and severity for motorists but, not necessarily for pedestrians and cyclists for example.

User characteristics and sophistication are a factor. For example, young and middle aged adults are more likely to be able to use/negotiate a roundabout with familiarity and skill verses children and seniors, who may not.

Note – McLean Park, PoCo Happy Times Pre-school and James Park Elementary School are all within 400 meters of the intersection of Oxford Street and Coquitlam Avenue. With reference to the traffic volume data collected by CTS on Wednesday April 15, 2020 there were 216 pedestrian crossings within the 7-hour study period.

Access

Roundabouts are typical not installed along arterial roads given arterial roads are reserved for larger traffic volumes, transit, trucks and emergency response. By their design and geometry, access by larger vehicles and emergency responders can be impeded.

On an approach to a roundabout there is typically a single lane accommodating a single lane of traffic. On an approach to a signalized intersection multiple movements can be accommodated.

7.0 CONCLUSIONS

The analysis has shown that a roundabout or traffic signal at the intersection of Oxford Street and Coquitlam Avenue would have sufficient capacity to accommodate traffic volumes well into the future.

CTS presented other factors for consideration when choosing between a roundabout and traffic signal at this intersection. Based on the road classification, available right-of-way, road geometry and road users, a traffic signal may be the appropriate control type for the intersection of Oxford Street and Coquitlam Avenue.

Please call the undersigned should there be questions and/or comments concerning this letter report.

Yours truly,

CREATIVE TRANSPORTATION SOLUTIONS LTD.



Brent A. Dozzi, P. Eng.
Senior Traffic Engineer

Phone: 604-936-6190 Ext. 227
Email: bdozzi@cts-bc.com



APPENDICES

APPENDIX A

Traffic Volume Data Summary Sheets



Oxford St & Coquitlam Ave

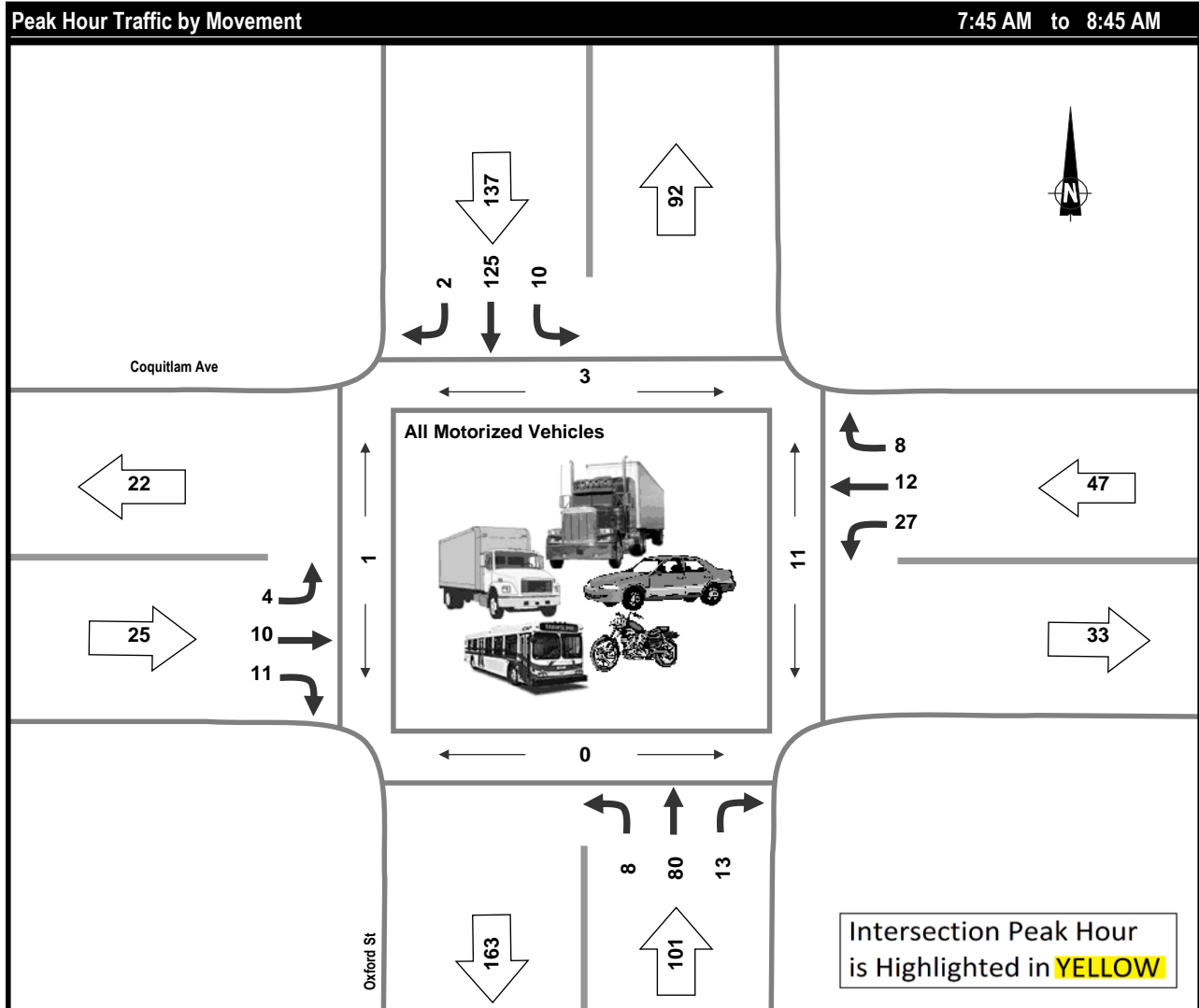
Wednesday, April 15, 2020

Vehicle Classification Summary

Project: #7226: City of Port Coquitlam (Wedler)
Municipality: Port Coquitlam
Weather: Sunny
Notes: **Pandemic Data!**

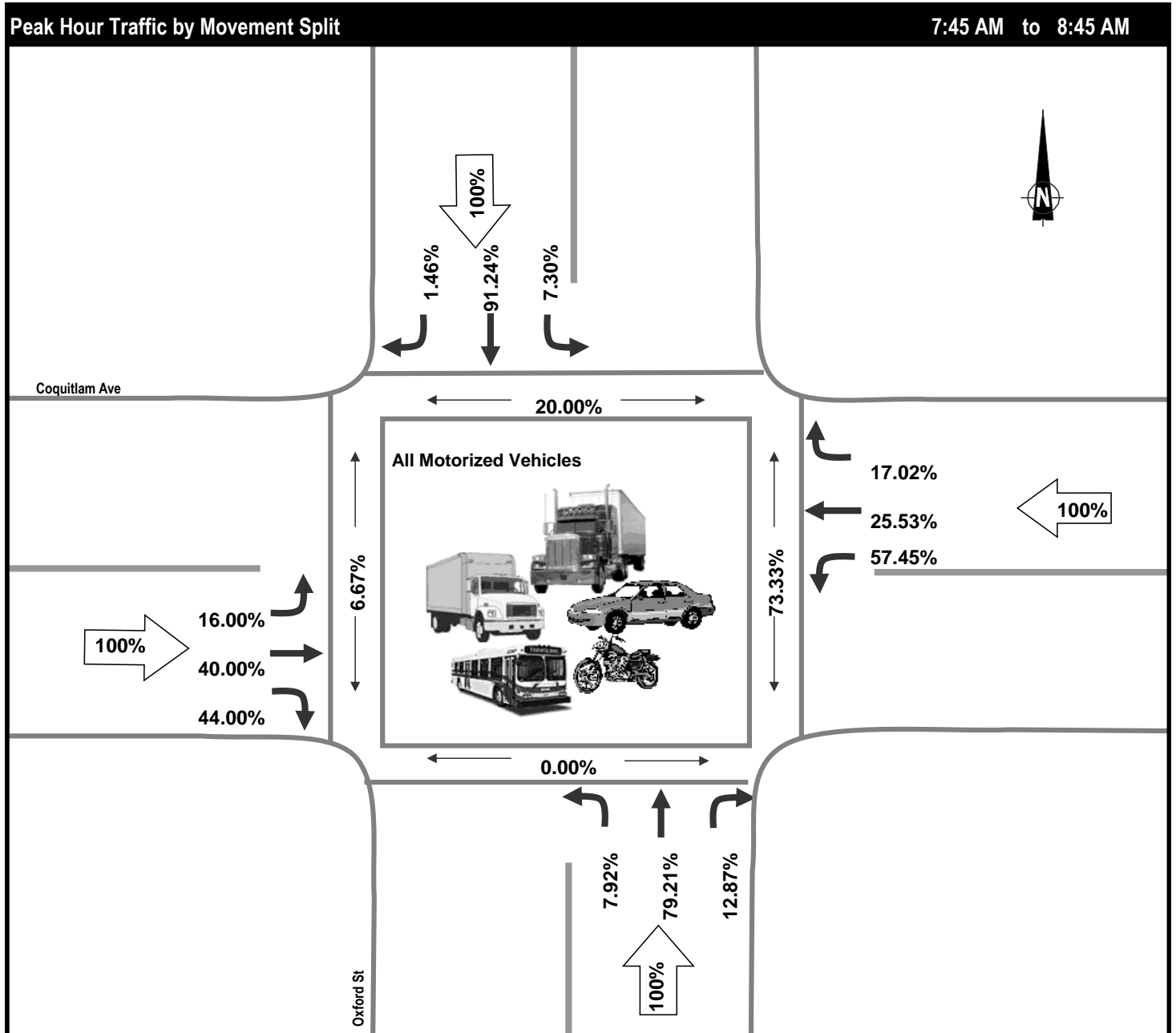
Time Period	Entering Intersection	Vehicle Classification				Total
		Passenger Cars	Heavy Vehicles (3 or more axles)			
Morning (07:00 - 09:00)	Volume	553	5			558
	%	99.1%	0.9%			100.0%
Midday (11:00 - 13:00)	Volume	892	6			898
	%	99.3%	0.7%			100.0%
Afternoon (15:00 - 18:00)	Volume	1,757	0			1,757
	%	100.0%	0.0%			100.0%
Total (7 Hours)	Volume	3,202	11			3,213
	%	99.7%	0.3%			100.0%

Project: #7226: City of Port Coquitlam (Wedler)
 Municipality: Port Coquitlam
 Weather: Sunny
 Vehicle Class: All Motorized Vehicles
 Notes: Pandemic Data!

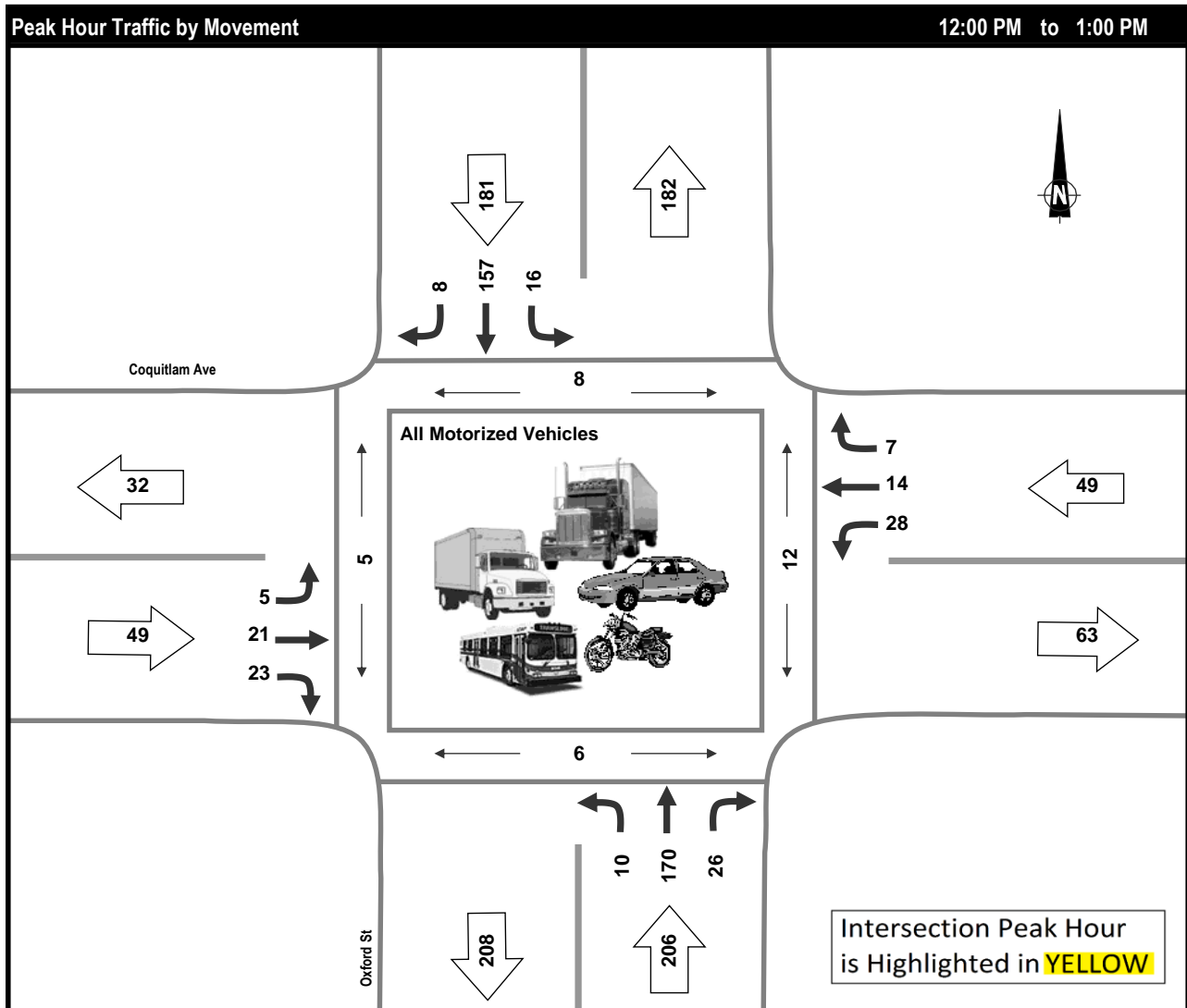


Time	NORTH Approach			SOUTH Approach			WEST Approach			EAST Approach			PEDESTRIANS				Total Volumes
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	N	S	W	E	
Peak Hour	10	125	2	8	80	13	4	10	11	27	12	8	3	0	1	11	310
PHF	0.50	0.89	0.50	0.67	0.71	0.65	0.33	0.63	0.69	0.75	0.60	0.67	0.38	0.00	0.25	0.55	0.95
Peak 15 X 4	20	140	4	12	112	20	12	16	16	36	20	12	8	0	4	20	328
Average Hour	8	118	3	6	67	12	4	8	13	26	11	5	2	3	1	8	281
Survey Total	16	236	5	11	134	24	8	16	25	52	21	10	3	5	2	16	558
7:00	2	25	1	0	13	2	1	4	5	6	1	1	0	2	0	1	61
7:15	0	34	2	2	7	3	1	0	3	9	4	0	0	2	0	0	65
7:30	2	31	0	1	14	0	1	0	2	4	2	1	0	1	0	1	58
7:45	5	34	1	1	19	2	3	1	3	7	3	2	0	0	0	2	81
8:00	0	27	0	3	28	4	0	4	1	9	5	1	0	0	0	2	82
8:15	1	29	0	1	17	2	0	3	4	7	2	2	1	0	0	2	68
8:30	4	35	1	3	16	5	1	2	3	4	2	3	2	0	1	5	79
8:45	2	21	0	0	20	6	1	2	4	6	2	0	0	0	1	3	64

Project: #7226: City of Port Coquitlam (Wedler)
 Municipality: Port Coquitlam
 Weather: Sunny
 Vehicle Class: All Motorized Vehicles
 Notes: Pandemic Data!

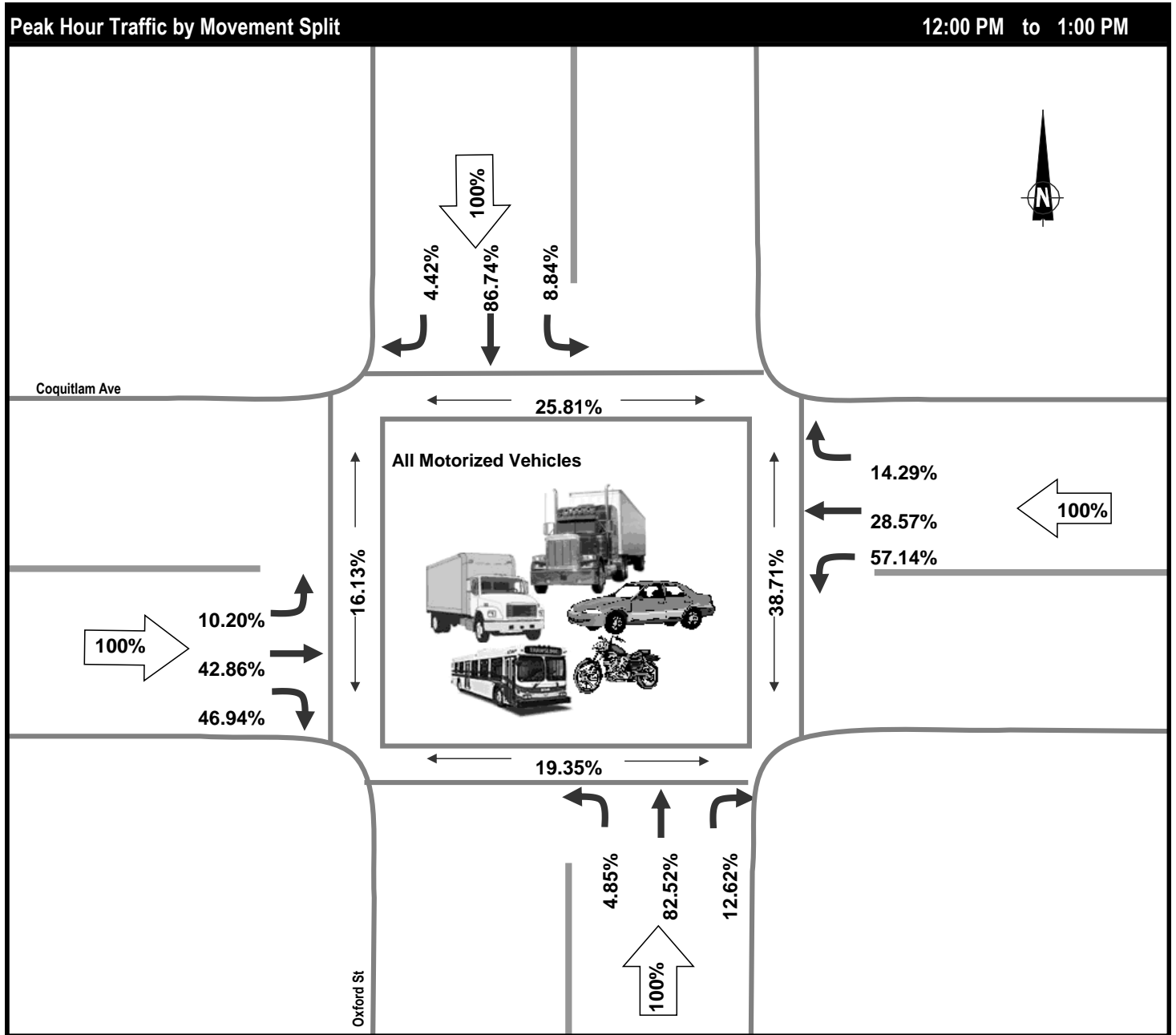


Project: #7226: City of Port Coquitlam (Wedler)
 Municipality: Port Coquitlam
 Weather: Sunny
 Vehicle Class: All Motorized Vehicles
 Notes: Pandemic Data!

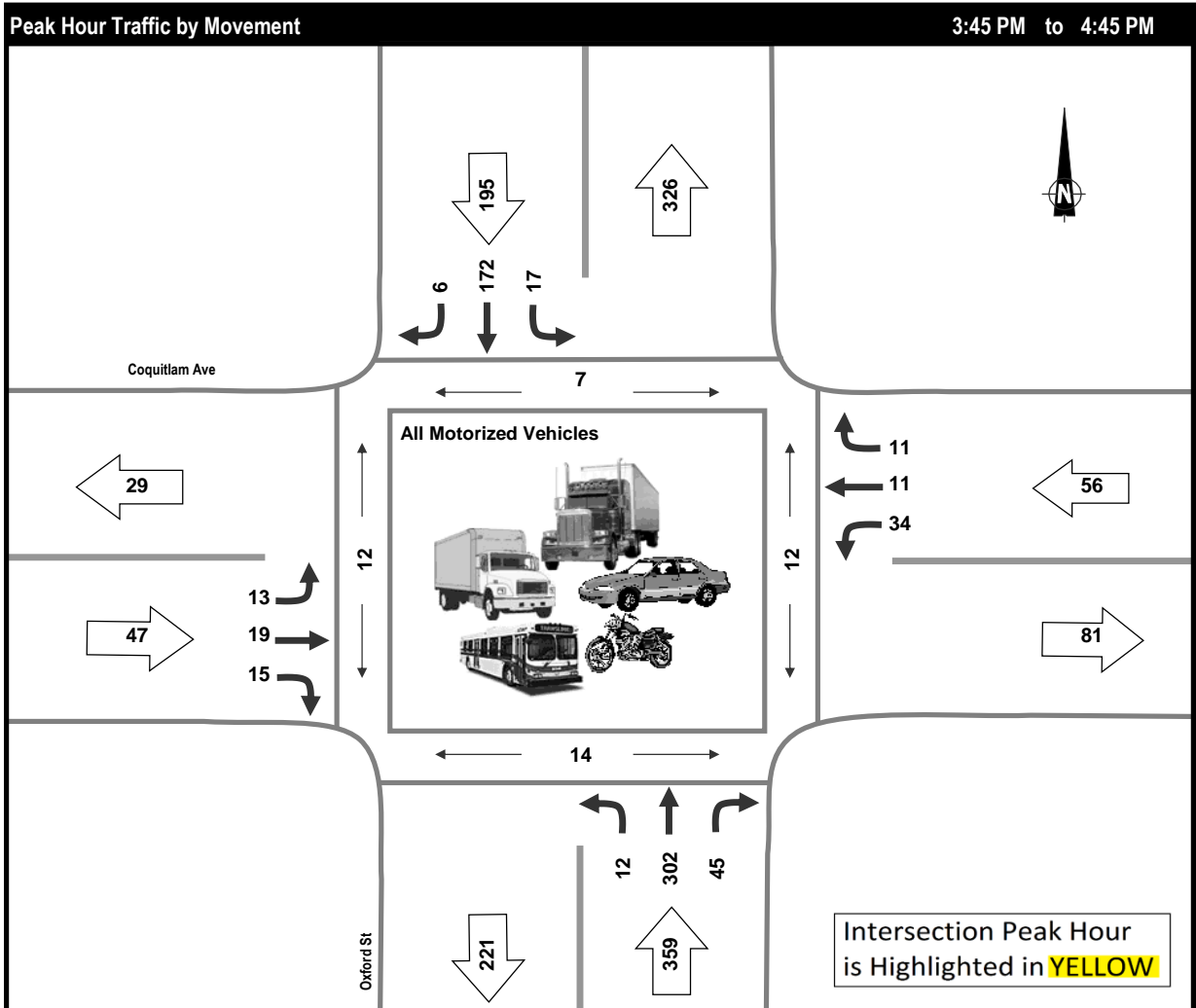


Time	NORTH Approach			SOUTH Approach			WEST Approach			EAST Approach			PEDESTRIANS				Total Volumes
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	N	S	W	E	
Peak Hour	16	157	8	10	170	26	5	21	23	28	14	7	8	6	5	12	485
PHF	0.67	0.75	0.67	0.63	0.92	0.59	0.63	0.66	0.52	0.70	0.58	0.44	0.67	0.50	0.42	0.75	0.84
Peak 15 X 4	24	208	12	16	184	44	8	32	44	40	24	16	12	12	12	16	576
Average Hour	14	154	7	10	154	22	6	19	20	28	10	6	5	10	5	13	450
Survey Total	28	308	14	20	308	44	12	37	39	56	20	12	9	20	9	25	898
11:00	5	28	0	1	29	1	0	3	5	8	2	2	0	7	2	2	84
11:15	2	37	4	5	37	7	4	3	1	6	1	1	0	1	0	0	108
11:30	3	36	1	2	29	3	1	5	7	7	0	0	0	2	1	5	94
11:45	2	50	1	2	43	7	2	5	3	7	3	2	1	4	1	6	127
12:00	3	41	2	1	43	4	1	8	11	4	2	1	2	2	3	2	121
12:15	4	28	2	3	42	4	2	3	2	7	2	0	3	1	0	3	99
12:30	6	36	1	4	39	7	1	6	6	7	4	4	1	0	2	3	121
12:45	3	52	3	2	46	11	1	4	4	10	6	2	2	3	0	4	144

Project: #7226: City of Port Coquitlam (Wedler)
 Municipality: Port Coquitlam
 Weather: Sunny
 Vehicle Class: All Motorized Vehicles
 Notes: Pandemic Data!

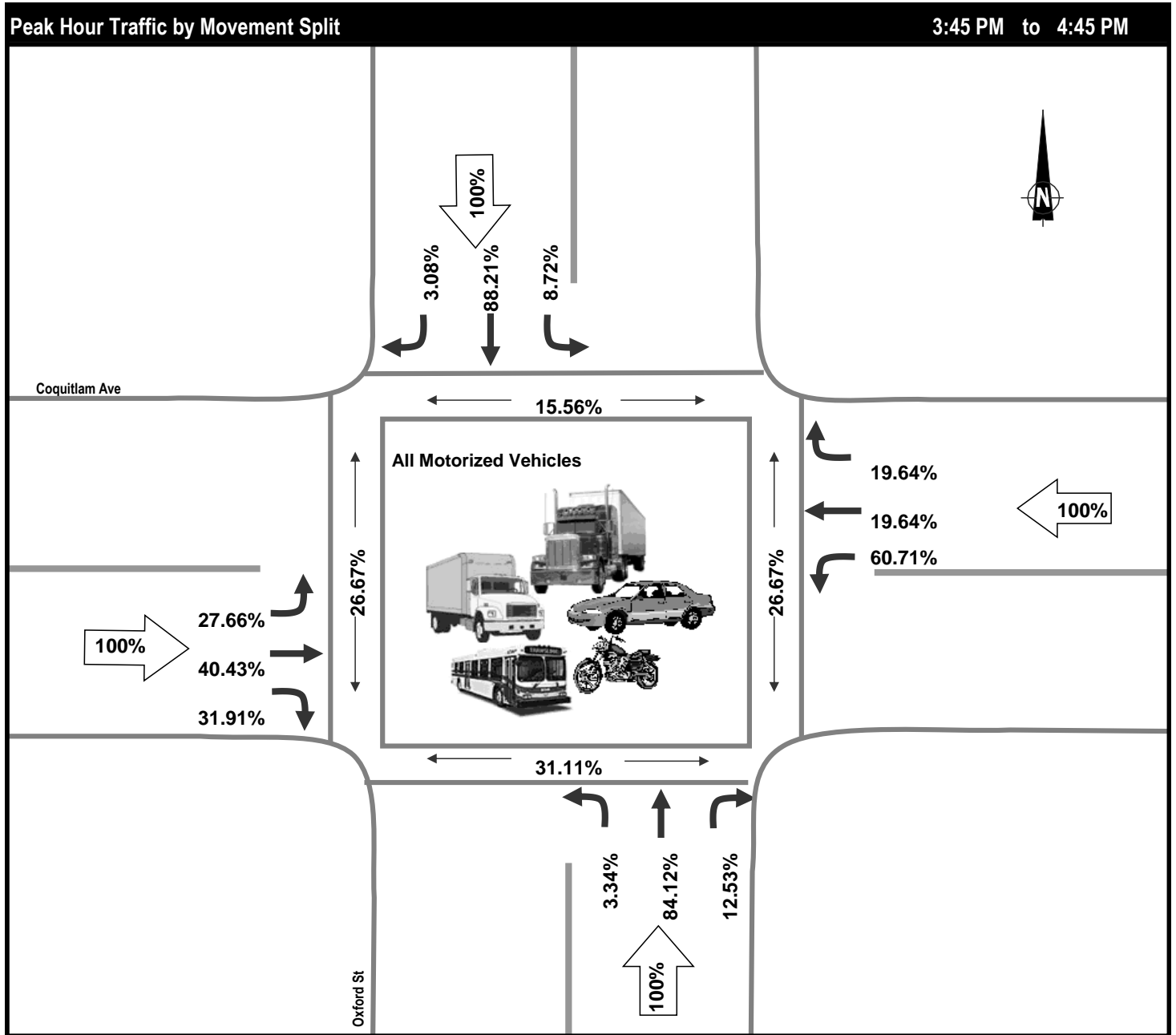


Project: #7226: City of Port Coquitlam (Wedler)
 Municipality: Port Coquitlam
 Weather: Sunny
 Vehicle Class: All Motorized Vehicles
 Notes: Pandemic Data!

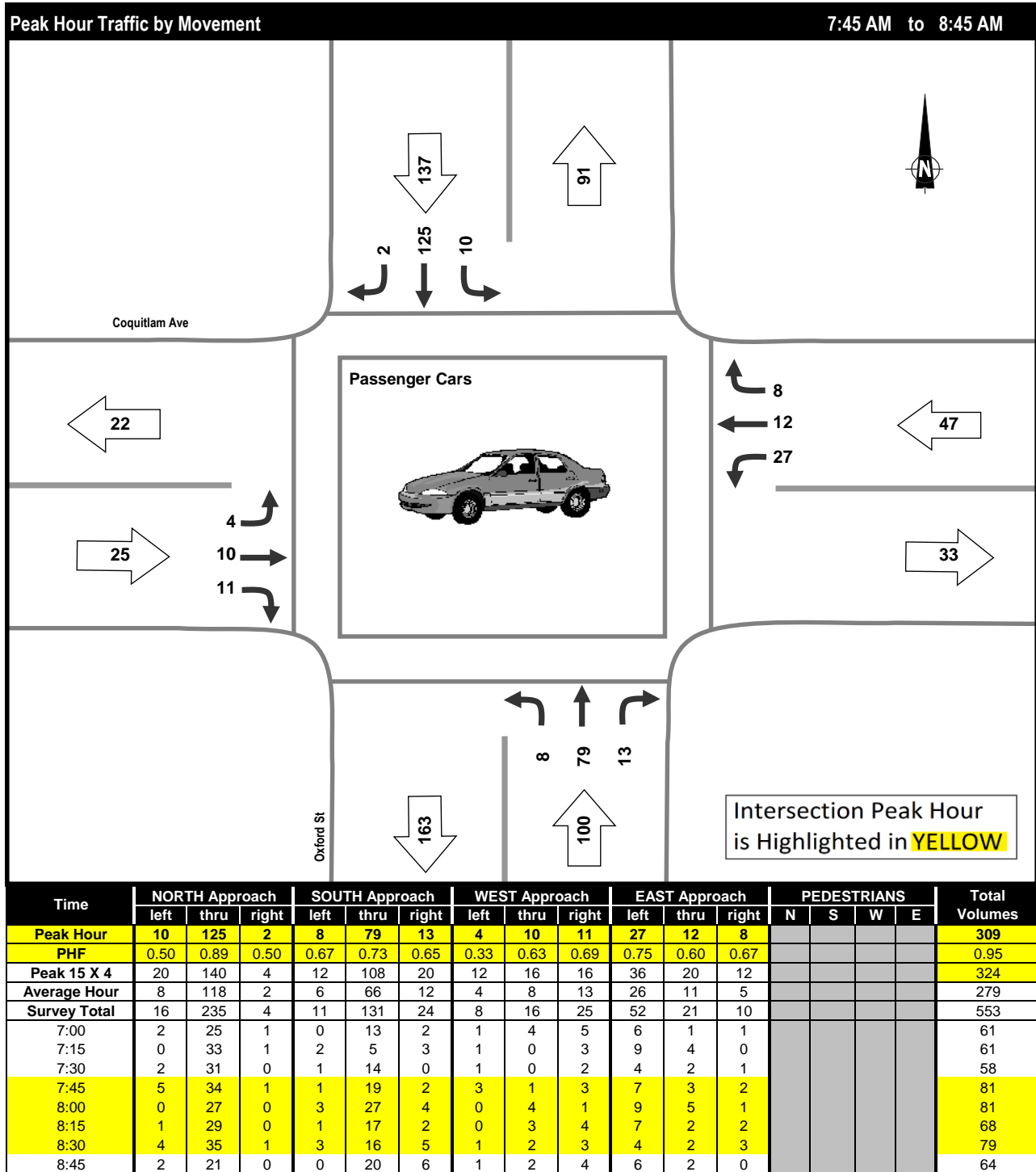


Time	NORTH Approach			SOUTH Approach			WEST Approach			EAST Approach			PEDESTRIANS				Total Volumes
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	N	S	W	E	
Peak Hour	17	172	6	12	302	45	13	19	15	34	11	11	7	14	12	12	657
PHF	0.71	0.88	0.50	0.75	0.79	0.87	0.54	0.79	0.75	0.85	0.55	0.69	0.58	0.58	0.50	0.60	0.90
Peak 15 X 4	24	196	12	16	380	52	24	24	20	40	20	16	12	24	24	20	732
Average Hour	13	154	7	13	253	43	12	20	19	28	15	10	4	16	8	15	587
Survey Total	40	461	21	40	759	128	35	60	56	83	45	29	12	47	24	44	1,757
15:00	4	42	4	3	39	7	4	4	8	7	6	2	0	5	2	7	130
15:15	2	36	2	2	44	10	1	2	7	6	2	1	1	2	3	4	115
15:30	4	41	2	5	59	8	1	6	3	8	8	2	1	3	2	1	147
15:45	6	49	1	3	83	11	3	6	2	10	2	3	3	1	6	2	179
16:00	3	46	0	4	59	13	6	5	5	8	2	1	1	4	3	5	152
16:15	4	37	3	2	65	12	2	3	3	6	2	4	1	3	1	1	143
16:30	4	40	2	3	95	9	2	5	5	10	5	3	2	6	2	4	183
16:45	0	34	1	6	76	11	4	14	7	7	5	4	0	3	2	4	169
17:00	4	30	0	2	71	12	3	2	4	5	5	2	1	3	1	1	140
17:15	3	37	2	4	68	10	2	1	6	5	3	1	0	4	0	4	142
17:30	5	27	3	3	54	16	2	4	2	3	1	2	2	5	0	5	122
17:45	1	42	1	3	46	9	5	8	4	8	4	4	0	8	2	6	135

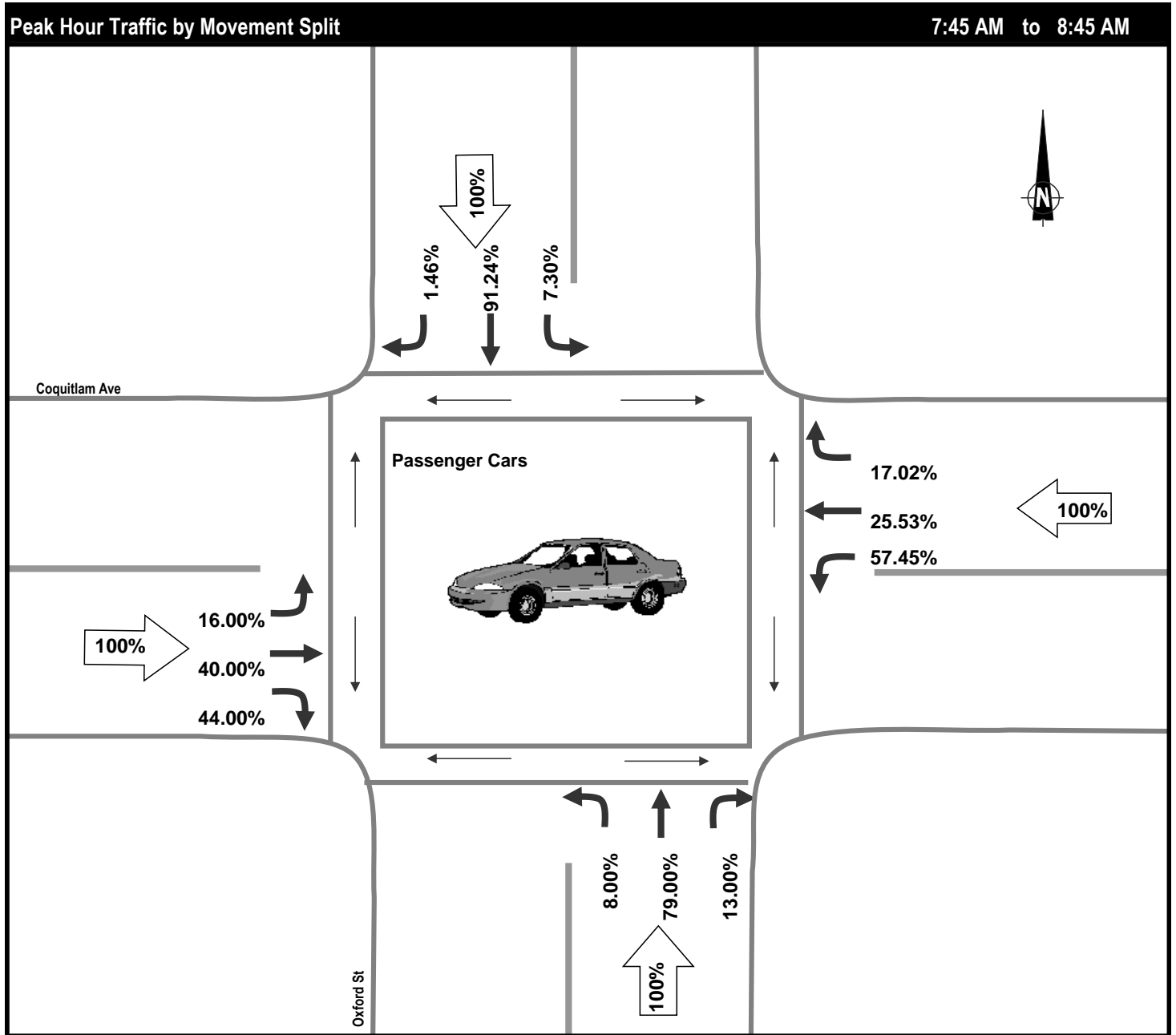
Project: #7226: City of Port Coquitlam (Wedler)
 Municipality: Port Coquitlam
 Weather: Sunny
 Vehicle Class: All Motorized Vehicles
 Notes: Pandemic Data!



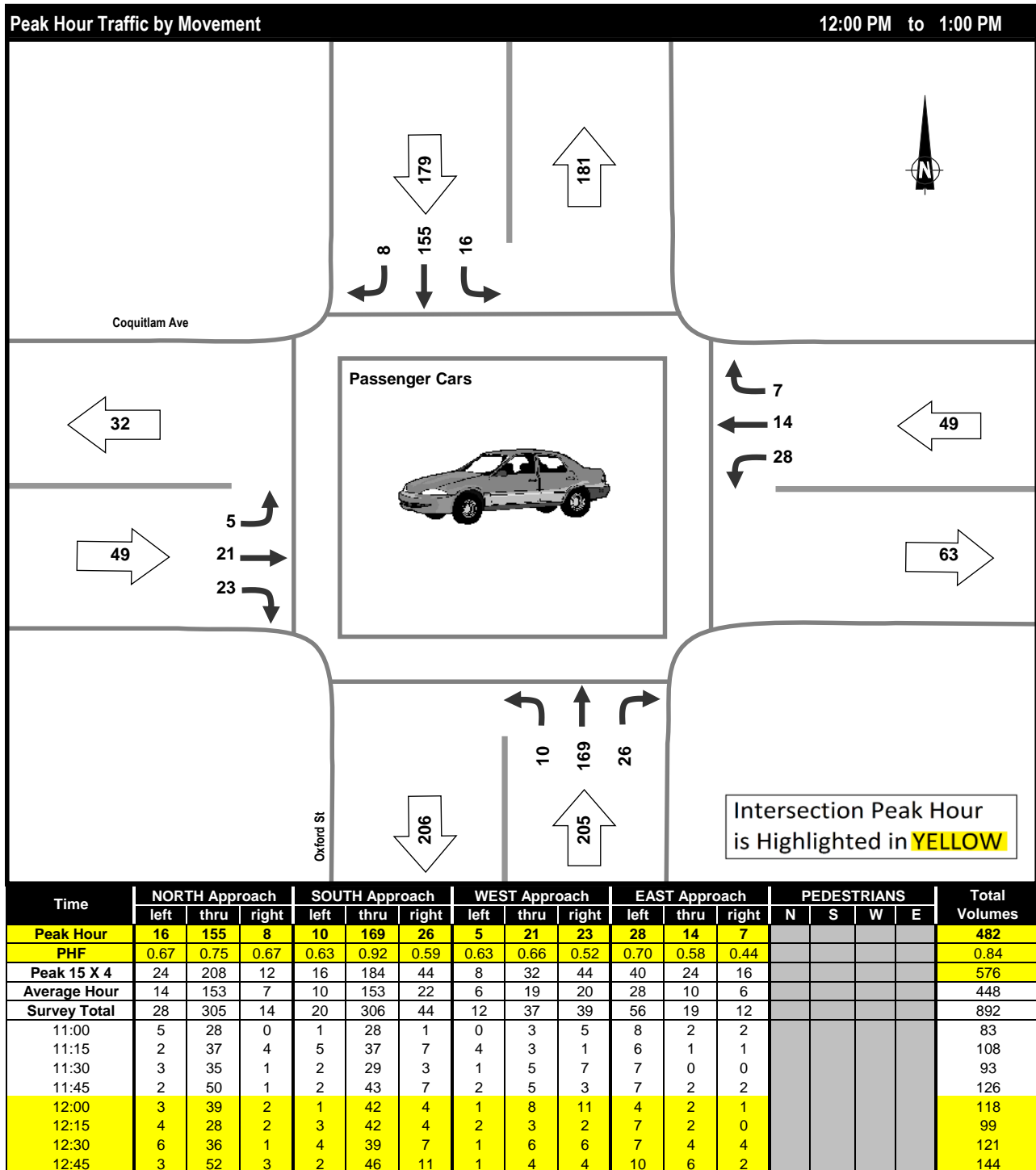
Project: #7226: City of Port Coquitlam (Wedler)
 Municipality: Port Coquitlam
 Weather: Sunny
 Vehicle Class: Passenger Cars
 Notes: Pandemic Data!



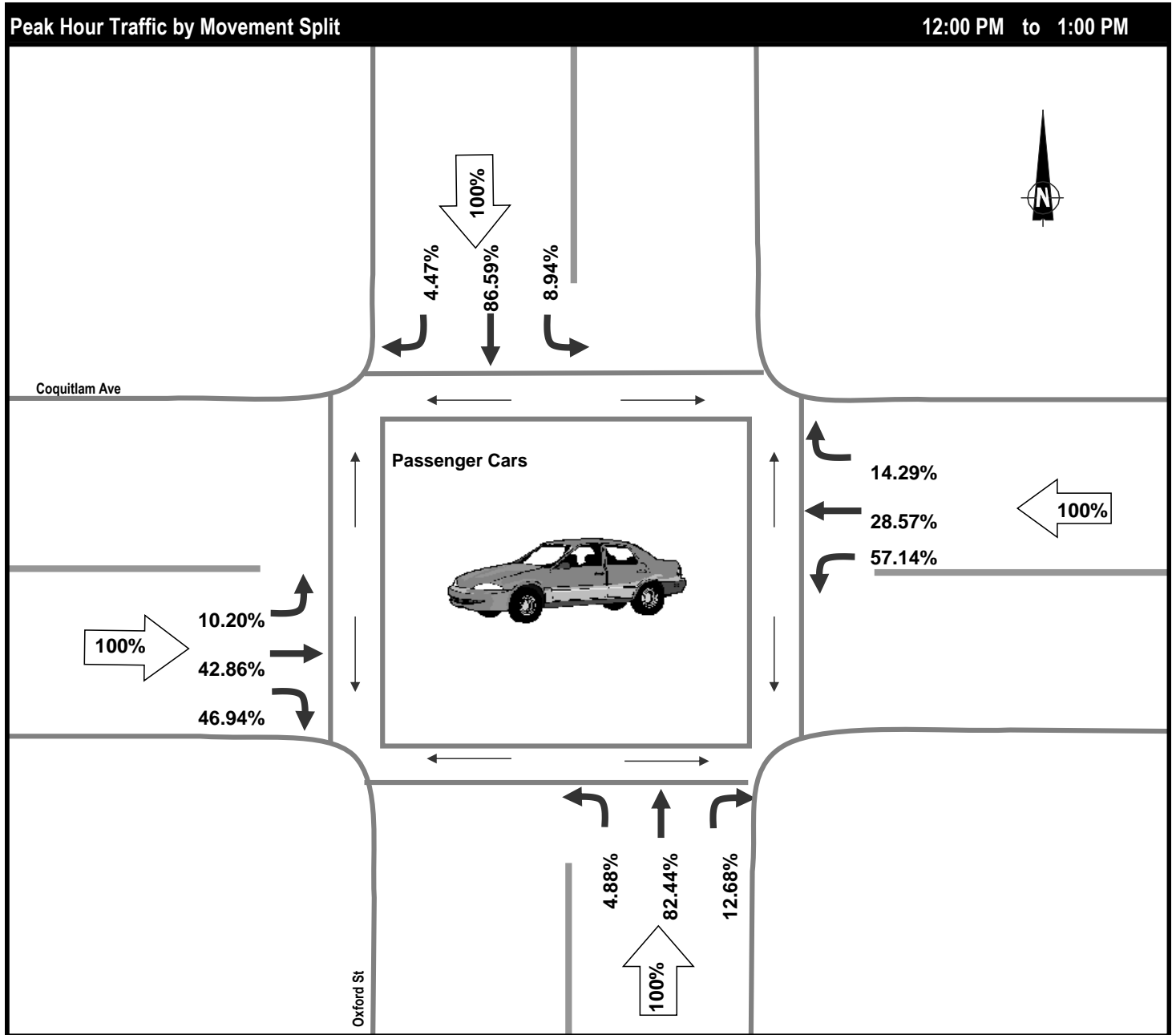
Project: #7226: City of Port Coquitlam (Wedler)
 Municipality: Port Coquitlam
 Weather: Sunny
 Vehicle Class: Passenger Cars
 Notes: Pandemic Data!



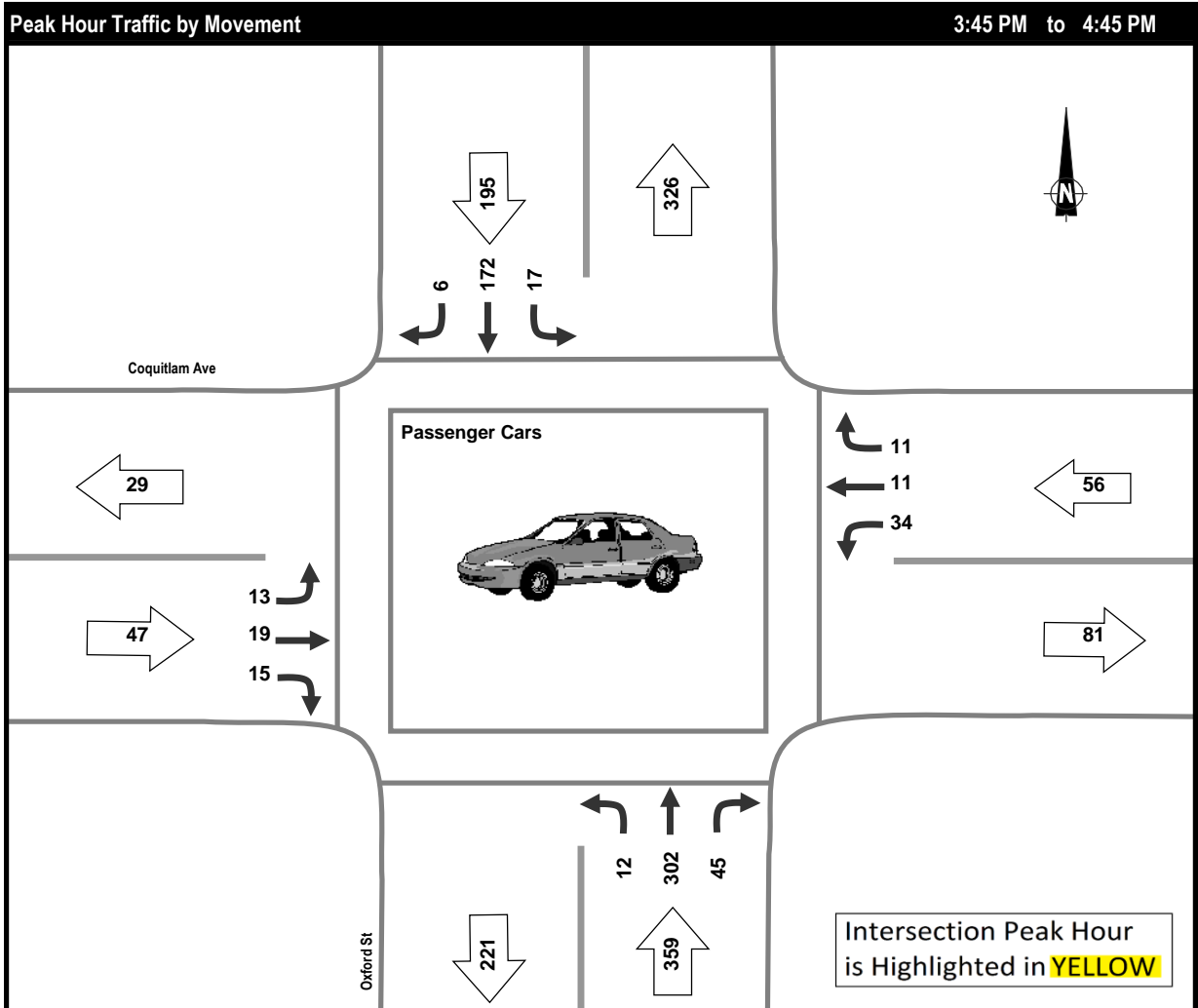
Project: #7226: City of Port Coquitlam (Wedler)
 Municipality: Port Coquitlam
 Weather: Sunny
 Vehicle Class: Passenger Cars
 Notes: Pandemic Data!



Project: #7226: City of Port Coquitlam (Wedler)
 Municipality: Port Coquitlam
 Weather: Sunny
 Vehicle Class: Passenger Cars
 Notes: Pandemic Data!

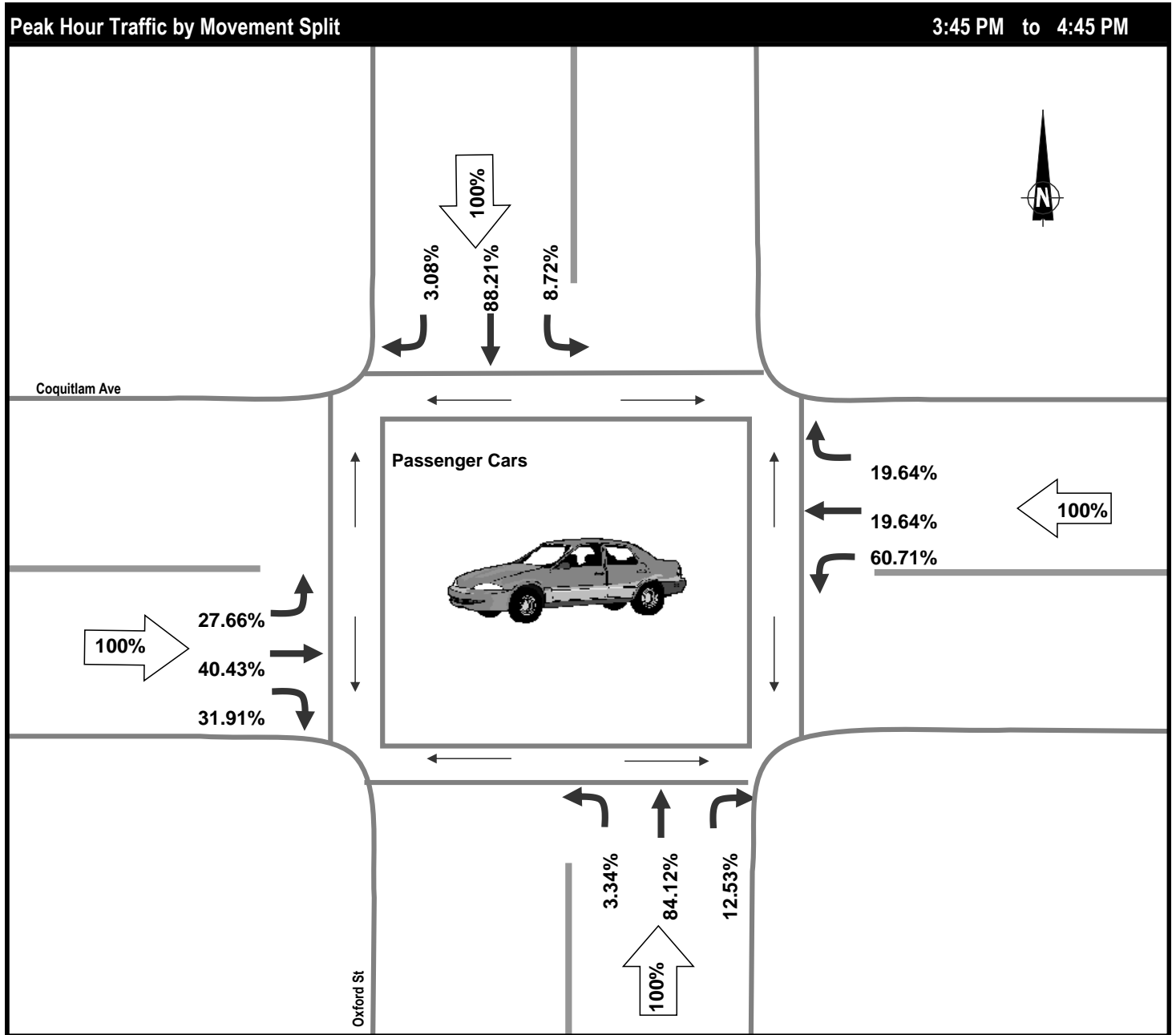


Project: #7226: City of Port Coquitlam (Wedler)
 Municipality: Port Coquitlam
 Weather: Sunny
 Vehicle Class: Passenger Cars
 Notes: Pandemic Data!

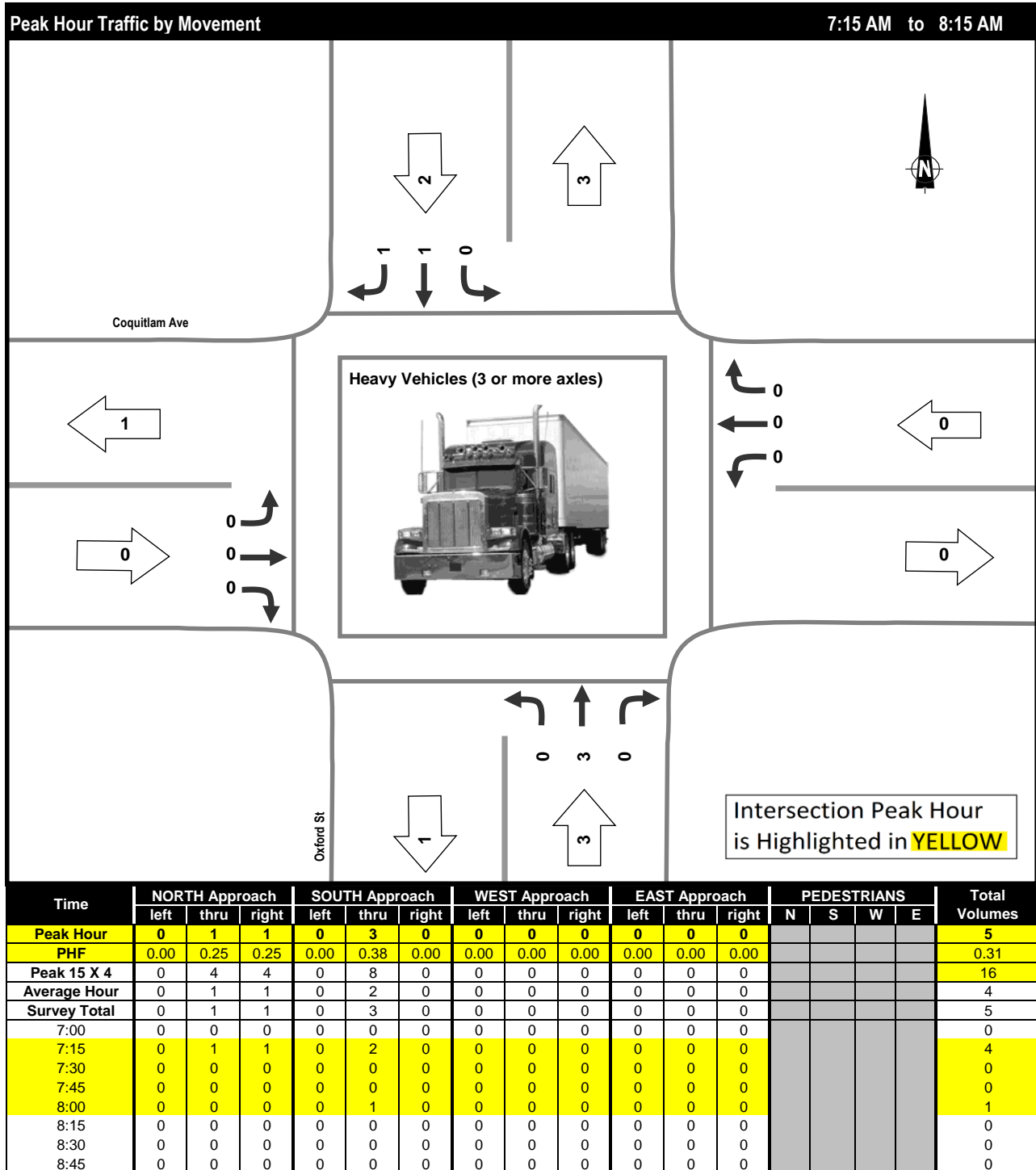


Time	NORTH Approach			SOUTH Approach			WEST Approach			EAST Approach			PEDESTRIANS				Total Volumes
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	N	S	W	E	
Peak Hour	17	172	6	12	302	45	13	19	15	34	11	11					657
PHF	0.71	0.88	0.50	0.75	0.79	0.87	0.54	0.79	0.75	0.85	0.55	0.69					0.90
Peak 15 X 4	24	196	12	16	380	52	24	24	20	40	20	16					732
Average Hour	13	154	7	13	253	43	12	20	19	28	15	10					587
Survey Total	40	461	21	40	759	128	35	60	56	83	45	29					1,757
15:00	4	42	4	3	39	7	4	4	8	7	6	2					130
15:15	2	36	2	2	44	10	1	2	7	6	2	1					115
15:30	4	41	2	5	59	8	1	6	3	8	8	2					147
15:45	6	49	1	3	83	11	3	6	2	10	2	3					179
16:00	3	46	0	4	59	13	6	5	5	8	2	1					152
16:15	4	37	3	2	65	12	2	3	3	6	2	4					143
16:30	4	40	2	3	95	9	2	5	5	10	5	3					183
16:45	0	34	1	6	76	11	4	14	7	7	5	4					169
17:00	4	30	0	2	71	12	3	2	4	5	5	2					140
17:15	3	37	2	4	68	10	2	1	6	5	3	1					142
17:30	5	27	3	3	54	16	2	4	2	3	1	2					122
17:45	1	42	1	3	46	9	5	8	4	8	4	4					135

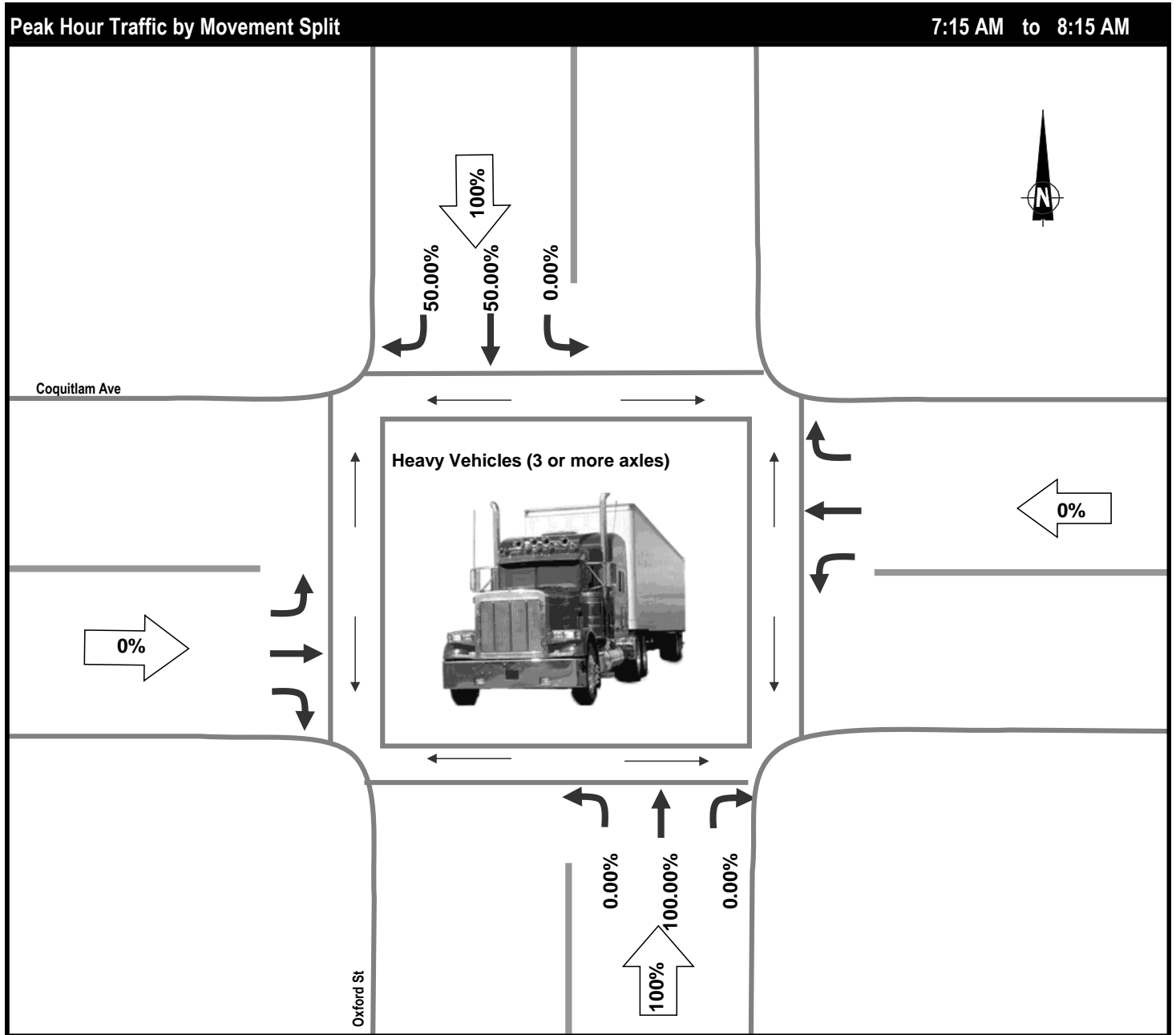
Project: #7226: City of Port Coquitlam (Wedler)
 Municipality: Port Coquitlam
 Weather: Sunny
 Vehicle Class: Passenger Cars
 Notes: Pandemic Data!



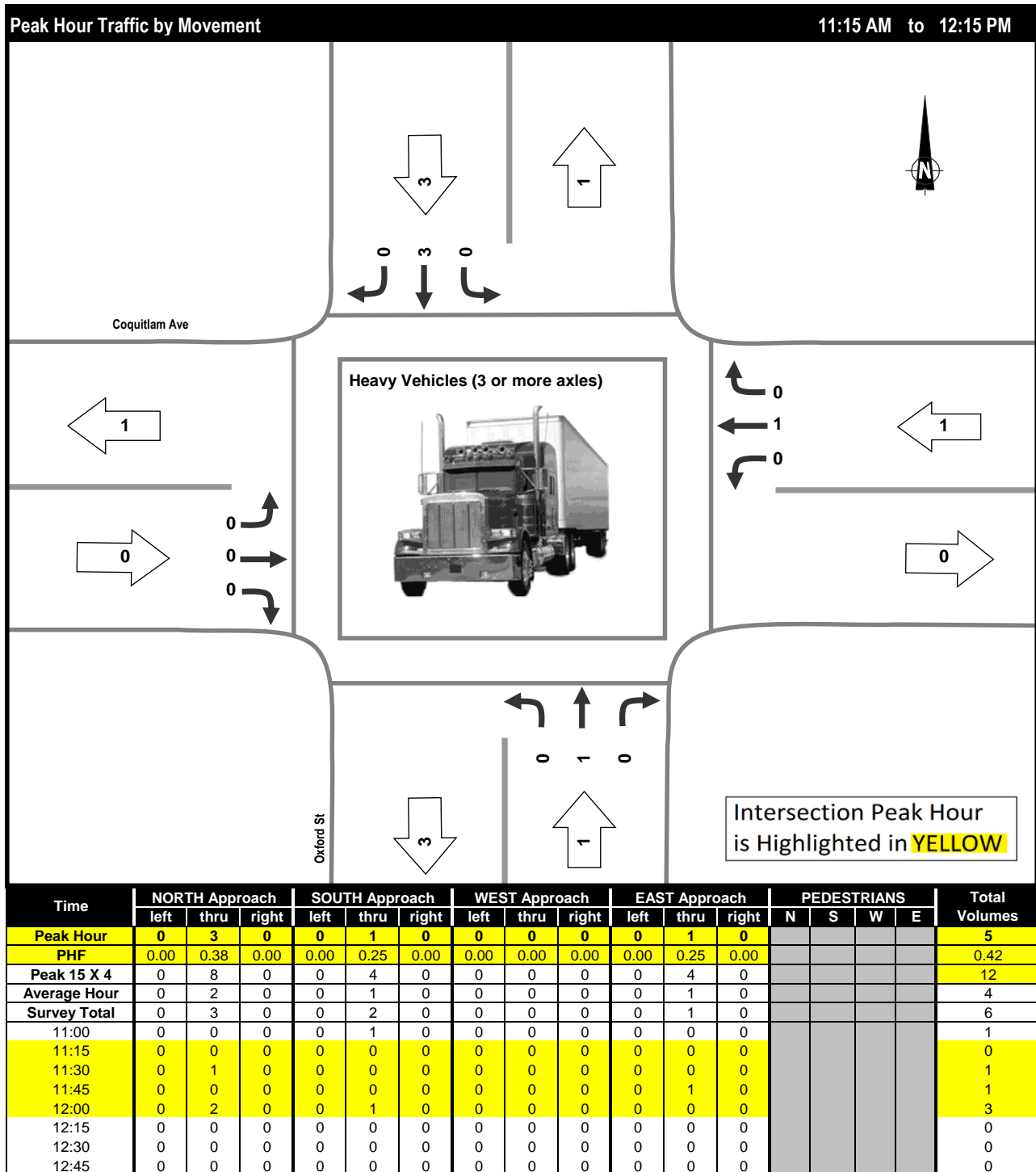
Project: #7226: City of Port Coquitlam (Wedler)
 Municipality: Port Coquitlam
 Weather: Sunny
 Vehicle Class: Heavy Vehicles (3 or more axles)
 Notes: Pandemic Data!



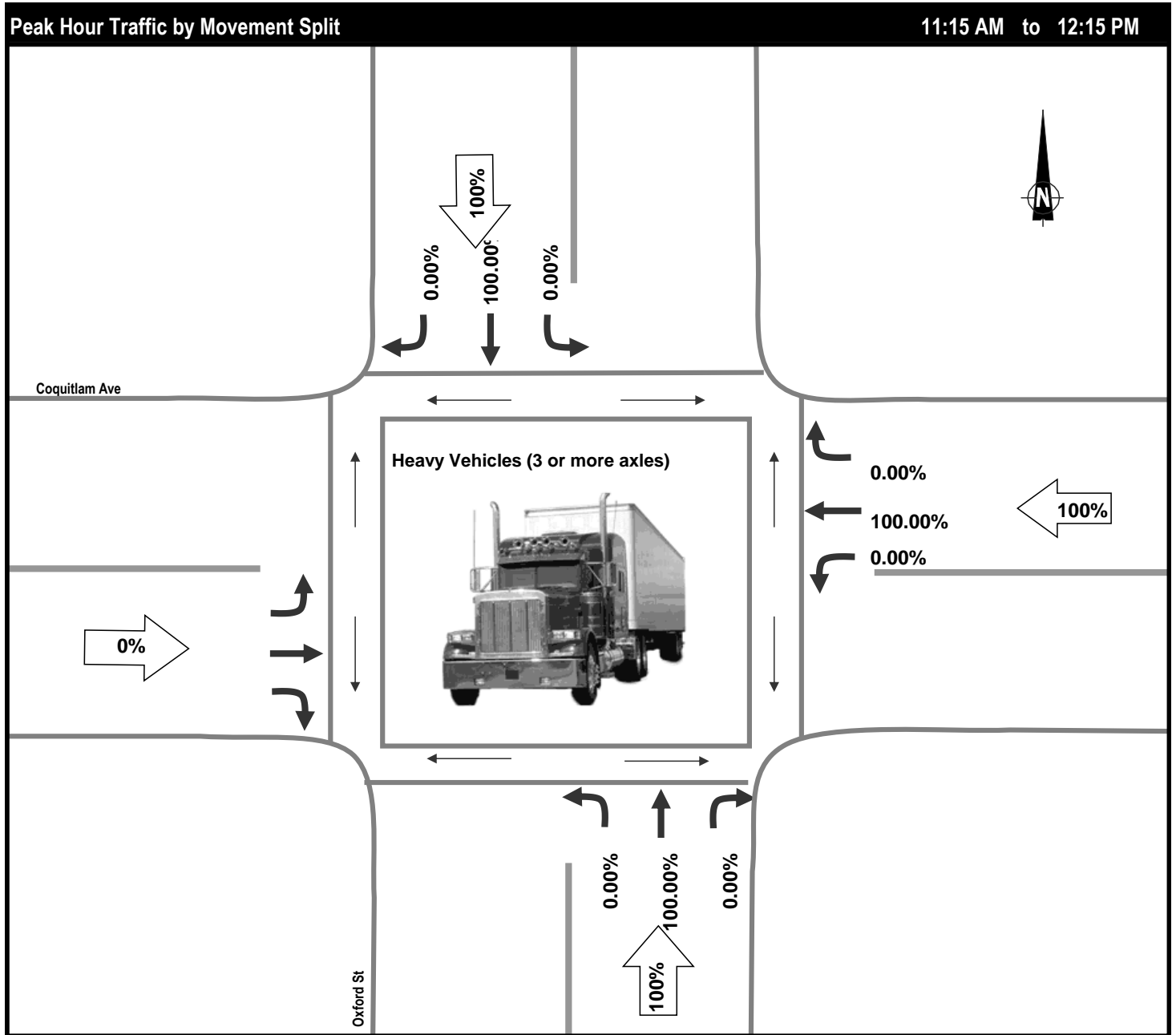
Project: #7226: City of Port Coquitlam (Wedler)
 Municipality: Port Coquitlam
 Weather: Sunny
 Vehicle Class: Heavy Vehicles (3 or more axles)
 Notes: Pandemic Data!



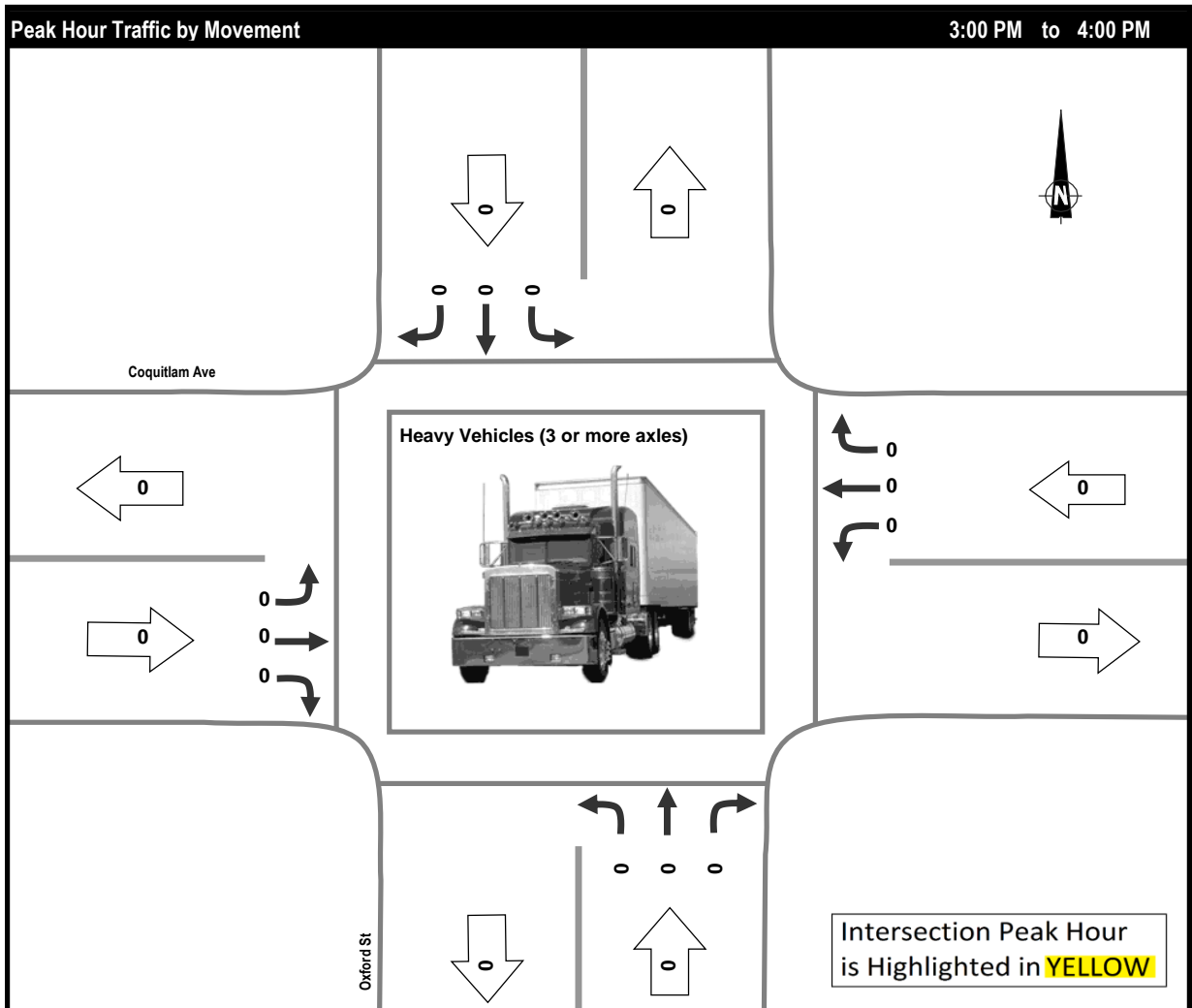
Project: #7226: City of Port Coquitlam (Wedler)
 Municipality: Port Coquitlam
 Weather: Sunny
 Vehicle Class: Heavy Vehicles (3 or more axles)
 Notes: Pandemic Data!



Project: #7226: City of Port Coquitlam (Wedler)
 Municipality: Port Coquitlam
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 Notes: Pandemic Data!

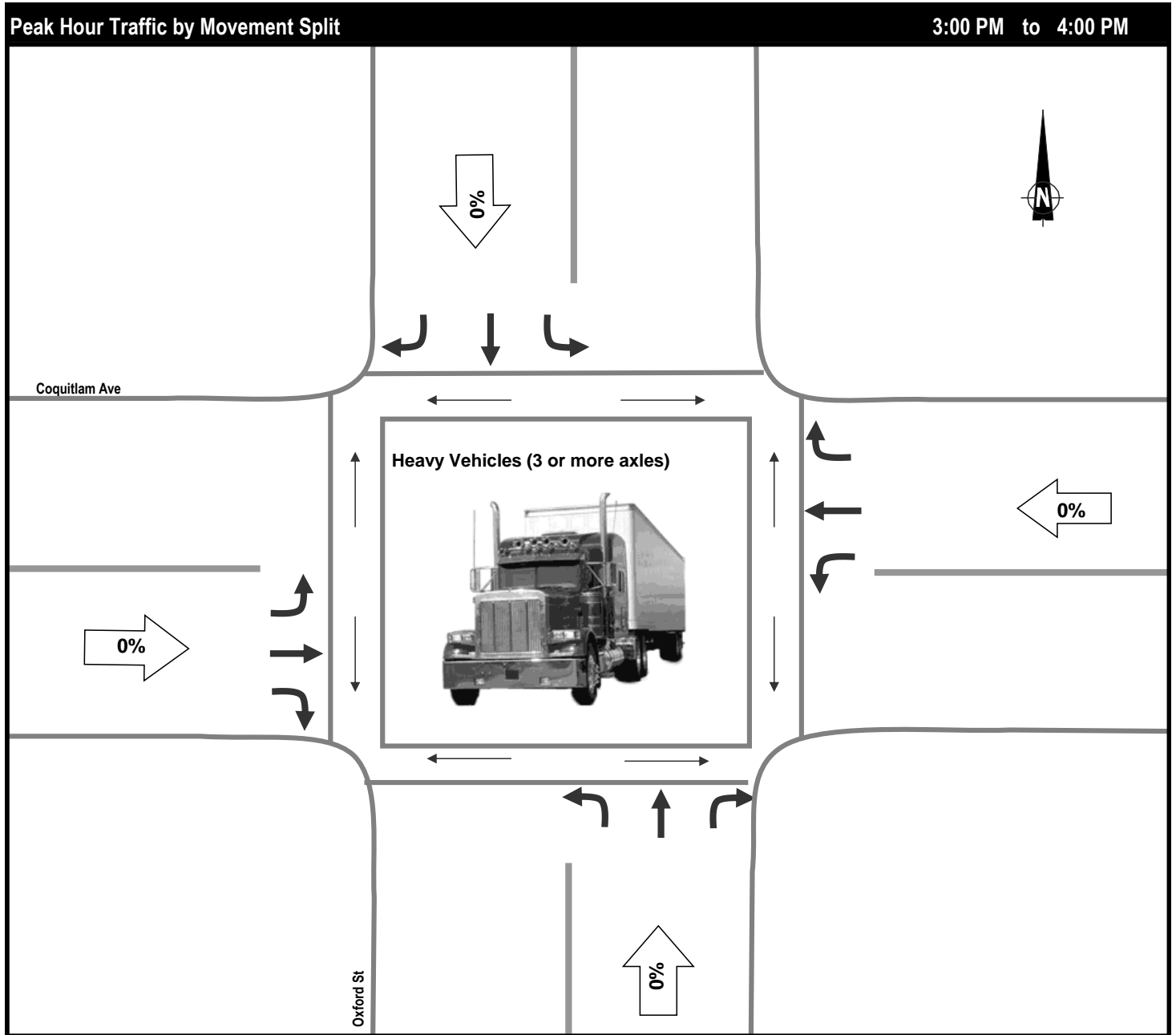


Project: #7226: City of Port Coquitlam (Wedler)
 Municipality: Port Coquitlam
 Weather: Sunny
 Vehicle Class: Heavy Vehicles (3 or more axles)
 Notes: Pandemic Data!

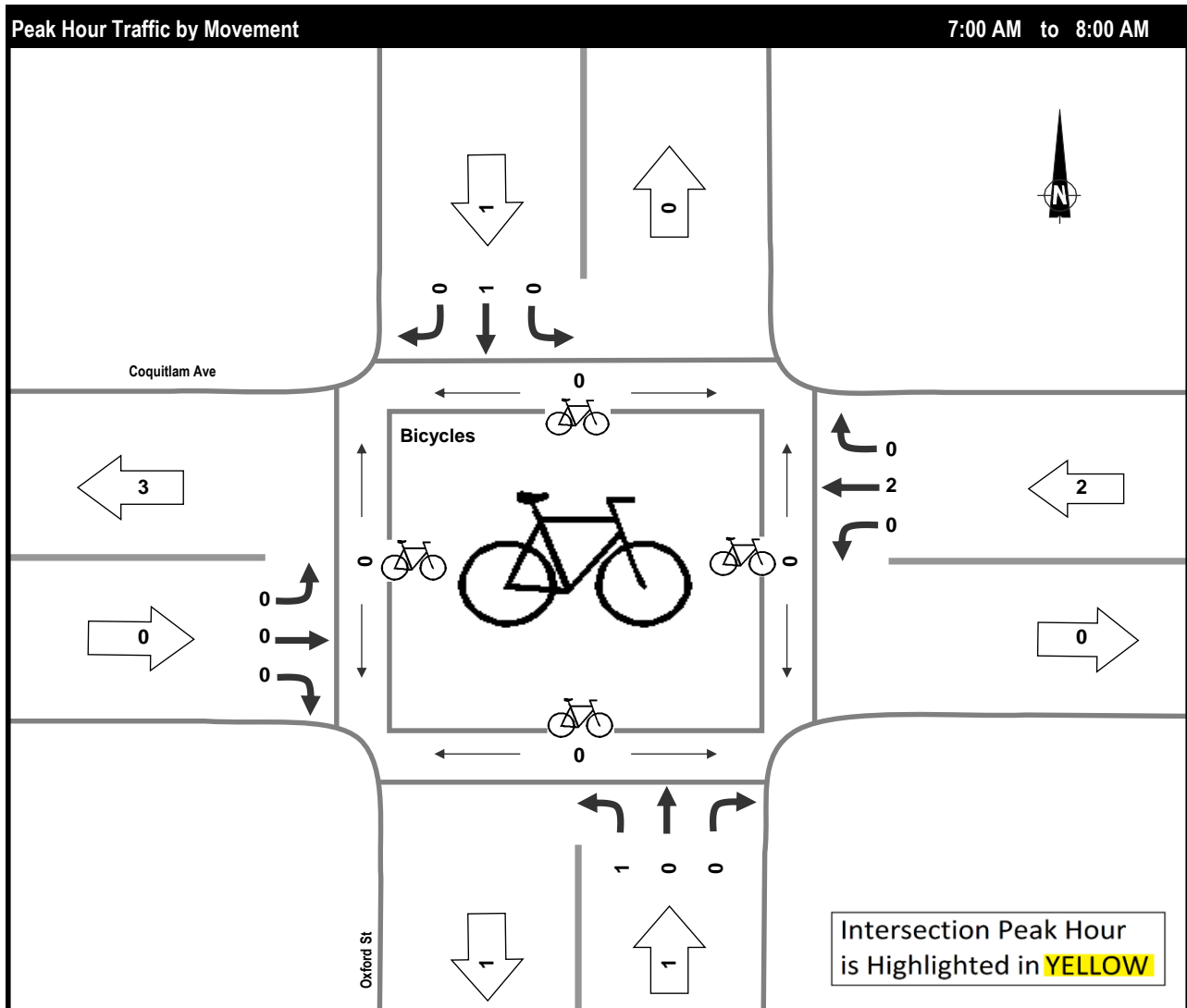


Time	NORTH Approach			SOUTH Approach			WEST Approach			EAST Approach			PEDESTRIANS				Total Volumes
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	N	S	W	E	
Peak Hour	0	0	0	0	0	0	0	0	0	0	0	0					0
PHF	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00
Peak 15 X 4	0	0	0	0	0	0	0	0	0	0	0	0					0
Average Hour	0	0	0	0	0	0	0	0	0	0	0	0					0
Survey Total	0	0	0	0	0	0	0	0	0	0	0	0					0
15:00	0	0	0	0	0	0	0	0	0	0	0	0					0
15:15	0	0	0	0	0	0	0	0	0	0	0	0					0
15:30	0	0	0	0	0	0	0	0	0	0	0	0					0
15:45	0	0	0	0	0	0	0	0	0	0	0	0					0
16:00	0	0	0	0	0	0	0	0	0	0	0	0					0
16:15	0	0	0	0	0	0	0	0	0	0	0	0					0
16:30	0	0	0	0	0	0	0	0	0	0	0	0					0
16:45	0	0	0	0	0	0	0	0	0	0	0	0					0
17:00	0	0	0	0	0	0	0	0	0	0	0	0					0
17:15	0	0	0	0	0	0	0	0	0	0	0	0					0
17:30	0	0	0	0	0	0	0	0	0	0	0	0					0
17:45	0	0	0	0	0	0	0	0	0	0	0	0					0

Project: #7226: City of Port Coquitlam (Wedler)
Municipality: Port Coquitlam
Weather: Sunny
Vehicle Class: Heavy Vehicles (3 or more axles)
Notes: Pandemic Data!

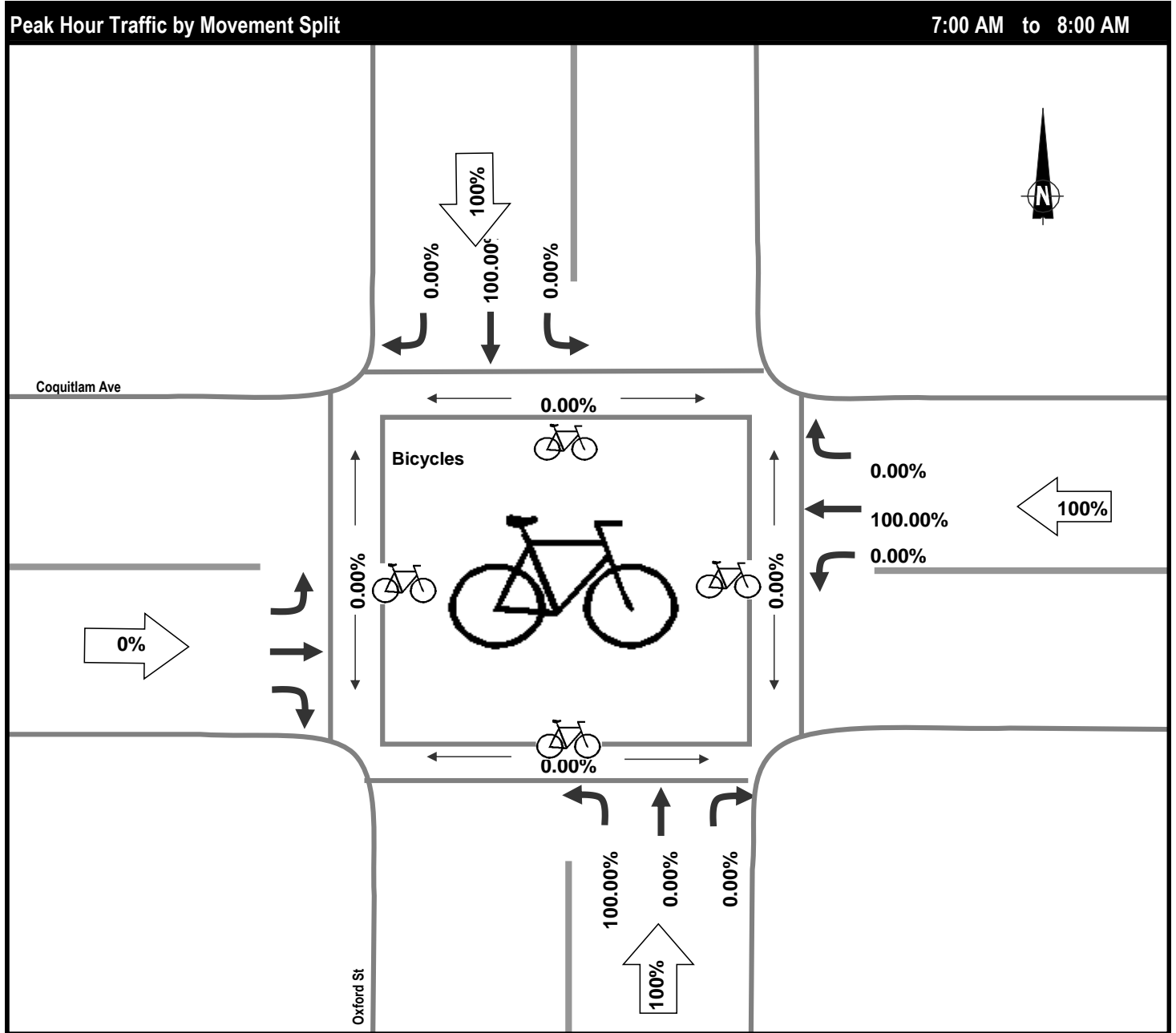


Project: #7226: City of Port Coquitlam (Wedler)
 Municipality: Port Coquitlam
 Weather: Sunny
 Vehicle Class: Bicycles
 Notes: Pandemic Data!

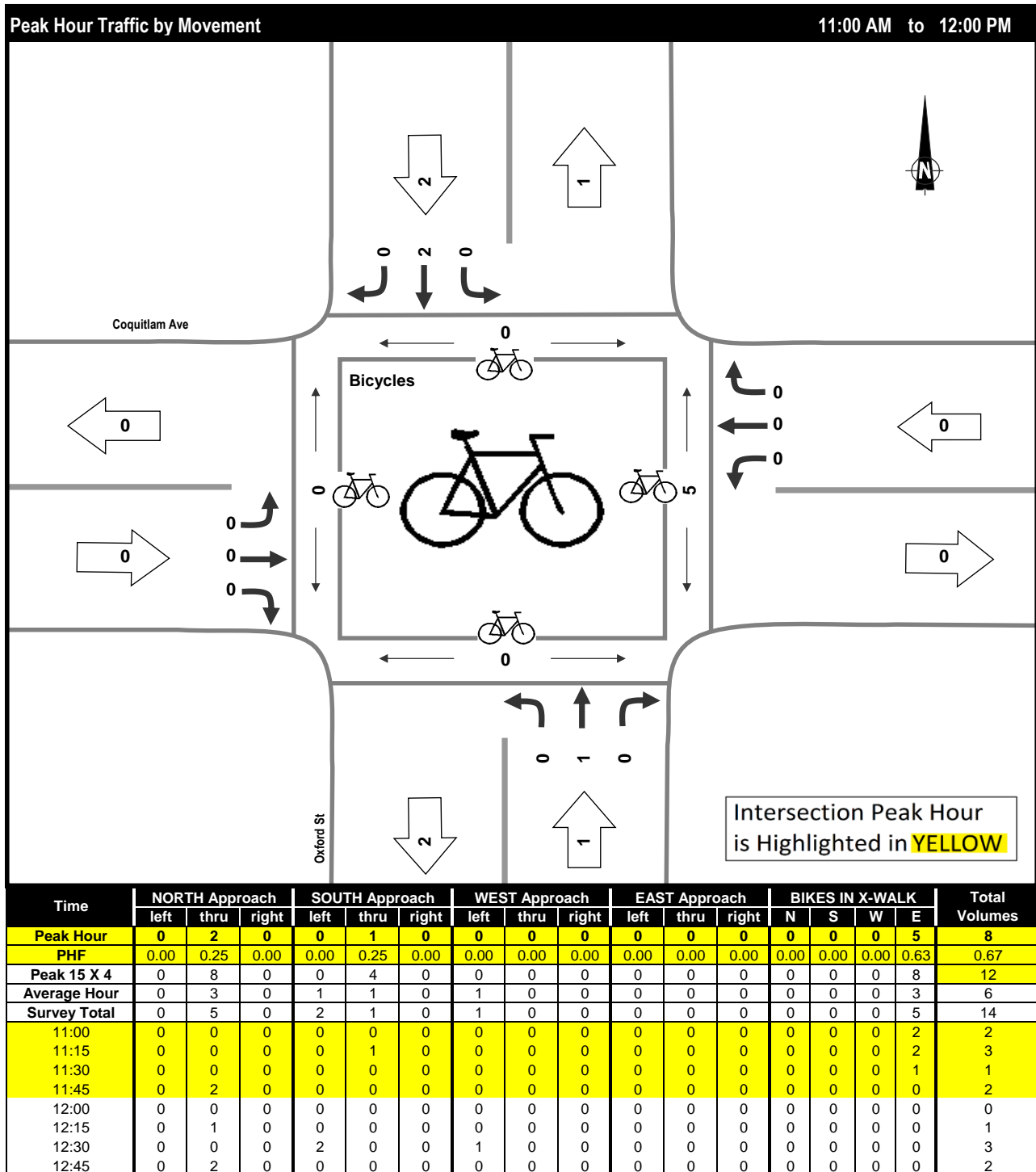


Time	NORTH Approach			SOUTH Approach			WEST Approach			EAST Approach			BIKES IN X-WALK				Total Volumes	
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	N	S	W	E		
Peak Hour	0	1	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	4
PHF	0.00	0.25	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.50
Peak 15 X 4	0	4	0	4	0	0	0	0	0	0	4	0	0	0	0	0	0	8
Average Hour	0	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	3
Survey Total	0	2	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	5
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
7:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
7:45	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

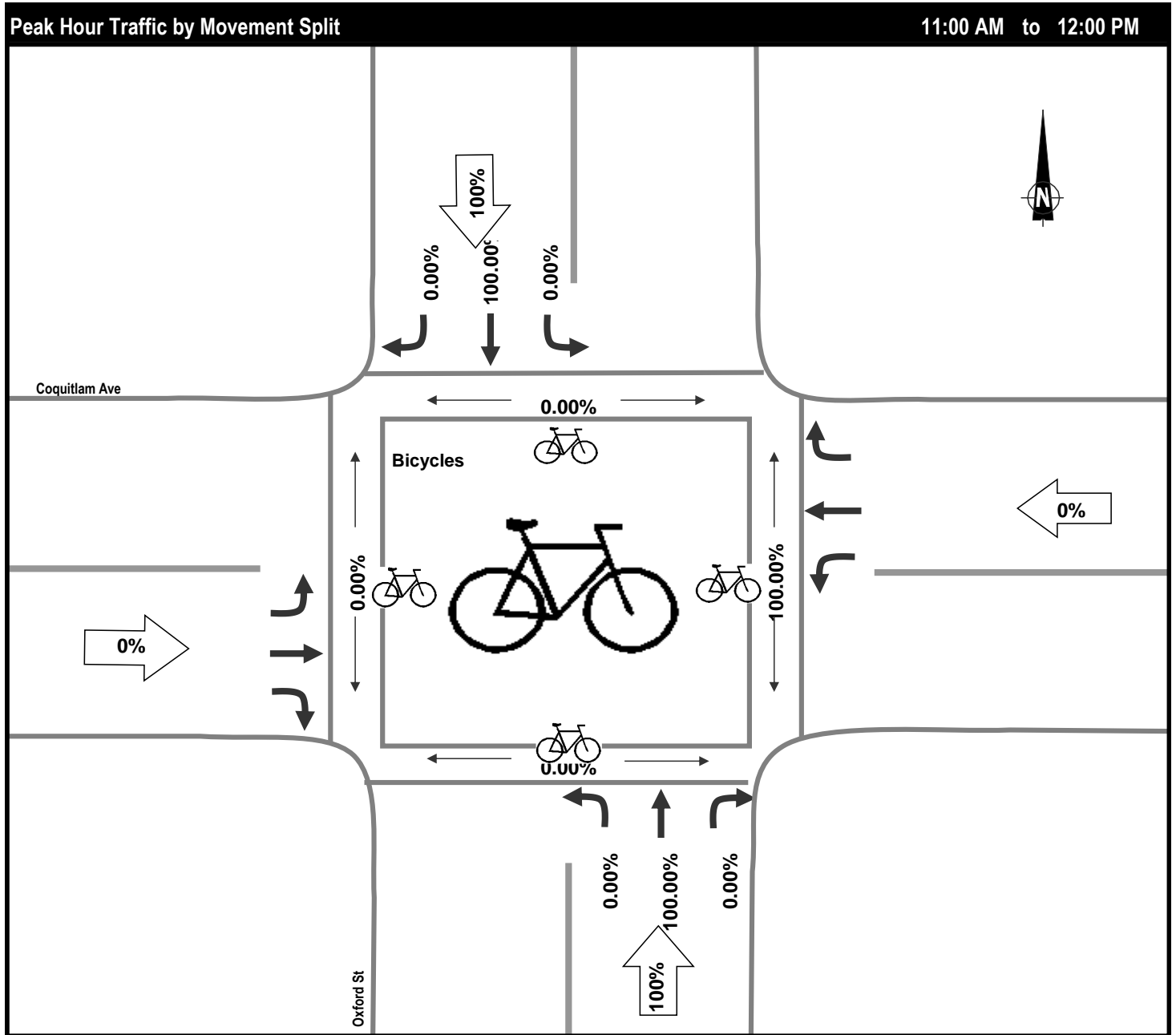
Project: #7226: City of Port Coquitlam (Wedler)
 Municipality: Port Coquitlam
 Weather: Sunny
 Vehicle Class: Bicycles
 Notes: Pandemic Data!



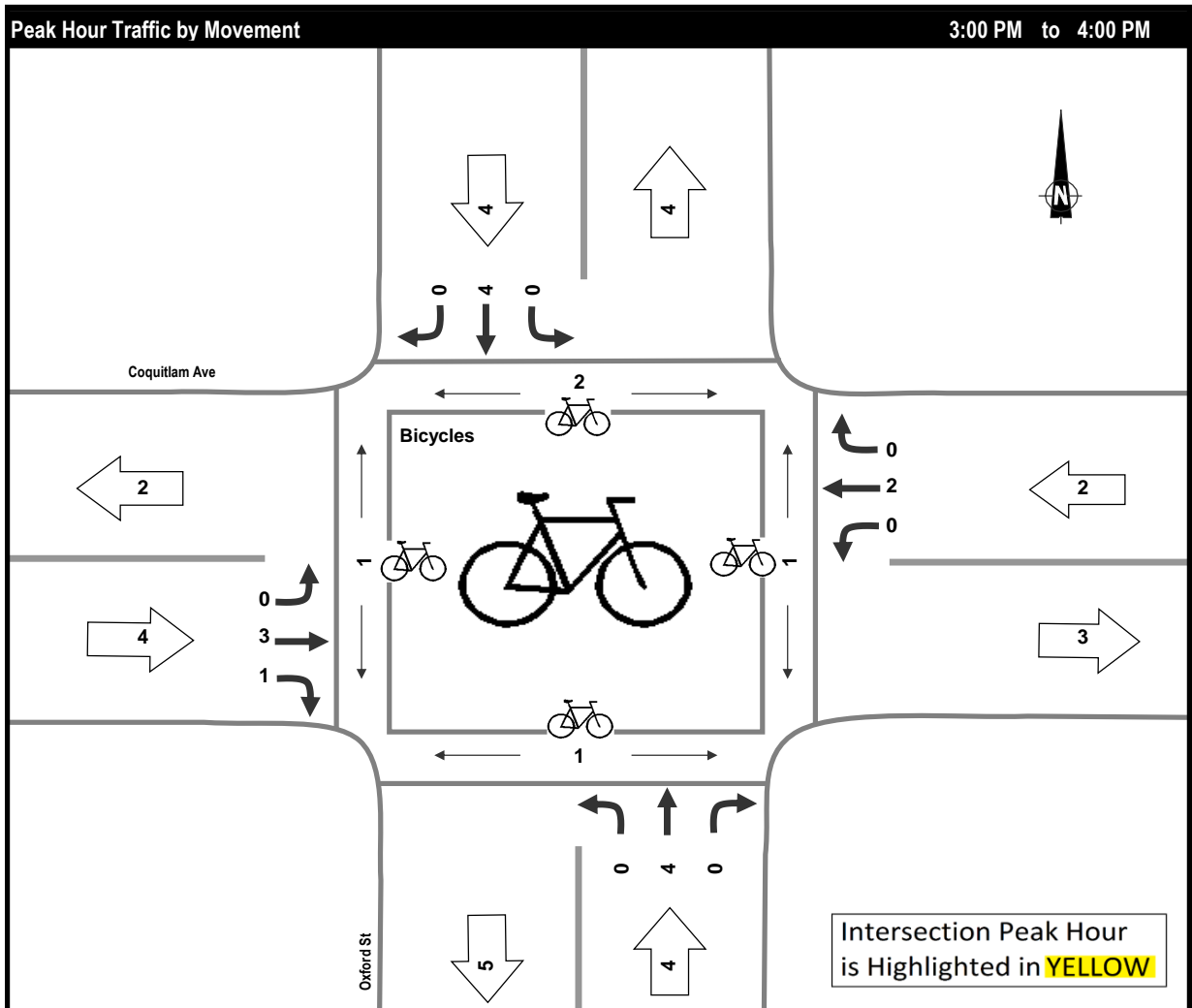
Project: #7226: City of Port Coquitlam (Wedler)
 Municipality: Port Coquitlam
 Weather: Sunny
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Project: #7226: City of Port Coquitlam (Wedler)
 Municipality: Port Coquitlam
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 Vehicle Class: Bicycles
 Notes: Pandemic Data!

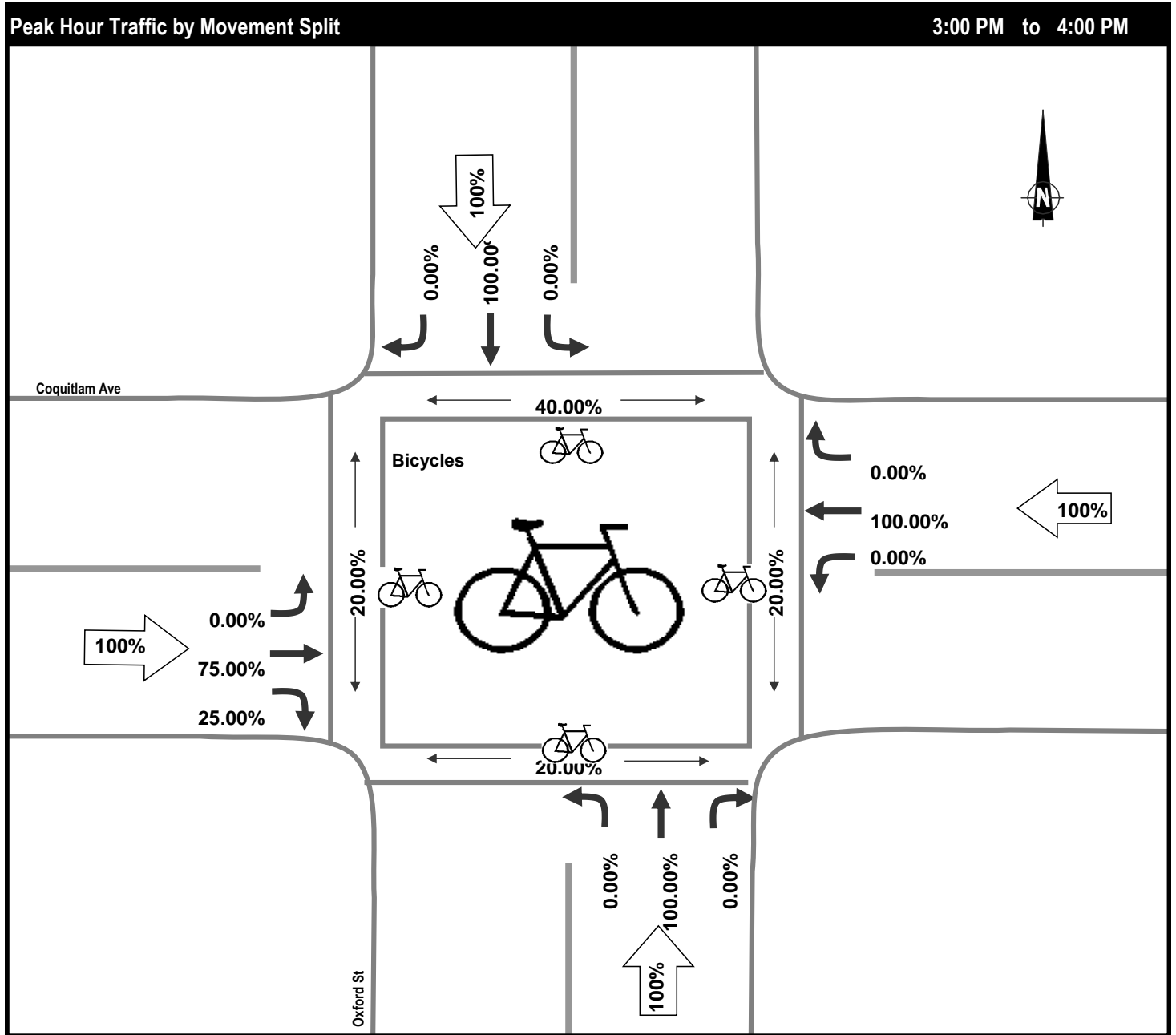


Project: #7226: City of Port Coquitlam (Wedler)
 Municipality: Port Coquitlam
 Weather: Sunny
 Vehicle Class: Bicycles
 Notes: Pandemic Data!



Time	NORTH Approach			SOUTH Approach			WEST Approach			EAST Approach			BIKES IN X-WALK				Total Volumes
	left	thru	right	left	thru	right	left	thru	right	left	thru	right	N	S	W	E	
Peak Hour	0	4	0	0	4	0	0	3	1	0	2	0	2	1	1	1	19
PHF	0.00	0.50	0.00	0.00	0.33	0.00	0.00	0.38	0.25	0.00	0.25	0.00	0.25	0.25	0.25	0.25	0.59
Peak 15 X 4	0	8	0	0	12	0	0	8	4	0	8	0	8	4	4	4	32
Average Hour	0	2	0	0	3	0	0	2	0	0	2	0	1	0	0	1	9
Survey Total	0	6	0	0	8	1	0	5	1	0	5	0	2	1	1	4	34
15:00	0	0	0	0	1	0	0	2	0	0	2	0	2	1	0	0	8
15:15	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
15:30	0	1	0	0	3	0	0	0	0	0	0	0	0	0	0	1	5
15:45	0	2	0	0	0	0	0	1	1	0	0	0	0	0	0	0	4
16:00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
16:15	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3
17:00	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2
17:15	0	0	0	0	2	0	0	0	0	0	3	0	0	0	0	0	5
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2

Project: #7226: City of Port Coquitlam (Wedler)
 Municipality: Port Coquitlam
 Weather: Sunny
 Vehicle Class: Bicycles
 Notes: Pandemic Data!

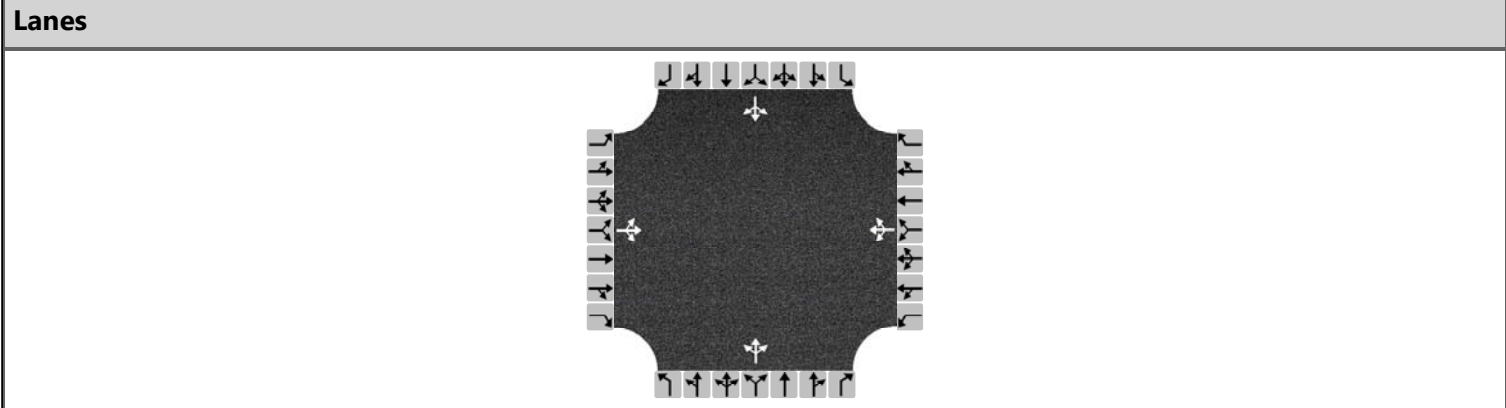


APPENDIX B

Capacity Analysis Summary Sheets

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	RC	Intersection	Coquitlam Ave & Oxford St
Agency/Co.	CTS	Jurisdiction	City of Port Coquitlam
Date Performed	Base	East/West Street	Coquitlam Avenue
Analysis Year	2020	North/South Street	Oxford Street
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.95
Time Analyzed	Wkday AM Peak Hour		
Project Description	7226 - City of Coquitlam - Intersection Assessment		



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume	13	33	37	90	40	27	27	268	44	33	419	7
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	87			165			357			483		
Percent Heavy Vehicles	2			2			2			2		

Departure Headway and Service Time

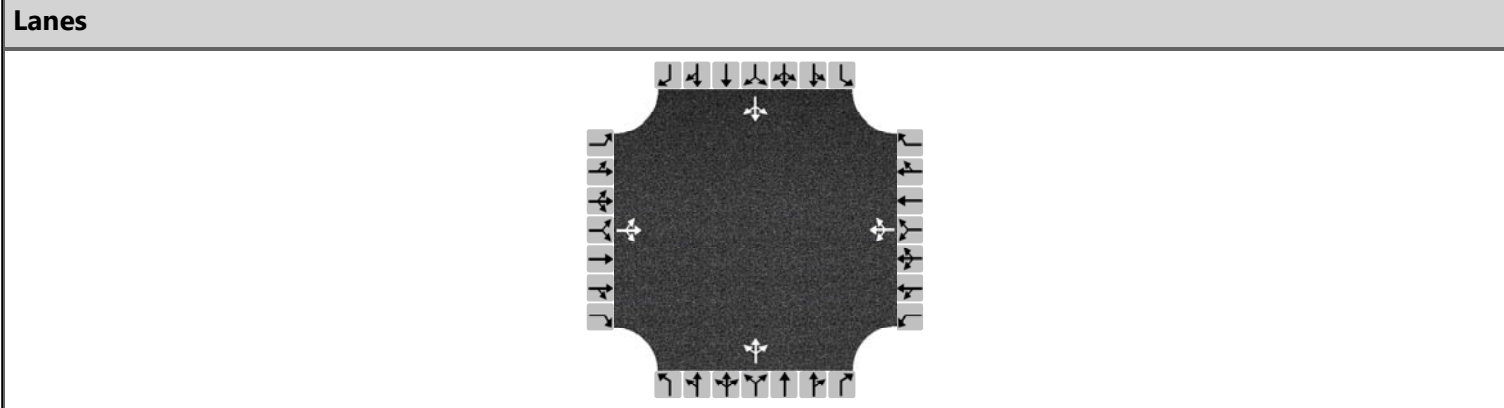
Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.078			0.147			0.317			0.429		
Final Departure Headway, hd (s)	6.36			6.37			5.46			5.34		
Final Degree of Utilization, x	0.154			0.293			0.541			0.716		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	4.36			4.37			3.46			3.34		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	87			165			357			483		
Capacity	566			565			660			675		
95% Queue Length, Q ₉₅ (veh)	0.5			1.2			3.3			6.0		
Control Delay (s/veh)	10.5			12.0			14.7			20.6		
Level of Service, LOS	B			B			B			C		
Approach Delay (s/veh)	10.5			12.0			14.7			20.6		
Approach LOS	B			B			B			C		
Intersection Delay, s/veh LOS	16.6						C					

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	RC	Intersection	Coquitlam Ave & Oxford St
Agency/Co.	CTS	Jurisdiction	City of Port Coquitlam
Date Performed	Base	East/West Street	Coquitlam Avenue
Analysis Year	2025	North/South Street	Oxford Street
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.95
Time Analyzed	Wkday AM Peak Hour		
Project Description	7226 - City of Coquitlam - Intersection Assessment		



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume	14	35	40	97	43	29	29	288	47	35	450	8
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	94			178			383			519		
Percent Heavy Vehicles	2			2			2			2		

Departure Headway and Service Time

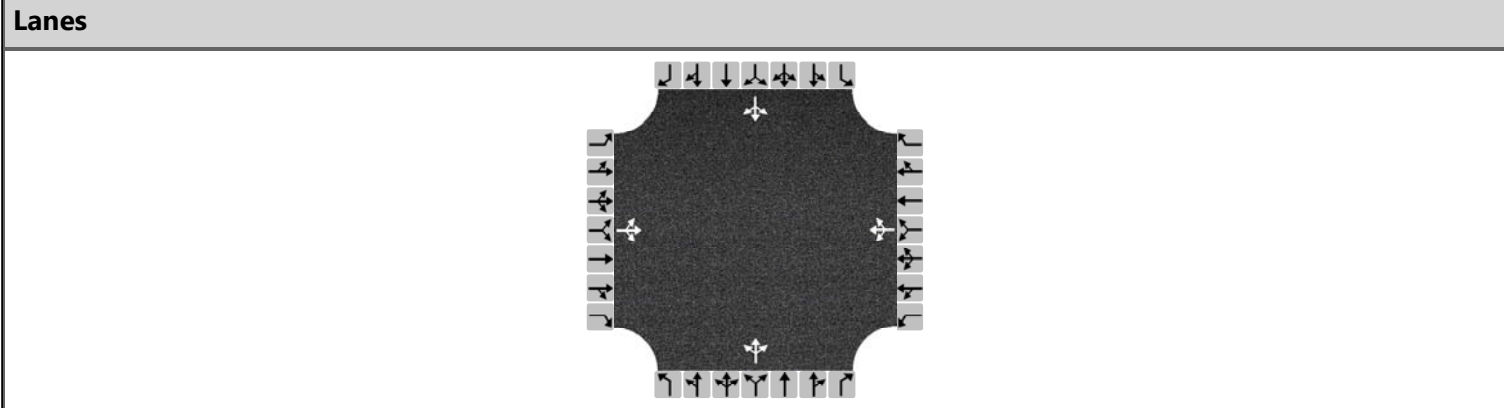
Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.083			0.158			0.341			0.461		
Final Departure Headway, hd (s)	6.67			6.64			5.66			5.52		
Final Degree of Utilization, x	0.173			0.328			0.603			0.796		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	4.67			4.64			3.66			3.52		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	94			178			383			519		
Capacity	540			542			636			652		
95% Queue Length, Q ₉₅ (veh)	0.6			1.4			4.0			7.9		
Control Delay (s/veh)	11.1			12.8			16.9			26.5		
Level of Service, LOS	B			B			C			D		
Approach Delay (s/veh)	11.1			12.8			16.9			26.5		
Approach LOS	B			B			C			D		
Intersection Delay, s/veh LOS	20.1						C					

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	RC	Intersection	Coquitlam Ave & Oxford St
Agency/Co.	CTS	Jurisdiction	City of Port Coquitlam
Date Performed	Base	East/West Street	Coquitlam Avenue
Analysis Year	2030	North/South Street	Oxford Street
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.95
Time Analyzed	Wkday AM Peak Hour		
Project Description	7226 - City of Coquitlam - Intersection Assessment		



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume	15	38	43	104	46	31	31	308	51	38	482	8
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	101			191			411			556		
Percent Heavy Vehicles	2			2			2			2		

Departure Headway and Service Time

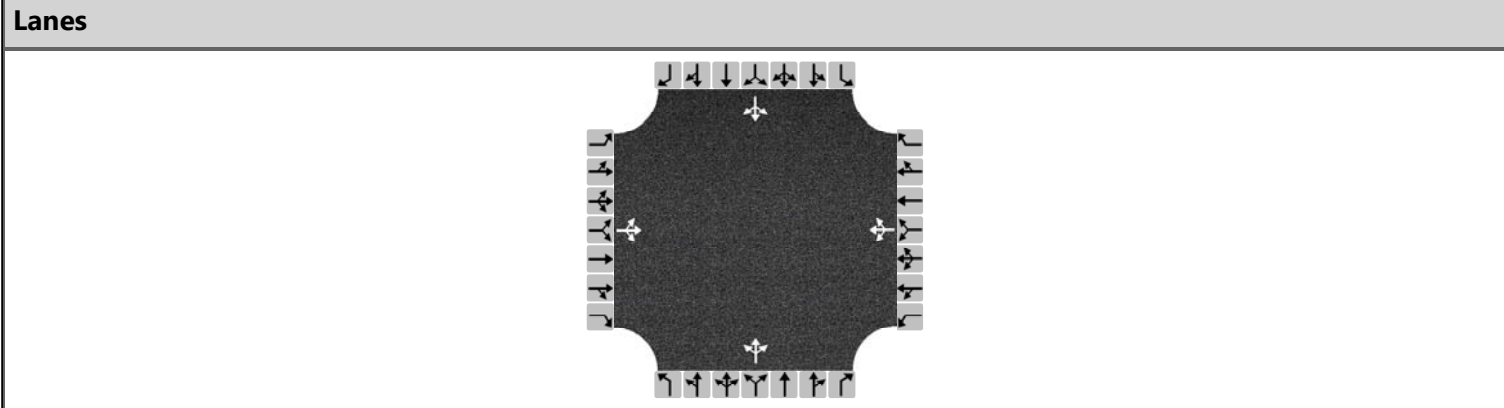
Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.090			0.169			0.365			0.494		
Final Departure Headway, hd (s)	7.09			6.99			5.94			5.76		
Final Degree of Utilization, x	0.199			0.370			0.677			0.889		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	5.09			4.99			3.94			3.76		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	101			191			411			556		
Capacity	507			515			606			625		
95% Queue Length, Q ₉₅ (veh)	0.7			1.7			5.2			10.7		
Control Delay (s/veh)	11.9			14.0			20.5			37.9		
Level of Service, LOS	B			B			C			E		
Approach Delay (s/veh)	11.9			14.0			20.5			37.9		
Approach LOS	B			B			C			E		
Intersection Delay, s/veh LOS	26.5						D					

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	RC	Intersection	Coquitlam Ave & Oxford St
Agency/Co.	CTS	Jurisdiction	City of Port Coquitlam
Date Performed	Base	East/West Street	Coquitlam Avenue
Analysis Year	2020	North/South Street	Oxford Street
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.84
Time Analyzed	Wkday MD Peak Hour		
Project Description	7226 - City of Coquitlam - Intersection Assessment		



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume	7	31	34	41	20	10	15	249	38	23	230	12
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	86			85			360			315		
Percent Heavy Vehicles	2			2			2			2		

Departure Headway and Service Time

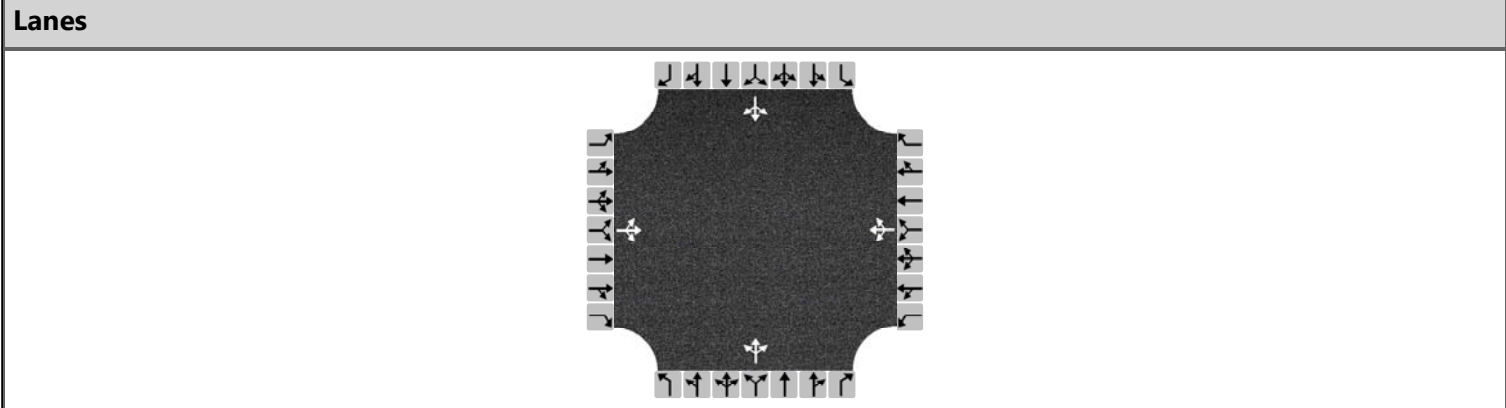
Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.076			0.075			0.320			0.280		
Final Departure Headway, hd (s)	5.45			5.74			4.77			4.88		
Final Degree of Utilization, x	0.130			0.135			0.477			0.427		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	3.45			3.74			2.77			2.88		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	86			85			360			315		
Capacity	661			627			754			738		
95% Queue Length, Q ₉₅ (veh)	0.4			0.5			2.6			2.2		
Control Delay (s/veh)	9.3			9.6			12.0			11.5		
Level of Service, LOS	A			A			B			B		
Approach Delay (s/veh)	9.3			9.6			12.0			11.5		
Approach LOS	A			A			B			B		
Intersection Delay, s/veh LOS	11.3						B					

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	RC	Intersection	Coquitlam Ave & Oxford St
Agency/Co.	CTS	Jurisdiction	City of Port Coquitlam
Date Performed	Base	East/West Street	Coquitlam Avenue
Analysis Year	2025	North/South Street	Oxford Street
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.84
Time Analyzed	Wkday MD Peak Hour		
Project Description	7226 - City of Coquitlam - Intersection Assessment		



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume	8	33	37	44	22	11	16	268	41	25	247	13
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	93			92			387			339		
Percent Heavy Vehicles	2			2			2			2		

Departure Headway and Service Time

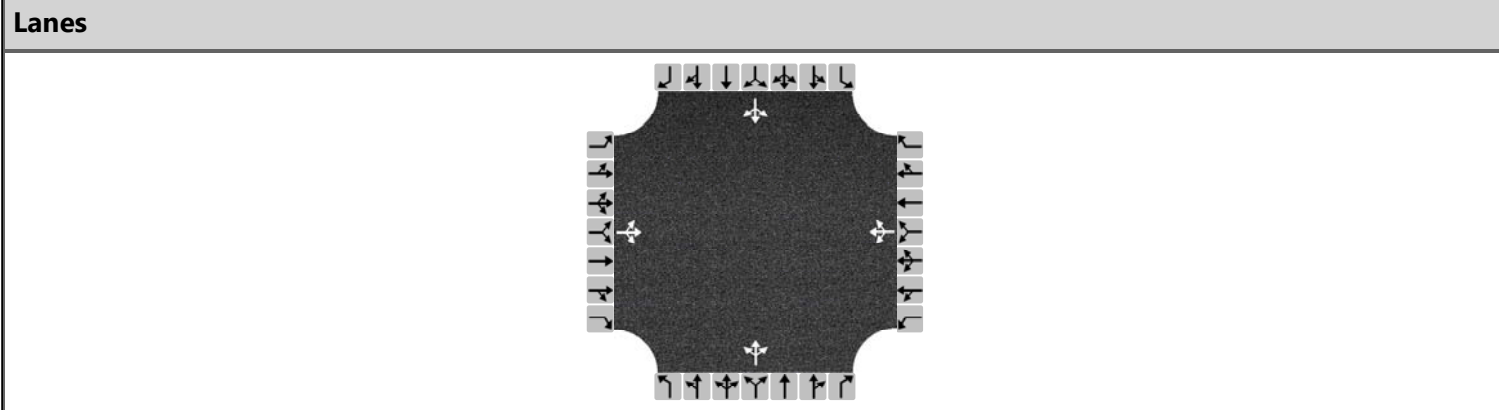
Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.083			0.081			0.344			0.302		
Final Departure Headway, hd (s)	5.62			5.91			4.88			4.98		
Final Degree of Utilization, x	0.145			0.150			0.524			0.470		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	3.62			3.91			2.88			2.98		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	93			92			387			339		
Capacity	640			609			738			722		
95% Queue Length, Q ₉₅ (veh)	0.5			0.5			3.1			2.5		
Control Delay (s/veh)	9.6			10.0			13.1			12.3		
Level of Service, LOS	A			A			B			B		
Approach Delay (s/veh)	9.6			10.0			13.1			12.3		
Approach LOS	A			A			B			B		
Intersection Delay, s/veh LOS	12.1						B					

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	RC	Intersection	Coquitlam Ave & Oxford St
Agency/Co.	CTS	Jurisdiction	City of Port Coquitlam
Date Performed	Base	East/West Street	Coquitlam Avenue
Analysis Year	2030	North/South Street	Oxford Street
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.84
Time Analyzed	Wkday MD Peak Hour		
Project Description	7226 - City of Coquitlam - Intersection Assessment		



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume	8	36	39	47	23	12	17	286	44	26	265	14
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	99			98			413			363		
Percent Heavy Vehicles	2			2			2			2		

Departure Headway and Service Time

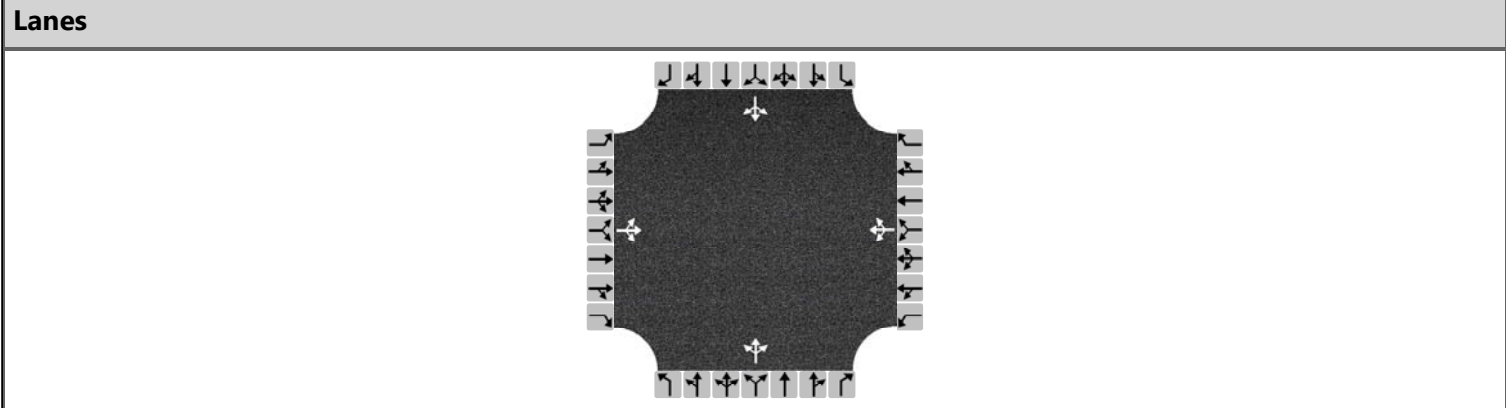
Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.088			0.087			0.367			0.323		
Final Departure Headway, hd (s)	5.84			6.12			4.99			5.10		
Final Degree of Utilization, x	0.160			0.166			0.572			0.515		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	3.84			4.12			2.99			3.10		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	99			98			413			363		
Capacity	617			588			722			706		
95% Queue Length, Q ₉₅ (veh)	0.6			0.6			3.7			3.0		
Control Delay (s/veh)	9.9			10.3			14.4			13.4		
Level of Service, LOS	A			B			B			B		
Approach Delay (s/veh)	9.9			10.3			14.4			13.4		
Approach LOS	A			B			B			B		
Intersection Delay, s/veh LOS	13.2						B					

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	RC	Intersection	Coquitlam Ave & Oxford St
Agency/Co.	CTS	Jurisdiction	City of Port Coquitlam
Date Performed	Base	East/West Street	Coquitlam Avenue
Analysis Year	2020	North/South Street	Oxford Street
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.90
Time Analyzed	Wkday PM Peak Hour		
Project Description	7226 - City of Coquitlam - Intersection Assessment		



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume	22	32	26	58	19	19	21	516	77	29	294	10
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	89			107			682			370		
Percent Heavy Vehicles	2			2			2			2		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.079			0.095			0.606			0.329		
Final Departure Headway, hd (s)	6.82			6.89			5.14			5.61		
Final Degree of Utilization, x	0.168			0.204			0.974			0.577		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	4.82			4.89			3.14			3.61		

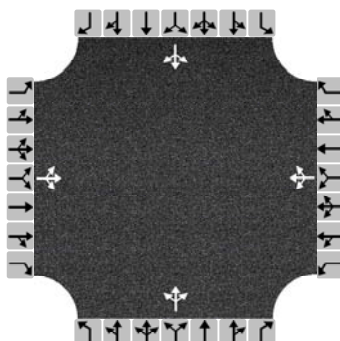
Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	89			107			682			370		
Capacity	528			523			701			642		
95% Queue Length, Q ₉₅ (veh)	0.6			0.8			14.9			3.7		
Control Delay (s/veh)	11.2			11.6			50.0			16.0		
Level of Service, LOS	B			B			F			C		
Approach Delay (s/veh)	11.2			11.6			50.0			16.0		
Approach LOS	B			B			F			C		
Intersection Delay, s/veh LOS	33.9						D					

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	RC	Intersection	Coquitlam Ave & Oxford St
Agency/Co.	CTS	Jurisdiction	City of Port Coquitlam
Date Performed	Base	East/West Street	Coquitlam Avenue
Analysis Year	2025	North/South Street	Oxford Street
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.90
Time Analyzed	Wkday PM Peak Hour		
Project Description	7226 - City of Coquitlam - Intersection Assessment		

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume	24	34	28	62	20	20	23	555	83	31	316	11
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	96			113			734			398		
Percent Heavy Vehicles	2			2			2			2		

Departure Headway and Service Time

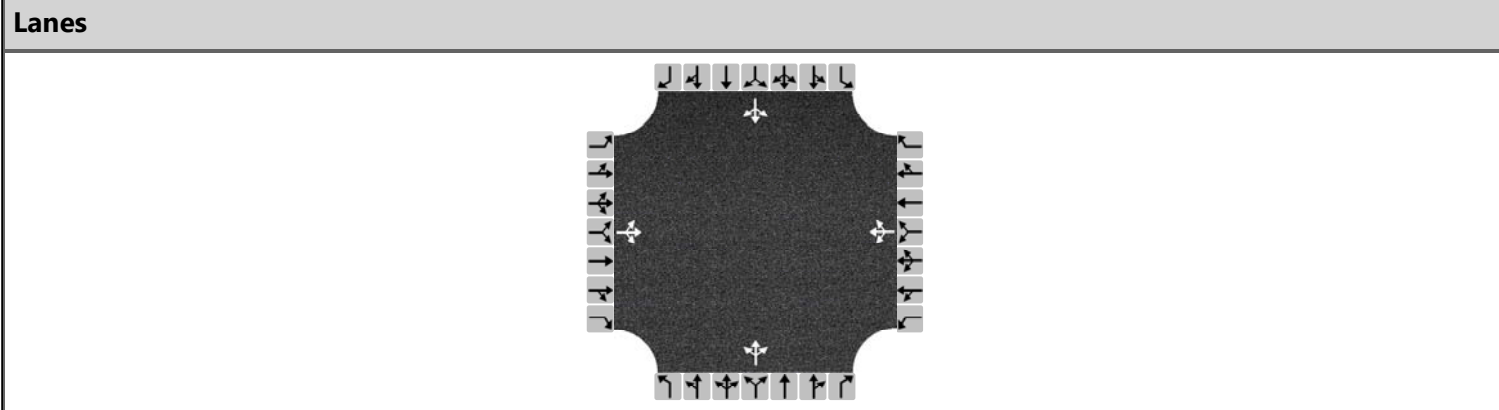
Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.085			0.101			0.653			0.354		
Final Departure Headway, hd (s)	6.87			6.94			5.26			5.65		
Final Degree of Utilization, x	0.182			0.218			1.073			0.625		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	4.87			4.94			3.26			3.65		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	96			113			734			398		
Capacity	524			519			684			637		
95% Queue Length, Q ₉₅ (veh)	0.7			0.8			20.0			4.4		
Control Delay (s/veh)	11.4			11.9			77.9			17.6		
Level of Service, LOS	B			B			F			C		
Approach Delay (s/veh)	11.4			11.9			77.9			17.6		
Approach LOS	B			B			F			C		
Intersection Delay, s/veh LOS	49.7						E					

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	RC	Intersection	Coquitlam Ave & Oxford St
Agency/Co.	CTS	Jurisdiction	City of Port Coquitlam
Date Performed	Base	East/West Street	Coquitlam Avenue
Analysis Year	2030	North/South Street	Oxford Street
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.90
Time Analyzed	Wkday PM Peak Hour		
Project Description	7226 - City of Coquitlam - Intersection Assessment		



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume	25	37	30	67	22	22	24	593	89	33	338	12
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	102			123			784			426		
Percent Heavy Vehicles	2			2			2			2		


Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.091			0.110			0.697			0.378		
Final Departure Headway, hd (s)	7.00			7.05			5.41			5.75		
Final Degree of Utilization, x	0.199			0.242			1.178			0.679		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	5.00			5.05			3.41			3.75		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	102			123			784			426		
Capacity	514			511			666			627		
95% Queue Length, Q ₉₅ (veh)	0.7			0.9			26.1			5.3		
Control Delay (s/veh)	11.7			12.3			115.3			20.0		
Level of Service, LOS	B			B			F			C		
Approach Delay (s/veh)	11.7			12.3			115.3			20.0		
Approach LOS	B			B			F			C		
Intersection Delay, s/veh LOS	70.8						F					

HCS7 Roundabouts Report

General Information				Site Information			
Analyst	RC		Intersection	Coquitlam Ave & Oxford St			
Agency or Co.	CTS		E/W Street Name	Coquitlam Avenue			
Date Performed	Base		N/S Street Name	Oxford Street			
Analysis Year	2020		Analysis Time Period (hrs)	0.25			
Time Analyzed	Weekday AM Peak Hour		Peak Hour Factor	0.95			
Project Description	7226 - Intersection Assessm...		Jurisdiction	Port Coquitlam, BC			

Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	13	33	37	0	90	40	27	0	27	268	44	0	33	419	7
Percent Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Flow Rate (v_{pce}), pc/h	0	14	35	40	0	97	43	29	0	29	288	47	0	35	450	8
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	11				25				29				3			

Critical and Follow-Up Headway Adjustment													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763		
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087		

Flow Computations, Capacity and v/c Ratios													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Entry Flow (v_e), pc/h		89			169			364			493		
Entry Volume, veh/h		87			166			357			483		
Circulating Flow (v_c), pc/h	582			331			84			169			
Exiting Flow (v_{ex}), pc/h	117			80			331			587			
Capacity (C_{pce}), pc/h		762			985			1267			1161		
Capacity (c), veh/h		746			962			1237			1138		
v/c Ratio (x)		0.12			0.17			0.29			0.42		

Delay and Level of Service													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Lane Control Delay (d), s/veh		6.0			5.4			5.5			7.6		
Lane LOS		A			A			A			A		
95% Queue, veh		0.4			0.6			1.2			2.2		
Approach Delay, s/veh	6.0			5.4			5.5			7.6			
Approach LOS	A			A			A			A			
Intersection Delay, s/veh LOS	6.5						A						

HCS7 Roundabouts Report

General Information				Site Information			
Analyst	RC		Intersection	Coquitlam Ave & Oxford St			
Agency or Co.	CTS		E/W Street Name	Coquitlam Avenue			
Date Performed	Base		N/S Street Name	Oxford Street			
Analysis Year	2025		Analysis Time Period (hrs)	0.25			
Time Analyzed	Weekday AM Peak Hour		Peak Hour Factor	0.95			
Project Description	7226 - Intersection Assessm...		Jurisdiction	Port Coquitlam, BC			


Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	14	35	40	0	97	43	29	0	29	288	47	0	35	450	8
Percent Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Flow Rate (v _{PCE}), pc/h	0	15	38	43	0	104	46	31	0	31	309	50	0	38	483	9
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	11				25				29				3			

Critical and Follow-Up Headway Adjustment													
Approach	EB			WB			NB			SB			
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763		
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087		

Flow Computations, Capacity and v/c Ratios													
Approach	EB			WB			NB			SB			
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Entry Flow (v _e), pc/h		96			181			390			530		
Entry Volume, veh/h		94			177			382			520		
Circulating Flow (v _c), pc/h	625			355			91			181			
Exiting Flow (v _{ex}), pc/h	126			86			355			630			
Capacity (C _{PCE}), pc/h		729			961			1258			1147		
Capacity (c), veh/h		714			939			1228			1124		
v/c Ratio (x)		0.13			0.19			0.31			0.46		

Delay and Level of Service													
Approach	EB			WB			NB			SB			
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Lane Control Delay (d), s/veh		6.5			5.7			5.8			8.2		
Lane LOS		A			A			A			A		
95% Queue, veh		0.5			0.7			1.3			2.5		
Approach Delay, s/veh	6.5			5.7			5.8			8.2			
Approach LOS	A			A			A			A			
Intersection Delay, s/veh LOS	6.9						A						

HCS7 Roundabouts Report

General Information				Site Information				
Analyst	RC				Intersection	Coquitlam Ave & Oxford St		
Agency or Co.	CTS				E/W Street Name	Coquitlam Avenue		
Date Performed	Base				N/S Street Name	Oxford Street		
Analysis Year	2030				Analysis Time Period (hrs)	0.25		
Time Analyzed	Weekday AM Peak Hour				Peak Hour Factor	0.95		
Project Description	7226 - Intersection Assessm...				Jurisdiction	Port Coquitlam, BC		

Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	15	38	43	0	104	46	31	0	31	308	51	0	38	482	8
Percent Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Flow Rate (v _{PCE}), pc/h	0	16	41	46	0	112	49	33	0	33	331	55	0	41	518	9
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	11				25				29				3			

Critical and Follow-Up Headway Adjustment													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763		
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087		

Flow Computations, Capacity and v/c Ratios													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Entry Flow (v _e), pc/h		103			194			419			568		
Entry Volume, veh/h		101			190			411			557		
Circulating Flow (v _c), pc/h	671			380			98			194			
Exiting Flow (v _{ex}), pc/h	137			91			380			676			
Capacity (C _{PCE}), pc/h		696			937			1249			1132		
Capacity (c), veh/h		681			915			1219			1110		
v/c Ratio (x)		0.15			0.21			0.34			0.50		

Delay and Level of Service													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Lane Control Delay (d), s/veh		6.9			6.0			6.1			9.0		
Lane LOS		A			A			A			A		
95% Queue, veh		0.5			0.8			1.5			2.9		
Approach Delay, s/veh	6.9			6.0			6.1			9.0			
Approach LOS	A			A			A			A			
Intersection Delay, s/veh LOS	7.4						A						

HCS7 Roundabouts Report

General Information				Site Information			
Analyst	RC		Intersection	Coquitlam Ave & Oxford St			
Agency or Co.	CTS		E/W Street Name	Coquitlam Avenue			
Date Performed	Base		N/S Street Name	Oxford Street			
Analysis Year	2020		Analysis Time Period (hrs)	0.25			
Time Analyzed	Weekday MD Peak Hour		Peak Hour Factor	0.84			
Project Description	7226 - Intersection Assessm...		Jurisdiction	Port Coquitlam, BC			


Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	7	31	34	0	41	20	10	0	15	249	38	0	23	230	12
Percent Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Flow Rate (v _{PCE}), pc/h	0	9	38	41	0	50	24	12	0	18	302	46	0	28	279	15
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	1				3				10				1			

Critical and Follow-Up Headway Adjustment															
Approach	EB			WB			NB			SB					
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios															
Approach	EB			WB			NB			SB					
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		88			86			366			322			322	
Entry Volume, veh/h		86			84			359			316			316	
Circulating Flow (v _c), pc/h	357			329			75			92					
Exiting Flow (v _{ex}), pc/h	112			57			323			370					
Capacity (C _{PCE}), pc/h		959			987			1278			1256			1256	
Capacity (c), veh/h		940			967			1252			1232			1232	
v/c Ratio (x)		0.09			0.09			0.29			0.26			0.26	

Delay and Level of Service															
Approach	EB			WB			NB			SB					
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		4.7			4.5			5.5			5.2			5.2	
Lane LOS		A			A			A			A			A	
95% Queue, veh		0.3			0.3			1.2			1.0			1.0	
Approach Delay, s/veh	4.7			4.5			5.5			5.2					
Approach LOS	A			A			A			A					
Intersection Delay, s/veh LOS	5.2						A								

HCS7 Roundabouts Report

General Information				Site Information			
Analyst	RC		Intersection	Coquitlam Ave & Oxford St			
Agency or Co.	CTS		E/W Street Name	Coquitlam Avenue			
Date Performed	Base		N/S Street Name	Oxford Street			
Analysis Year	2025		Analysis Time Period (hrs)	0.25			
Time Analyzed	Weekday MD Peak Hour		Peak Hour Factor	0.84			
Project Description	7226 - Intersection Assessm...		Jurisdiction	Port Coquitlam, BC			

Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	8	33	37	0	44	22	11	0	16	268	41	0	25	247	13
Percent Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Flow Rate (v _{PCE}), pc/h	0	10	40	45	0	53	27	13	0	19	325	50	0	30	300	16
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	1				3				10				1			

Critical and Follow-Up Headway Adjustment													
Approach	EB			WB			NB			SB			
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763		
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087		

Flow Computations, Capacity and v/c Ratios													
Approach	EB			WB			NB			SB			
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Entry Flow (v _e), pc/h		95			93			394			346		
Entry Volume, veh/h		93			91			386			339		
Circulating Flow (v _c), pc/h	383			354			80			99			
Exiting Flow (v _{ex}), pc/h	120			62			348			398			
Capacity (C _{PCE}), pc/h		934			962			1272			1247		
Capacity (c), veh/h		915			943			1245			1223		
v/c Ratio (x)		0.10			0.10			0.31			0.28		

Delay and Level of Service													
Approach	EB			WB			NB			SB			
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Lane Control Delay (d), s/veh		4.9			4.7			5.7			5.5		
Lane LOS		A			A			A			A		
95% Queue, veh		0.3			0.3			1.3			1.1		
Approach Delay, s/veh	4.9			4.7			5.7			5.5			
Approach LOS	A			A			A			A			
Intersection Delay, s/veh LOS	5.4						A						

HCS7 Roundabouts Report

General Information				Site Information				
Analyst	RC				Intersection	Coquitlam Ave & Oxford St		
Agency or Co.	CTS				E/W Street Name	Coquitlam Avenue		
Date Performed	Base				N/S Street Name	Oxford Street		
Analysis Year	2030				Analysis Time Period (hrs)	0.25		
Time Analyzed	Weekday MD Peak Hour				Peak Hour Factor	0.84		
Project Description	7226 - Intersection Assessm...				Jurisdiction	Port Coquitlam, BC		

Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	8	36	39	0	47	23	12	0	17	286	44	0	26	265	14
Percent Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Flow Rate (v_{pce}), pc/h	0	10	44	47	0	57	28	15	0	21	347	53	0	32	322	17
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	1				3				10				1			

Critical and Follow-Up Headway Adjustment													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763		
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087		

Flow Computations, Capacity and v/c Ratios													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Entry Flow (v_e), pc/h		101			100			421			371		
Entry Volume, veh/h		99			98			413			364		
Circulating Flow (v_c), pc/h	411			378			86			106			
Exiting Flow (v_{ex}), pc/h	129			66			372			426			
Capacity (C_{pce}), pc/h		907			938			1264			1239		
Capacity (c), veh/h		890			920			1238			1214		
v/c Ratio (x)		0.11			0.11			0.33			0.30		

Delay and Level of Service													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Lane Control Delay (d), s/veh		5.1			4.9			6.0			5.7		
Lane LOS		A			A			A			A		
95% Queue, veh		0.4			0.4			1.5			1.3		
Approach Delay, s/veh	5.1			4.9			6.0			5.7			
Approach LOS	A			A			A			A			
Intersection Delay, s/veh LOS	5.7						A						

HCS7 Roundabouts Report

General Information				Site Information				
Analyst	RC				Intersection	Coquitlam Ave & Oxford St		
Agency or Co.	CTS				E/W Street Name	Coquitlam Avenue		
Date Performed	Base				N/S Street Name	Oxford Street		
Analysis Year	2020				Analysis Time Period (hrs)	0.25		
Time Analyzed	Weekday PM Peak Hour				Peak Hour Factor	0.90		
Project Description	7226 - Intersection Assessm...				Jurisdiction	Port Coquitlam, BC		

Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	22	32	26	0	58	19	19	0	21	516	77	0	29	294	10
Percent Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Flow Rate (v_{pce}), pc/h	0	25	36	29	0	66	22	22	0	24	585	87	0	33	333	11
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	12				11				9				11			

Critical and Follow-Up Headway Adjustment													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763		
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087		

Flow Computations, Capacity and v/c Ratios													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Entry Flow (v_e), pc/h		90			110			696			377		
Entry Volume, veh/h		88			108			682			370		
Circulating Flow (v_c), pc/h		432			634			94			112		
Exiting Flow (v_{ex}), pc/h		156			57			632			428		
Capacity (C_{pce}), pc/h		888			723			1254			1231		
Capacity (c), veh/h		869			708			1228			1205		
v/c Ratio (x)		0.10			0.15			0.56			0.31		

Delay and Level of Service													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Lane Control Delay (d), s/veh		5.1			6.8			9.3			5.8		
Lane LOS		A			A			A			A		
95% Queue, veh		0.3			0.5			3.6			1.3		
Approach Delay, s/veh		5.1			6.8			9.3			5.8		
Approach LOS		A			A			A			A		
Intersection Delay, s/veh LOS	7.8						A						

HCS7 Roundabouts Report

General Information				Site Information			
Analyst	RC		Intersection	Coquitlam Ave & Oxford St			
Agency or Co.	CTS		E/W Street Name	Coquitlam Avenue			
Date Performed	Base		N/S Street Name	Oxford Street			
Analysis Year	2025		Analysis Time Period (hrs)	0.25			
Time Analyzed	Weekday PM Peak Hour		Peak Hour Factor	0.90			
Project Description	7226 - Intersection Assessm...		Jurisdiction	Port Coquitlam, BC			

Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	24	34	28	0	62	20	20	0	23	555	83	0	31	316	11
Percent Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Flow Rate (v _{PCE}), pc/h	0	27	39	32	0	70	23	23	0	26	629	94	0	35	358	12
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	12				11				9				11			

Critical and Follow-Up Headway Adjustment													
Approach	EB			WB			NB			SB			
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763		
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087		

Flow Computations, Capacity and v/c Ratios													
Approach	EB			WB			NB			SB			
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Entry Flow (v _e), pc/h		98			116			749			405		
Entry Volume, veh/h		96			114			734			397		
Circulating Flow (v _c), pc/h	463			682			101			119			
Exiting Flow (v _{ex}), pc/h	168			61			679			460			
Capacity (C _{PCE}), pc/h		861			688			1245			1222		
Capacity (c), veh/h		842			674			1219			1196		
v/c Ratio (x)		0.11			0.17			0.60			0.33		

Delay and Level of Service													
Approach	EB			WB			NB			SB			
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Lane Control Delay (d), s/veh		5.4			7.3			10.3			6.2		
Lane LOS		A			A			B			A		
95% Queue, veh		0.4			0.6			4.2			1.5		
Approach Delay, s/veh	5.4			7.3			10.3			6.2			
Approach LOS	A			A			B			A			
Intersection Delay, s/veh LOS	8.5						A						

HCS7 Roundabouts Report

General Information				Site Information			
Analyst	RC		Intersection	Coquitlam Ave & Oxford St			
Agency or Co.	CTS		E/W Street Name	Coquitlam Avenue			
Date Performed	Base		N/S Street Name	Oxford Street			
Analysis Year	2030		Analysis Time Period (hrs)	0.25			
Time Analyzed	Weekday PM Peak Hour		Peak Hour Factor	0.90			
Project Description	7226 - Intersection Assessm...		Jurisdiction	Port Coquitlam, BC			

Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	25	37	30	0	67	22	22	0	24	593	89	0	33	338	12
Percent Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Flow Rate (v _{PCE}), pc/h	0	28	42	34	0	76	25	25	0	27	672	101	0	37	383	14
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	12				11				9				11			

















Critical and Follow-Up Headway Adjustment													
Approach	EB			WB			NB			SB			
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763		
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087		

Flow Computations, Capacity and v/c Ratios													
Approach	EB			WB			NB			SB			
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Entry Flow (v _e), pc/h		104			126			800			434		
Entry Volume, veh/h		102			124			784			425		
Circulating Flow (v _c), pc/h	496			727			107			128			
Exiting Flow (v _{ex}), pc/h	180			66			725			493			
Capacity (C _{PCE}), pc/h		832			657			1237			1211		
Capacity (c), veh/h		814			644			1212			1186		
v/c Ratio (x)		0.13			0.19			0.65			0.36		

Delay and Level of Service													
Approach	EB			WB			NB			SB			
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Lane Control Delay (d), s/veh		5.7			7.9			11.5			6.5		
Lane LOS		A			A			B			A		
95% Queue, veh		0.4			0.7			5.0			1.7		
Approach Delay, s/veh	5.7			7.9			11.5			6.5			
Approach LOS	A			A			B			A			
Intersection Delay, s/veh LOS	9.3						A						

Lanes, Volumes, Timings
3: Oxford St & Coquitlam Ave

2020 Base
Timing Plan: Wkday AM Peak Hr

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	33	37	90	40	27	27	268	44	33	419	7
Future Volume (vph)	13	33	37	90	40	27	27	268	44	33	419	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.97			0.98			0.99			1.00	
Frt		0.940			0.977			0.983			0.998	
Flt Protected		0.992			0.972			0.996			0.996	
Satd. Flow (prot)	0	1601	0	0	1669	0	0	1716	0	0	1753	0
Flt Permitted		0.931			0.773			0.949			0.960	
Satd. Flow (perm)	0	1502	0	0	1300	0	0	1634	0	0	1688	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39			24			20			2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		316.0			253.6			101.7			98.3	
Travel Time (s)		22.8			18.3			7.3			7.1	
Confl. Peds. (#/hr)	3		29	29		3	11		25	25		11
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	88	0	0	165	0	0	356	0	0	483	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	22.9	22.9		22.9	22.9		23.2	23.2		23.2	23.2	
Total Split (s)	23.0	23.0		23.0	23.0		27.0	27.0		27.0	27.0	
Total Split (%)	46.0%	46.0%		46.0%	46.0%		54.0%	54.0%		54.0%	54.0%	
Maximum Green (s)	18.1	18.1		18.1	18.1		21.8	21.8		21.8	21.8	
Yellow Time (s)	3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.8	1.8		1.8	1.8	
Lost Time Adjust (s)		-0.9			-0.9			-1.2			-1.2	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		10.3			10.3			21.0			21.0	
Actuated g/C Ratio		0.29			0.29			0.59			0.59	
v/c Ratio		0.19			0.42			0.37			0.49	
Control Delay		7.9			13.3			7.5			9.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		7.9			13.3			7.5			9.1	
LOS		A			B			A			A	

Lanes, Volumes, Timings
3: Oxford St & Coquitlam Ave

2020 Base
Timing Plan: Wkday AM Peak Hr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		7.9			13.3			7.5			9.1	
Approach LOS		A			B			A			A	
Queue Length 50th (m)		2.0			6.2			11.3			18.0	
Queue Length 95th (m)		10.2			21.0			32.3			49.2	
Internal Link Dist (m)		292.0			229.6			77.7			74.3	
Turn Bay Length (m)												
Base Capacity (vph)		841			723			1141			1173	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.10			0.23			0.31			0.41	

Intersection Summary

















Area Type:	Other
Cycle Length:	50
Actuated Cycle Length:	35.8
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.49
Intersection Signal Delay:	9.1
Intersection LOS:	A
Intersection Capacity Utilization:	55.3%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 3: Oxford St & Coquitlam Ave



Lanes, Volumes, Timings
3: Oxford St & Coquitlam Ave

2025 Base
Timing Plan: Wkday AM Peak Hr

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	35	40	97	43	29	29	288	47	35	450	8
Future Volume (vph)	14	35	40	97	43	29	29	288	47	35	450	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.97			0.98			0.99			1.00	
Frt		0.940			0.976			0.983			0.998	
Flt Protected		0.992			0.972			0.996			0.996	
Satd. Flow (prot)	0	1601	0	0	1667	0	0	1716	0	0	1753	0
Flt Permitted		0.929			0.770			0.943			0.958	
Satd. Flow (perm)	0	1499	0	0	1294	0	0	1624	0	0	1684	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42			24			20			2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		316.0			253.6			101.7			98.3	
Travel Time (s)		22.8			18.3			7.3			7.1	
Confl. Peds. (#/hr)	3		29	29		3	11		25	25		11
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	94	0	0	178	0	0	383	0	0	519	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	22.9	22.9		22.9	22.9		23.2	23.2		23.2	23.2	
Total Split (s)	22.9	22.9		22.9	22.9		27.1	27.1		27.1	27.1	
Total Split (%)	45.8%	45.8%		45.8%	45.8%		54.2%	54.2%		54.2%	54.2%	
Maximum Green (s)	18.0	18.0		18.0	18.0		21.9	21.9		21.9	21.9	
Yellow Time (s)	3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.8	1.8		1.8	1.8	
Lost Time Adjust (s)		-0.9			-0.9			-1.2			-1.2	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		10.8			10.8			21.8			21.8	
Actuated g/C Ratio		0.29			0.29			0.59			0.59	
v/c Ratio		0.20			0.45			0.40			0.52	
Control Delay		8.1			14.1			7.9			9.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		8.1			14.1			7.9			9.8	
LOS		A			B			A			A	

Lanes, Volumes, Timings
3: Oxford St & Coquitlam Ave

2025 Base
Timing Plan: Wkday AM Peak Hr

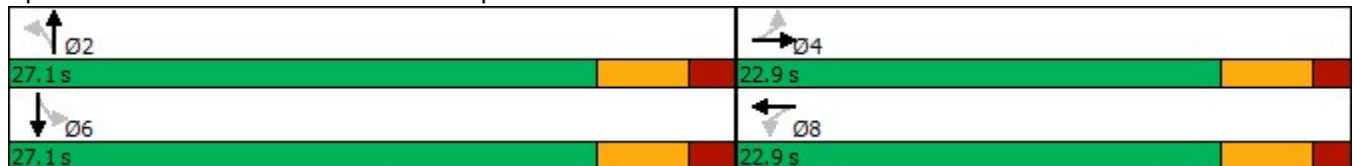


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		8.1			14.1			7.9			9.8	
Approach LOS		A			B			A			A	
Queue Length 50th (m)		2.3			7.3			13.1			21.0	
Queue Length 95th (m)		10.6			22.7			37.2			57.0	
Internal Link Dist (m)		292.0			229.6			77.7			74.3	
Turn Bay Length (m)												
Base Capacity (vph)		816			699			1111			1146	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.12			0.25			0.34			0.45	

Intersection Summary

















Area Type:	Other
Cycle Length:	50
Actuated Cycle Length:	37
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.52
Intersection Signal Delay:	9.7
Intersection LOS:	A
Intersection Capacity Utilization	58.3%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 3: Oxford St & Coquitlam Ave



Lanes, Volumes, Timings
3: Oxford St & Coquitlam Ave

2030 Base
Timing Plan: Wkday AM Peak Hr

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	38	43	104	46	31	31	308	51	38	482	8
Future Volume (vph)	15	38	43	104	46	31	31	308	51	38	482	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.97			0.97			0.99			1.00	
Frt		0.940			0.977			0.982			0.998	
Flt Protected		0.992			0.972			0.996			0.996	
Satd. Flow (prot)	0	1598	0	0	1668	0	0	1713	0	0	1753	0
Flt Permitted		0.930			0.772			0.940			0.955	
Satd. Flow (perm)	0	1498	0	0	1296	0	0	1616	0	0	1679	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		45			21			20			2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		316.0			253.6			101.7			98.3	
Travel Time (s)		22.8			18.3			7.3			7.1	
Confl. Peds. (#/hr)	3		29	29		3	11		25	25		11
Confl. Bikes (#/hr)			1			1			1			1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	101	0	0	190	0	0	411	0	0	555	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	22.9	22.9		22.9	22.9		23.2	23.2		23.2	23.2	
Total Split (s)	22.9	22.9		22.9	22.9		32.1	32.1		32.1	32.1	
Total Split (%)	41.6%	41.6%		41.6%	41.6%		58.4%	58.4%		58.4%	58.4%	
Maximum Green (s)	18.0	18.0		18.0	18.0		26.9	26.9		26.9	26.9	
Yellow Time (s)	3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.8	1.8		1.8	1.8	
Lost Time Adjust (s)		-0.9			-0.9			-1.2			-1.2	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		11.7			11.9			23.8			23.8	
Actuated g/C Ratio		0.29			0.30			0.60			0.60	
v/c Ratio		0.21			0.47			0.42			0.55	
Control Delay		8.9			15.7			8.4			10.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		8.9			15.7			8.4			10.5	
LOS		A			B			A			B	

Lanes, Volumes, Timings
3: Oxford St & Coquitlam Ave

2030 Base
Timing Plan: Wkday AM Peak Hr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		8.9			15.7			8.4			10.5	
Approach LOS		A			B			A			B	
Queue Length 50th (m)		2.7			8.9			15.3			24.4	
Queue Length 95th (m)		12.6			28.1			44.0			67.9	
Internal Link Dist (m)		292.0			229.6			77.7			74.3	
Turn Bay Length (m)												
Base Capacity (vph)		777			664			1210			1253	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.13			0.29			0.34			0.44	

















Intersection Summary	
Area Type:	Other
Cycle Length:	55
Actuated Cycle Length:	39.9
Natural Cycle:	55
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.55
Intersection Signal Delay:	10.5
Intersection LOS:	B
Intersection Capacity Utilization:	61.7%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 3: Oxford St & Coquitlam Ave



Lanes, Volumes, Timings
3: Oxford St & Coquitlam Ave

2020 Base
Timing Plan: Wkday MD Peak Hr

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	31	34	41	20	10	15	249	38	23	230	12
Future Volume (vph)	7	31	34	41	20	10	15	249	38	23	230	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.99			1.00			1.00	
Frt		0.936			0.981			0.983			0.994	
Flt Protected		0.995			0.972			0.997			0.996	
Satd. Flow (prot)	0	1618	0	0	1678	0	0	1724	0	0	1745	0
Flt Permitted		0.955			0.788			0.979			0.958	
Satd. Flow (perm)	0	1552	0	0	1350	0	0	1693	0	0	1678	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40			12			19			6	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		316.0			253.6			101.7			98.3	
Travel Time (s)		22.8			18.3			7.3			7.1	
Confl. Peds. (#/hr)	1		10	10		1	1		3	3		1
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	85	0	0	85	0	0	359	0	0	315	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	22.9	22.9		22.9	22.9		23.2	23.2		23.2	23.2	
Total Split (s)	23.0	23.0		23.0	23.0		27.0	27.0		27.0	27.0	
Total Split (%)	46.0%	46.0%		46.0%	46.0%		54.0%	54.0%		54.0%	54.0%	
Maximum Green (s)	18.1	18.1		18.1	18.1		21.8	21.8		21.8	21.8	
Yellow Time (s)	3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.8	1.8		1.8	1.8	
Lost Time Adjust (s)		-0.9			-0.9			-1.2			-1.2	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		8.0			8.2			22.7			22.7	
Actuated g/C Ratio		0.28			0.28			0.79			0.79	
v/c Ratio		0.19			0.22			0.27			0.24	
Control Delay		6.6			9.0			4.3			4.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		6.6			9.0			4.3			4.3	
LOS		A			A			A			A	

Lanes, Volumes, Timings
3: Oxford St & Coquitlam Ave

2020 Base
Timing Plan: Wkday MD Peak Hr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		6.6			9.0			4.3			4.3	
Approach LOS		A			A			A			A	
Queue Length 50th (m)		0.9			1.5			0.0			0.0	
Queue Length 95th (m)		7.4			9.1			22.2			19.9	
Internal Link Dist (m)		292.0			229.6			77.7			74.3	
Turn Bay Length (m)												
Base Capacity (vph)		1066			919			1485			1470	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.08			0.09			0.24			0.21	

Intersection Summary

















Area Type:	Other
Cycle Length:	50
Actuated Cycle Length:	28.8
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.27
Intersection Signal Delay:	5.0
Intersection LOS:	A
Intersection Capacity Utilization:	39.8%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 3: Oxford St & Coquitlam Ave



Lanes, Volumes, Timings
3: Oxford St & Coquitlam Ave

2025 Base
Timing Plan: Wkday MD Peak Hr

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	33	37	44	22	11	16	268	41	25	247	13
Future Volume (vph)	8	33	37	44	22	11	16	268	41	25	247	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.99			1.00			1.00	
Frt		0.936			0.981			0.983			0.994	
Flt Protected		0.995			0.972			0.998			0.996	
Satd. Flow (prot)	0	1617	0	0	1678	0	0	1726	0	0	1745	0
Flt Permitted		0.947			0.786			0.978			0.953	
Satd. Flow (perm)	0	1539	0	0	1347	0	0	1691	0	0	1670	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44			13			19			6	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		316.0			253.6			101.7			98.3	
Travel Time (s)		22.8			18.3			7.3			7.1	
Confl. Peds. (#/hr)	1		10	10		1	1		3	3		1
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	93	0	0	91	0	0	387	0	0	339	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	22.9	22.9		22.9	22.9		23.2	23.2		23.2	23.2	
Total Split (s)	23.0	23.0		23.0	23.0		27.0	27.0		27.0	27.0	
Total Split (%)	46.0%	46.0%		46.0%	46.0%		54.0%	54.0%		54.0%	54.0%	
Maximum Green (s)	18.1	18.1		18.1	18.1		21.8	21.8		21.8	21.8	
Yellow Time (s)	3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.8	1.8		1.8	1.8	
Lost Time Adjust (s)		-0.9			-0.9			-1.2			-1.2	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		8.1			8.5			23.2			23.2	
Actuated g/C Ratio		0.28			0.29			0.79			0.79	
v/c Ratio		0.20			0.23			0.29			0.26	
Control Delay		6.8			9.4			4.5			4.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		6.8			9.4			4.5			4.4	
LOS		A			A			A			A	

Lanes, Volumes, Timings
3: Oxford St & Coquitlam Ave

2025 Base
Timing Plan: Wkday MD Peak Hr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		6.8			9.4			4.5			4.4	
Approach LOS		A			A			A			A	
Queue Length 50th (m)		1.0			1.5			0.0			0.0	
Queue Length 95th (m)		8.3			10.3			25.3			22.5	
Internal Link Dist (m)		292.0			229.6			77.7			74.3	
Turn Bay Length (m)												
Base Capacity (vph)		1049			910			1465			1445	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.09			0.10			0.26			0.23	

Intersection Summary

















Area Type:	Other
Cycle Length:	50
Actuated Cycle Length:	29.3
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.29
Intersection Signal Delay:	5.2
Intersection LOS:	A
Intersection Capacity Utilization	41.9%
ICU Level of Service	A
Analysis Period (min)	15

Splits and Phases: 3: Oxford St & Coquitlam Ave



Lanes, Volumes, Timings
3: Oxford St & Coquitlam Ave

2030 Base
Timing Plan: Wkday MD Peak Hr

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	36	39	47	23	12	17	286	44	26	265	14
Future Volume (vph)	8	36	39	47	23	12	17	286	44	26	265	14
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.99			1.00			1.00	
Frt		0.937			0.981			0.983			0.994	
Flt Protected		0.995			0.972			0.998			0.996	
Satd. Flow (prot)	0	1620	0	0	1678	0	0	1726	0	0	1745	0
Flt Permitted		0.950			0.766			0.976			0.951	
Satd. Flow (perm)	0	1546	0	0	1313	0	0	1688	0	0	1666	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		46			14			19			7	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		316.0			253.6			101.7			98.3	
Travel Time (s)		22.8			18.3			7.3			7.1	
Confl. Peds. (#/hr)	1		10	10		1	1		3	3		1
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	99	0	0	97	0	0	412	0	0	363	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	22.9	22.9		22.9	22.9		23.2	23.2		23.2	23.2	
Total Split (s)	23.0	23.0		23.0	23.0		27.0	27.0		27.0	27.0	
Total Split (%)	46.0%	46.0%		46.0%	46.0%		54.0%	54.0%		54.0%	54.0%	
Maximum Green (s)	18.1	18.1		18.1	18.1		21.8	21.8		21.8	21.8	
Yellow Time (s)	3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.8	1.8		1.8	1.8	
Lost Time Adjust (s)		-0.9			-0.9			-1.2			-1.2	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		8.3			8.5			21.6			21.6	
Actuated g/C Ratio		0.26			0.27			0.69			0.69	
v/c Ratio		0.22			0.27			0.35			0.32	
Control Delay		7.8			11.0			5.9			5.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		7.8			11.0			5.9			5.8	
LOS		A			B			A			A	

Lanes, Volumes, Timings
3: Oxford St & Coquitlam Ave

2030 Base
Timing Plan: Wkday MD Peak Hr

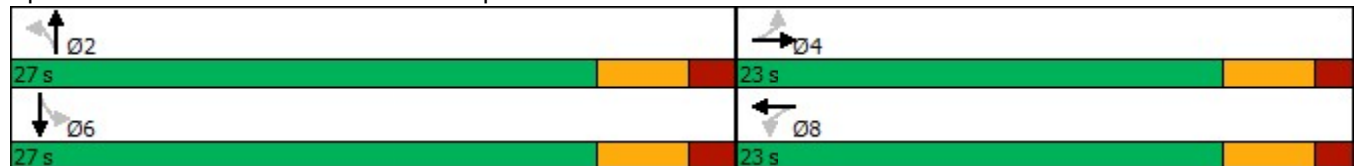


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		7.8			11.0			5.9			5.8	
Approach LOS		A			B			A			A	
Queue Length 50th (m)		1.8			3.0			11.6			10.2	
Queue Length 95th (m)		9.7			11.9			27.9			24.9	
Internal Link Dist (m)		292.0			229.6			77.7			74.3	
Turn Bay Length (m)												
Base Capacity (vph)		971			815			1371			1351	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.10			0.12			0.30			0.27	

Intersection Summary

















Area Type:	Other
Cycle Length:	50
Actuated Cycle Length:	31.5
Natural Cycle:	50
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.35
Intersection Signal Delay:	6.5
Intersection LOS:	A
Intersection Capacity Utilization:	43.6%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 3: Oxford St & Coquitlam Ave



Lanes, Volumes, Timings
3: Oxford St & Coquitlam Ave

2020 Base
Timing Plan: Wkday PM Peak Hr

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	32	26	58	19	19	21	516	77	29	294	10
Future Volume (vph)	22	32	26	58	19	19	21	516	77	29	294	10
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.98			0.99			1.00	
Frt		0.956			0.973			0.983			0.996	
Flt Protected		0.987			0.971			0.998			0.996	
Satd. Flow (prot)	0	1645	0	0	1655	0	0	1723	0	0	1748	0
Flt Permitted		0.887			0.790			0.984			0.928	
Satd. Flow (perm)	0	1472	0	0	1336	0	0	1698	0	0	1628	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29			21			19			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		316.0			253.6			101.7			98.3	
Travel Time (s)		22.8			18.3			7.3			7.1	
Confl. Peds. (#/hr)	11		9	9		11	12		11	11		12
Confl. Bikes (#/hr)			2						1			2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	89	0	0	106	0	0	682	0	0	370	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	22.9	22.9		22.9	22.9		23.2	23.2		23.2	23.2	
Total Split (s)	22.9	22.9		22.9	22.9		37.1	37.1		37.1	37.1	
Total Split (%)	38.2%	38.2%		38.2%	38.2%		61.8%	61.8%		61.8%	61.8%	
Maximum Green (s)	18.0	18.0		18.0	18.0		31.9	31.9		31.9	31.9	
Yellow Time (s)	3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.8	1.8		1.8	1.8	
Lost Time Adjust (s)		-0.9			-0.9			-1.2			-1.2	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		9.5			9.5			28.0			28.0	
Actuated g/C Ratio		0.23			0.23			0.67			0.67	
v/c Ratio		0.25			0.33			0.59			0.34	
Control Delay		13.0			15.9			8.6			5.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		13.0			15.9			8.6			5.8	
LOS		B			B			A			A	

Lanes, Volumes, Timings
 3: Oxford St & Coquitlam Ave

2020 Base
 Timing Plan: Wkday PM Peak Hr

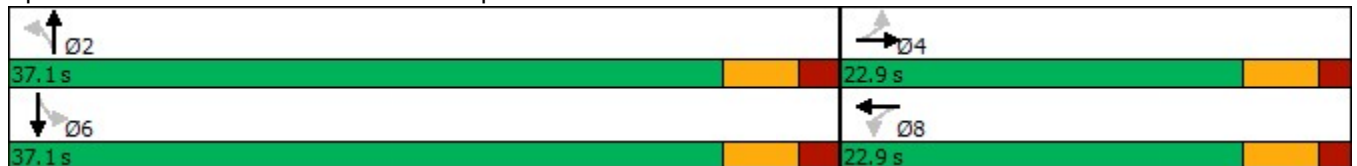


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		13.0			15.9			8.6			5.8	
Approach LOS		B			B			A			A	
Queue Length 50th (m)		3.3			4.7			26.7			11.6	
Queue Length 95th (m)		14.5			18.2			68.9			29.6	
Internal Link Dist (m)		292.0			229.6			77.7			74.3	
Turn Bay Length (m)												
Base Capacity (vph)		716			647			1363			1304	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.12			0.16			0.50			0.28	

Intersection Summary

















Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	41.6
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.59
Intersection Signal Delay:	8.7
Intersection LOS:	A
Intersection Capacity Utilization	58.2%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 3: Oxford St & Coquitlam Ave



Lanes, Volumes, Timings
3: Oxford St & Coquitlam Ave

2025 Base
Timing Plan: Wkday PM Peak Hr

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	34	28	62	20	20	23	555	83	31	316	11
Future Volume (vph)	24	34	28	62	20	20	23	555	83	31	316	11
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.98			0.99			1.00	
Frt		0.956			0.974			0.983			0.996	
Flt Protected		0.986			0.970			0.998			0.996	
Satd. Flow (prot)	0	1644	0	0	1655	0	0	1723	0	0	1748	0
Flt Permitted		0.901			0.827			0.981			0.922	
Satd. Flow (perm)	0	1496	0	0	1400	0	0	1693	0	0	1618	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			21			19			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		316.0			253.6			101.7			98.3	
Travel Time (s)		22.8			18.3			7.3			7.1	
Confl. Peds. (#/hr)	11		9	9		11	12		11	11		12
Confl. Bikes (#/hr)			2						1			2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	96	0	0	113	0	0	735	0	0	397	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	22.9	22.9		22.9	22.9		23.2	23.2		23.2	23.2	
Total Split (s)	22.9	22.9		22.9	22.9		37.1	37.1		37.1	37.1	
Total Split (%)	38.2%	38.2%		38.2%	38.2%		61.8%	61.8%		61.8%	61.8%	
Maximum Green (s)	18.0	18.0		18.0	18.0		31.9	31.9		31.9	31.9	
Yellow Time (s)	3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.8	1.8		1.8	1.8	
Lost Time Adjust (s)		-0.9			-0.9			-1.2			-1.2	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		9.8			9.8			30.4			30.4	
Actuated g/C Ratio		0.22			0.22			0.69			0.69	
v/c Ratio		0.27			0.35			0.63			0.36	
Control Delay		13.9			17.0			9.3			5.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		13.9			17.0			9.3			5.9	
LOS		B			B			A			A	

Lanes, Volumes, Timings
3: Oxford St & Coquitlam Ave

2025 Base
Timing Plan: Wkday PM Peak Hr

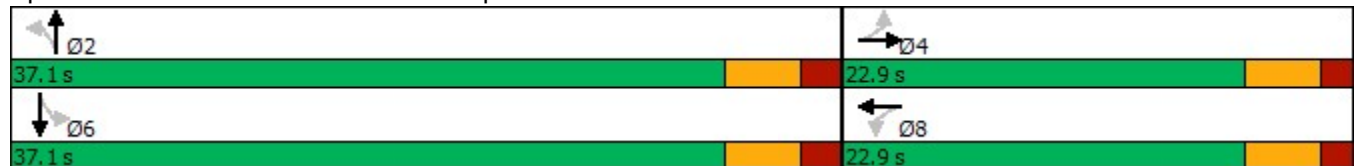


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		13.9			17.0			9.3			5.9	
Approach LOS		B			B			A			A	
Queue Length 50th (m)		4.0			5.8			32.3			13.4	
Queue Length 95th (m)		15.2			19.1			82.4			33.5	
Internal Link Dist (m)		292.0			229.6			77.7			74.3	
Turn Bay Length (m)												
Base Capacity (vph)		686			638			1291			1231	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.14			0.18			0.57			0.32	

Intersection Summary

















Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	44.3
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.63
Intersection Signal Delay:	9.3
Intersection LOS:	A
Intersection Capacity Utilization:	61.7%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 3: Oxford St & Coquitlam Ave



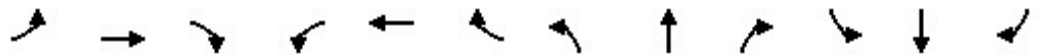
Lanes, Volumes, Timings
3: Oxford St & Coquitlam Ave

2030 Base
Timing Plan: Wkday PM Peak Hr

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	37	30	67	22	22	24	593	89	33	338	12
Future Volume (vph)	25	37	30	67	22	22	24	593	89	33	338	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98			0.98			0.99			1.00	
Frt		0.956			0.973			0.983			0.996	
Flt Protected		0.986			0.971			0.998			0.996	
Satd. Flow (prot)	0	1644	0	0	1655	0	0	1723	0	0	1748	0
Flt Permitted		0.907			0.830			0.981			0.914	
Satd. Flow (perm)	0	1506	0	0	1404	0	0	1693	0	0	1604	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33			21			19			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		316.0			253.6			101.7			98.3	
Travel Time (s)		22.8			18.3			7.3			7.1	
Confl. Peds. (#/hr)	11		9	9		11	12		11	11		12
Confl. Bikes (#/hr)			2						1			2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	102	0	0	122	0	0	785	0	0	426	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	22.9	22.9		22.9	22.9		23.2	23.2		23.2	23.2	
Total Split (s)	22.9	22.9		22.9	22.9		37.1	37.1		37.1	37.1	
Total Split (%)	38.2%	38.2%		38.2%	38.2%		61.8%	61.8%		61.8%	61.8%	
Maximum Green (s)	18.0	18.0		18.0	18.0		31.9	31.9		31.9	31.9	
Yellow Time (s)	3.4	3.4		3.4	3.4		3.4	3.4		3.4	3.4	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.8	1.8		1.8	1.8	
Lost Time Adjust (s)		-0.9			-0.9			-1.2			-1.2	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		10.2			10.2			31.7			31.7	
Actuated g/C Ratio		0.22			0.22			0.69			0.69	
v/c Ratio		0.28			0.37			0.67			0.38	
Control Delay		14.2			17.9			10.8			6.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		14.2			17.9			10.8			6.3	
LOS		B			B			B			A	

Lanes, Volumes, Timings
3: Oxford St & Coquitlam Ave

2030 Base
Timing Plan: Wkday PM Peak Hr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		14.3			17.9			10.8			6.3	
Approach LOS		B			B			B			A	
Queue Length 50th (m)		4.9			7.3			37.7			15.3	
Queue Length 95th (m)		15.9			20.4			#108.0			38.3	
Internal Link Dist (m)		292.0			229.6			77.7			74.3	
Turn Bay Length (m)												
Base Capacity (vph)		666			616			1255			1185	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.15			0.20			0.63			0.36	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	45.9
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.67
Intersection Signal Delay:	10.3
Intersection LOS:	B
Intersection Capacity Utilization:	65.4%
ICU Level of Service:	C
Analysis Period (min):	15
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.	

Splits and Phases: 3: Oxford St & Coquitlam Ave

