AGENDA
Community Planning Advisory Committee
Wednesday, October 30, 2019 at 6:00 p.m.
Council Chambers, City Hall

***Mandate*: The mandate of the committee is to provide feedback to applicants and advice to Council on land use applications, policies, regulations and initiatives referred either directly by Council or through the Development Approval Procedures Bylaw.**

1. **AGENDA APPROVAL**

2. **ADOPTION OF JULY 3, 2019 MINUTES***

3. **COUNCIL REFERRALS**
   a. **Zoning Bylaw Amendment Application 3360-19-08***
      204 Dogwood Drive – Rod Alsop

   b. **Zoning Bylaw Amendment Application 3360-19-07***
      336 Belaire Street – Angela Quek (AYPQ Architecture)

4. **NEW BUSINESS**
   None.

5. **MONTHLY BRIEFING**
   (Jake Belobaba)

6. **NEXT MEETING - TBD**

7. **ADJOURNMENT**

***Attachments**

MINUTES
Community Planning Advisory Committee (CPAC)
Wednesday, July 3, 2019 at 7:00 p.m.
Council Chambers, City Hall

PRESENT: Members – Tamara Hutchinson, Brian Childs, Jason Harrison, Jennifer Sibbald, Lacey McRae Williams, Steve Frankel, Tony Beckett; Council Liaison – Tricia McKay; Planner & Recorder – Lisa Brinkman

ABSENT: n/a

GUEST: Lorne & Verna Hastings (applicants)
Tara Laffin (applicant), Victor and Donna Laffin

The meeting was called to order at 7:00 p.m.

1. WELCOME, INTRODUCTION & ORIENTATION

Community Planning Advisory Committee (CPAC) members introduced themselves. L. Brinkman welcomed the members and provided a summary of the purpose of CPAC and the contents of the CPAC binder.

2. ELECTION OF CHAIR

Lacey McRae Williams volunteered to be Chair of the Community Planning Advisory Committee.

It was moved, seconded and carried that Lacey McRae Williams be acclaimed as Chair of the Community Planning Advisory Committee.

3. AGENDA APPROVAL

It was moved, seconded and carried that the Agenda of July 3, 2019 be approved.

4. COUNCIL REFERRALS

a. Zoning Bylaw Amendment Application 3360-19-05
1134 Trans Canada Highway

Planner Brinkman provided a summary of the application. CPAC members asked questions and discussed the proposal. The applicant, Verna Hastings, answered questions.

It was moved, seconded and carried that the Community Planning Advisory Committee recommends support for the proposal to allow a child care facility as a principal use at 1134 Trans Canada Highway.

OPPOSED: L. McRae Williams and T. Beckett

b. <u>Zoning Bylaw Amendment application 3360-19-06</u>
<u>341 Dogwood Drive</u>
Planner Brinkman provided a summary of the application. CPAC members asked questions and discussed the proposal. The applicant, Tara Laffin, answered questions.

It was moved, seconded and carried that the Community Planning Advisory Committee recommends support in principal for the proposal to allow a coach house as an accessory use at 341 Dogwood Drive, with further consideration regarding coach house size, height, and property access.

5. NEW BUSINESS
None

6. MONTHLY BRIEFING
None

7. NEXT MEETING
CPAC meetings will be held on the first Wednesday of the month at 7:00 p.m. as needed.

8. ADJOURNMENT
It was moved, seconded and carried that the meeting be adjourned at 8:45 p.m.

_____
Chair (L. McRae Williams)

RECEIVED:

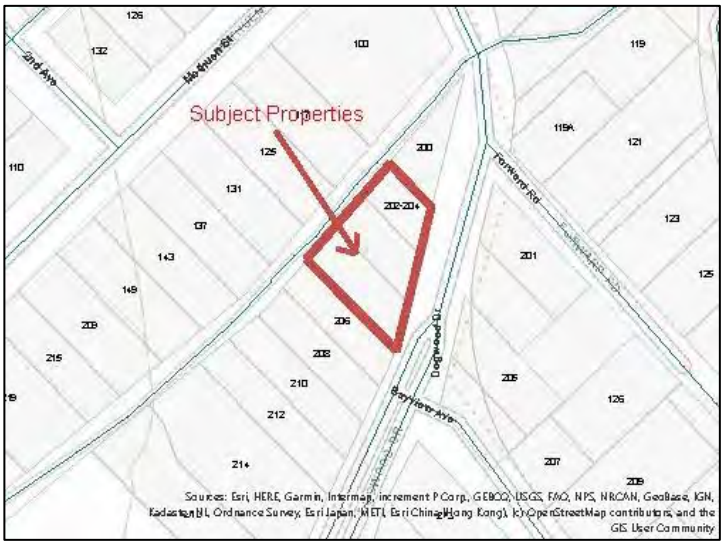
_____
Corporate Officer (J. Winter)

STAFF REPORT TO CPAC

Report Prepared By: Julie Thompson, Planner
Date: October 18, 2019
Meeting Date: October 30, 2019
File No: 3360-19-08
RE: OCP & ZONING BYLAW AMENDMENT APPLICATION
204 DOGWOOD DRIVE

PURPOSE:

The purpose of this staff report is to introduce an application for a Zoning Bylaw and Official Community Plan amendment to allow a Neighbourhood Pub use on an existing commercial property at 204 Dogwood Drive. Council is seeking the Community Planning Advisory Committee's (CPAC) comments regarding the proposal.



INTRODUCTION/BACKGROUND:

An application has been received to amend the Official Community Plan (OCP) and Zoning Bylaw to establish a pub and micro-brewery within an existing building on 204 Dogwood Drive. The building is unique, consisting of a 2.5 storey, 501m² dwelling with an attached single-storey commercial space which currently contains a barbershop. The applicant is proposing to add floor area to the existing commercial space to accommodate both the proposed pub and the barbershop. Additional storeys to the building are not proposed. The attached commercial building and dwelling straddle three separate parcels, all of which are currently zoned Local Commercial (C-1). The applicant intends to consolidate the parcels if the proposed OCP and Zoning Bylaw amendments proceed. The combined size of all three parcels (hereafter referred to as the "subject property") is 1577.68m² (0.158 ha).

The applicant has submitted renderings showing the proposed development which are attached to this report.

DISCUSSION:

Official Community Plan:

The subject property is designated as Local Commercial under the OCP. The Local Commercial designation supports:

> *"small scale commercial centres located within and serving the daily needs of the surrounding residential population in neighbourhoods. It provides for a limited range of retail, office, and service uses, which do not compete with the commercial uses in the downtown core. The maximum density allowed in a Local Commercial designation is up to 0.5 FSR for commercial uses. The maximum floor area for any one commercial use is limited to 200 square metres."*

There are no neighbourhood pubs with a micro-brewery currently located within the downtown core. It is noted that an OCP and Zoning Bylaw amendment for a mixed-use development with a micro-brewery is currently underway at 336 Belaire Drive.

Two out of the three parcels that make up the subject property are within the Commercial Development Permit Area (DPA 3). The most western parcel is not located within a DPA. It is therefore proposed to amend the OCP to include this parcel into DPA 3. The objective of DPA 3 is to:

> *"enhance highway commercial, tourist commercial, general commercial, and neighbourhood commercial development in Ladysmith and ensure that commercial development is complementary to the existing character of Ladysmith, and aligned with the Town's vision for future growth."*

Prior to improvements to the existing building, a development permit (DP) would be required.

Zoning:

The subject property is currently zoned Local Commercial (C-1) which permits the following principal uses: Single Unit Dwelling, Convenience Store, Restaurant, Coffee Shop, Personal Service Establishment, Office, and Artist Studio. The existing barbershop falls under the Personal Service Establishment use.

To accommodate the proposed development, a site-specific amendment to the C-1 zone is proposed to permit Neighbourhood Pub as a principal use on the subject property. The Zoning Bylaw defines Neighbourhood Pub as *"a liquor primary establishment licensed as such under the Liquor Control and Licensing Act, and may include a Micro-Brewery and a wine bar."*

The applicant is proposing a gross floor area of 104m² for the pub area (excluding the outdoor patio), whereas the barbershop is proposed to be 28m² in size. The maximum gross floor area for any one commercial use in the C-1 zone is 100m². The applicant is considering reconfiguring the floor area of the commercial uses to work within the existing parameters of the zone, but alternatively the zone can be amended on a site specific basis to accommodate the proposed gross floor area for each commercial use.

Existing Zoning Non-Conformity:
The siting of the existing principal building on the subject property does not conform to existing Zoning Bylaw siting requirements. However, the building is permitted to exist in its current state, pursuant to section 529 of the *Local Government Act (LGA)*, as it was constructed before the adoption of the Zoning Bylaw. As the existing uses within the building conform to Zoning Bylaw regulations, the building may also be maintained, extended or altered provided that these changes do not increase the degree of non-conformity. As such, the proposed alterations to the building and the existing and proposed uses would be permitted under section 529 of the *LGA*, should the application proceed, as they do not increase the building's degree of non-conformity. It is noted that section 529 of the *LGA* allows the building to be maintained indefinitely in its current siting; however, if the building is ever completely destroyed or dismantled, a new building must conform to current Zoning Bylaw regulations.

If the applicant wishes to bring the building into compliance with current Zoning Bylaw regulations, it is recommended that this be done through a Development Variance Permit (DVP) where conditions or a site plan can be included in the permit. The applicant has been advised of the non-conforming status of the building and does not wish to seek a DVP to bring the building into conformity with current regulations at this time.

Parking Requirements:
The proposed pub has 36 seats inside and 20 seats on the outdoor patio. In accordance with the parking and loading regulations of the Zoning Bylaw, a neighbourhood pub requires one parking space for every 5 seats. The proposed pub requires 11 spaces. One space for persons with disabilities, one space for the barbershop and one space for the existing dwelling are also required. In total 14 parking spaces are required for the proposed development. No loading spaces are required. The applicant is proposing to provide the commercial parking spaces in the existing parking lot in front of the commercial building, accessed from Dogwood Drive. Residential parking is presently accommodated off the rear lane on the east side of the property. It is noted that in accordance with the Commercial Development Permit Area (DPA 3) guidelines,

> *"the minimum off-street parking requirements of the Zoning Bylaw may be reduced, or altered through the Development Permit Approval process, where strict compliance with the regulations would undermine the character of the area."*

The applicant is planning to provide the required number of parking spaces for the proposed development; however, landscaping regulations of the Zoning Bylaw require shade trees to be located within the commercial parking area. As such, the shade tree requirements may take space away that would otherwise be used for parking. The approximate number of shade trees required in the parking area is one or two depending on the size of the tree at planting. The exact configuration of the parking area and shade trees will be worked out at the DP stage; however, it is not anticipated that the required number of parking spaces will be reduced through issuance of the DP by more than one space.

Traffic:
Preliminary discussions with the Infrastructure Services Department indicate that there are no significant concerns with regards to traffic impacts. However, vehicle access to and from the site was discussed at the October 21 Council meeting[1]. As such, CPAC may wish to examine this topic further.

Landscaping Requirements:
In addition to shade trees, the landscaping and screening regulations in the Zoning Bylaw require landscape buffers for the proposed development because the subject property is commercially zoned and abuts parcels zoned to allow residential use (residentially zoned parcels abut the western and eastern sides of the subject property). A landscape buffer is therefore required for both the western and eastern sides of the subject property. However, because the eastern side of the subject property is used strictly for residential purposes, the required landscape buffer along this property boundary would be inconsistent with the intent of the landscape buffer requirements (i.e. to buffer residential uses from commercial uses). As such, an amendment to the OCP is proposed whereby a guideline is added to DPA 3 to allow for variances to the Zoning Bylaw landscaping requirements through the development permit approval process, where strict compliance with the regulations would undermine the character of the area. If Council allows staff to proceed, a separate OCP amending bylaw will be drafted.

Summary:
The application is summarized in Table 1, below. For the purposes of the Zoning Bylaw amendment, all three parcels that make up the subject property are treated as if they have been consolidated into a single 1577.68m^2 (0.158 ha) parcel.

Table 1: Application Summary

	Current Regulations	**Proposed Development**	**Proposed Zoning/OCP Regulations**
Official Community Plan	**Local Commercial**	**Local Commercial**	**Local Commercial**
Development Permit Area	Commercial DPA on 2/3 parcels	Commercial DPA on 3/3 parcels	Commercial DPA on 3/3 parcels Add a guideline to DPA 3 to allow for variances to the Zoning Bylaw landscaping requirements
Zoning	Local Commercial (C-1)	C-1 with site specific regulations	C-1 with site specific regulations
Principal Uses	Single Unit Dwelling Convenience Store Restaurant Coffee Shop Personal Service Establishment	Single Unit Dwelling Personal Service Establishment Neighbourhood Pub (site specific)	Single Unit Dwelling Convenience Store Restaurant Coffee Shop Personal Service Establishment

[1] Link to October 21, 2019 Council meeting video: https://www.ladysmith.ca/city-hall/mayor-council/council-video-archive/2019-council-videos/october-21-2019-cm

	Current Regulations	Proposed Development	Proposed Zoning/OCP Regulations
Principal Uses (cont'd)	Office Artist Studio		Office Artist Studio Neighbourhood Pub (site specific)
Density of Residential Uses	One Single Unit Dwelling One Secondary Suite	One Single Unit Dwelling (existing)	One Single Unit Dwelling (existing) One Secondary Suite
Size and Density of Commercial Uses			
Gross Floor Area	100m² per commercial use	Neighbourhood Pub– 104m² Barbershop – 28m²	Site specific – TBD Site specific – TBD
Floor Space Ratio	0.5	Approx. 0.45	0.5
Parcel Coverage	40% for building used for commercial use	Approx. 12% for commercial building	40% for building used for commercial use
Height Buildings containing commercial uses	9m	Building addition: approx. 5m	9m
Principal Building Setbacks from Parcel Lines			
Front	6m	>6m	6m
Interior or Exterior Side	3m	>3m	3m
Other Interior Side	1.5m	1.5m	1.5m
Rear	3m	0m	3m
Landscaping & Screening	3m or 1.5m wide landscape buffer along the east and west side property lines	A 1.5m wide landscape buffer along the west side property line	3m or 1.5m wide landscape buffer along the east and west side property lines, to be varied through the development permit approval process as permitted by a proposed DPA 3 guideline

SUMMARY:

An application has been received to amend the OCP and the Zoning Bylaw to establish a pub and micro-brewery (Neighbourhood Pub) within an existing building on 204 Dogwood Drive. Council is seeking CPAC's comments regarding the proposal.

ATTACHMENT(S):

Conceptual Design Renderings
Proposed Site Plan

CONSTRUCTION NOTES

(UNLESS OTHERWISE NOTED)
• ALL CONSTRUCTION TO CONFORM TO THE 2018 BRITISH COLUMBIA BUILDING CODES AND ALL OTHER CODES AND LOCAL AUTHORITIES HAVING JURISDICTION


Plan View

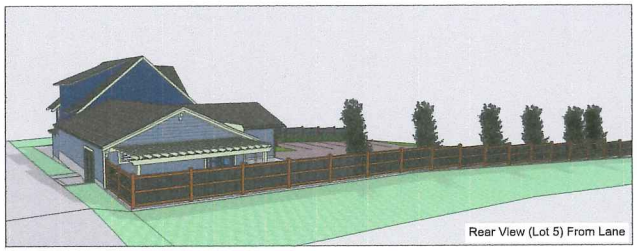

Bird's Eye View From Dogwood Drive


Front View From Dogwood Drive


Side View (Lot 5) From Dogwood Drive


Side View (Lot 3) From Dogwood Drive


Front View From Parking Lot - Close-up


Rear View (Lot 5) From Lane


Front View From Parking Lot - Close-up


Front View From Parking Lot

EXTERNAL WALLS – FIBER CEMENT SIDING

WALLS – STUCCO SYSTEM TO MATCH EXISTING RESIDENCE
GABLES – FIBER CEMENT SHINGLE PANELS

1x4 COMBED PRIMED TRIM AROUND DOORS & WINDOWS
1x8 COMBED PRIMED GARAGE DOOR
1x8/1x4.75" COMBED PRIMED TRIM OUTER CORNERS

1x8 PAINTED COMBED PRIMED FASCIA BOARDS

ROOFING 35 YEAR LAMINATED FIBERGLASS SHINGLES

5" ALUMINUM GUTTER & DOWN SPOUT
ALUMINUM/PVC SOFFITS

GABLE TRIM ASSEMBLY
GABLE METAL FLASHING – 1x4 SHADOW BOARD ON 2x10 RAKE BOARD, 10° RAKE TAIL

SURFACE – DRIVEWAY/PARKING LOT
ASPHALT

SURFACE – WALKWAY
CONCRETE – EXPOSED AGGREGATE

SURFACE – PATIO & FRONT OF BREW PUB
CONCRETE – EXPOSED AGGREGATE

ALL PRODUCTS USED MUST BE INSTALLED TO MANUFACTURER'S SPECIFICATION & LAYOUT

ALL DIMENSIONS HAVE TO BE CONFIRMED ON SITE

NOTE:
GREAT CARE AND EFFORT HAS BEEN TAKEN IN THE MAKING OF THIS DESIGN. JD DIRON DESIGN & DRAFTING SERVICES CANNOT ASSUME ANY RESPONSIBILITY FOR DAMAGE AS A RESULT OF ERRORS OR OMISSIONS. IT IS RECOMMENDED THAT THE OWNER AND/OR BUILDER CONSULT A LOCAL ENGINEER AND CHECK WITH YOUR LOCAL BUILDING OFFICIALS PRIOR TO THE START OF CONSTRUCTION.

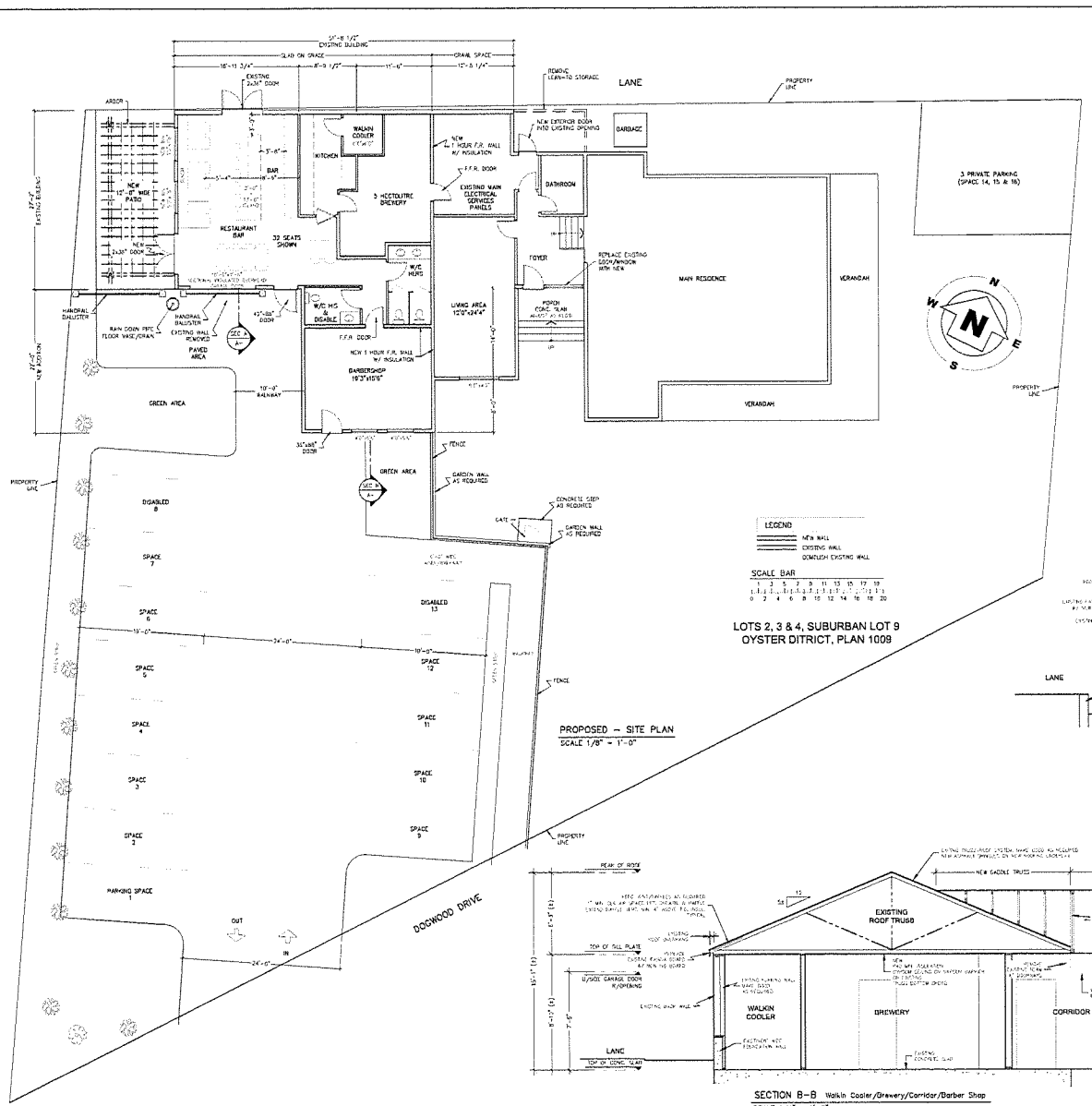
NO	DATE	REVISION/ISSUE
	Aug. 2019	Development Permit

3D
Diron Design & Drafting Services
915 Island Highway Sayward BC V0P 1R0
Tel. 1 250 282 3695 3djens@gmail.com web:3djens.com

New Brew Pub/Barbershop Addition
202 Dogwood Drive
Ladysmith, BC

Renovated Building – Perspectives

Owner	Date Plotted:	Job No.
Rod Alsop 1-250-714-6749	07.08.2019	#A1907
	Designed: JD / Drawn: JD	Dwg 3 of 3
	Scale: as Shown	Sheet No. A03



PROPOSED – SITE PLAN
SCALE 1/8" = 1'-0"

202 DOGWOOD DRIVE, LADYSMITH

ZONING C1
LOT SIZE = 16982 ft2

COMMERCIAL USE 40% MAX. (6793 ft2) COVERAGE ALLOWED
100 m2 (1076 ft2) GROSS FLOOR AREA FOR ANY ONE COMMERCIAL USE
1118 ft2 BREW PUB / 288 ft2 BARBER SHOP

FLOOR SPACE RATIO 0.5:1 = 8491 ft2
4048 ft2 PROPOSED

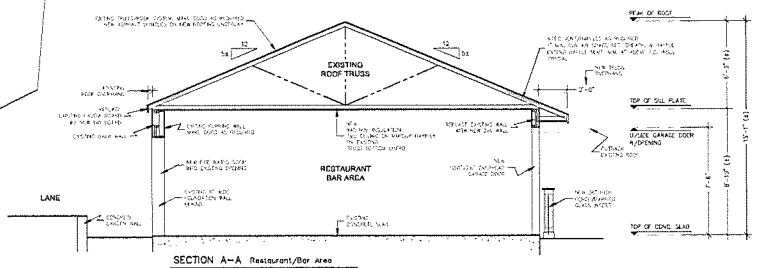
SETBACKS: FRONT 6.0m (19.69 ft) (TO GARAGE DOOR ANY DEC)
SIDE 1.5m (4.92 ft) (ARBOUR/SUNSHADE) – CONFIRMED
SIDE 3.0m (9.84 ft)
REAR 3.0m (9.84 ft) (EXISTING BUILDING LESS THAN 3.00m)

PARKING SPACES REQUIRED		
RESTAURANT 1 PER 5 SEATS	=	7 SPACES
BARBER SHOP		
1 EMPLOYEE & 1 CLIENT	=	3 SPACES
3 SPACES FOR RESIDENCE	=	3 SPACES
TOTAL	=	12 SPACES
PARKING SPACES PROPOSED TOTAL	=	16 SPACES

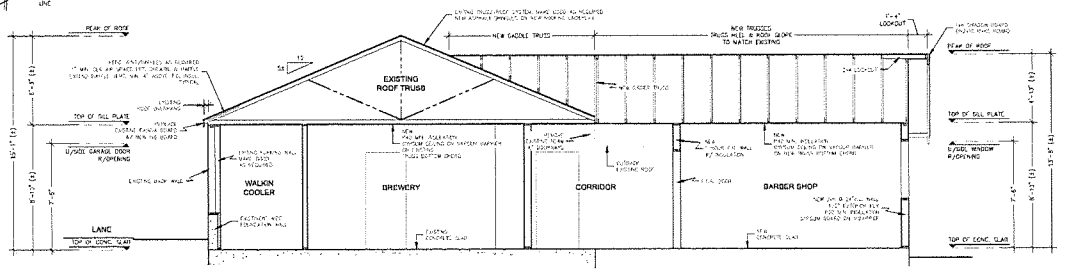
LEGEND
NEW WALL
EXISTING WALL
DOWNGUN EXISTING WALL

SCALE BAR
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
0 2 4 6 8 10 12 14 16 18 20

LOTS 2, 3 & 4, SUBURBAN LOT 9
OYSTER DITRICT, PLAN 1009



SECTION A–A Restaurant/Bar Area
SCALE 1/4" = 1'-0"



SECTION B–B Walk-in Cooler/Brewery/Corridor/Barber Shop
SCALE 1/4" = 1'-0"

CONSTRUCTION NOTES
UNLESS OTHERWISE NOTED
1. ALL CONSTRUCTION TO CONFORM TO THE 2018 BRITISH COLUMBIA BUILDING CODES AND ALL OTHER CODES AND LOCAL AUTHORITIES HAVING JURISDICTION

ALL PRODUCTS USED MUST BE INSTALLED TO MANUFACTURER'S SPECIFICATION & LAYOUT
ALL DIMENSIONS HAVE TO BE CONFIRMED ON SITE

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NO	DATE	REVISION/ISSUE
	Aug. 2019	Development Permit

3D
Diron Design & Drafting Services
915 Island Highway Sayward BC V0P 1R0
Tel. 1 250 282 3695 3djens@gmail.com web:3djens.com

New Brew Pub/Barbershop Addition
202 Dogwood Drive
Ladysmith, BC
New Floor Layout & Site Plan
Sections Thru Renovated Building

Owner	Date Plotted:		Job No.
Rod Alsop	07.08.2019		#A1907
1-250-714-8745	Designed: JD	Drawn: JD	Dwg of 2 3
	Scale: as Shown		Sheet No. A02

STAFF REPORT TO CPAC

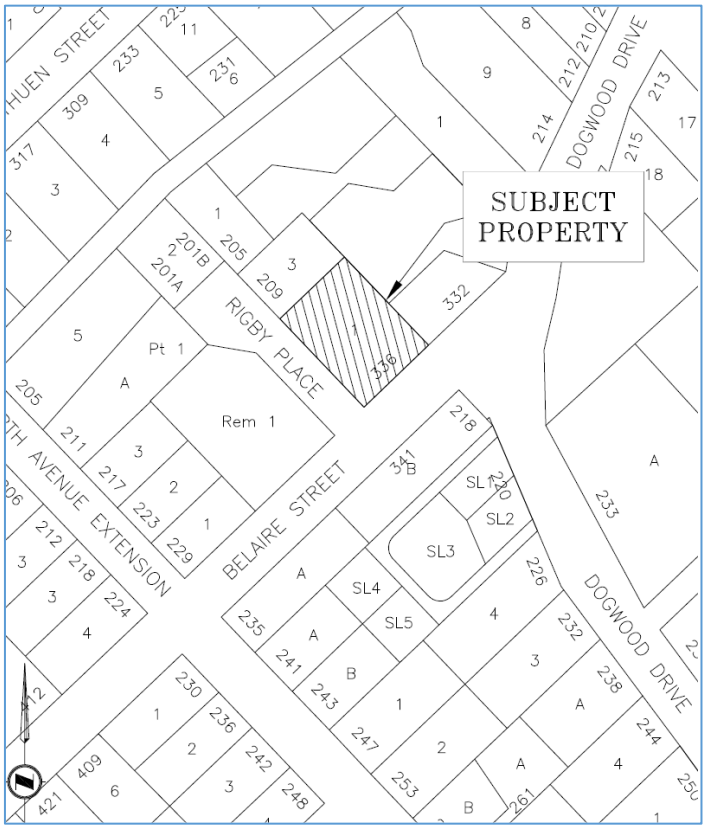
Report Prepared By: Jake Belobaba
Date: October 23, 2019
Meeting Date: October 30, 2019
File No: 3360-19-07
RE: **OCP & ZONING BYLAW AMENDMENT APPLICATION 336 BELAIRE STREET**

PURPOSE:

The purpose of this staff report is to introduce an application to amend the Official Community Plan (OCP) and Zoning Bylaw for a proposed mixed use building at 336 Belaire Street, and to seek the Community Planning and Advisory Committee (CPAC) comments and recommendations regarding the proposal.

INTRODUCTION/BACKGROUND:

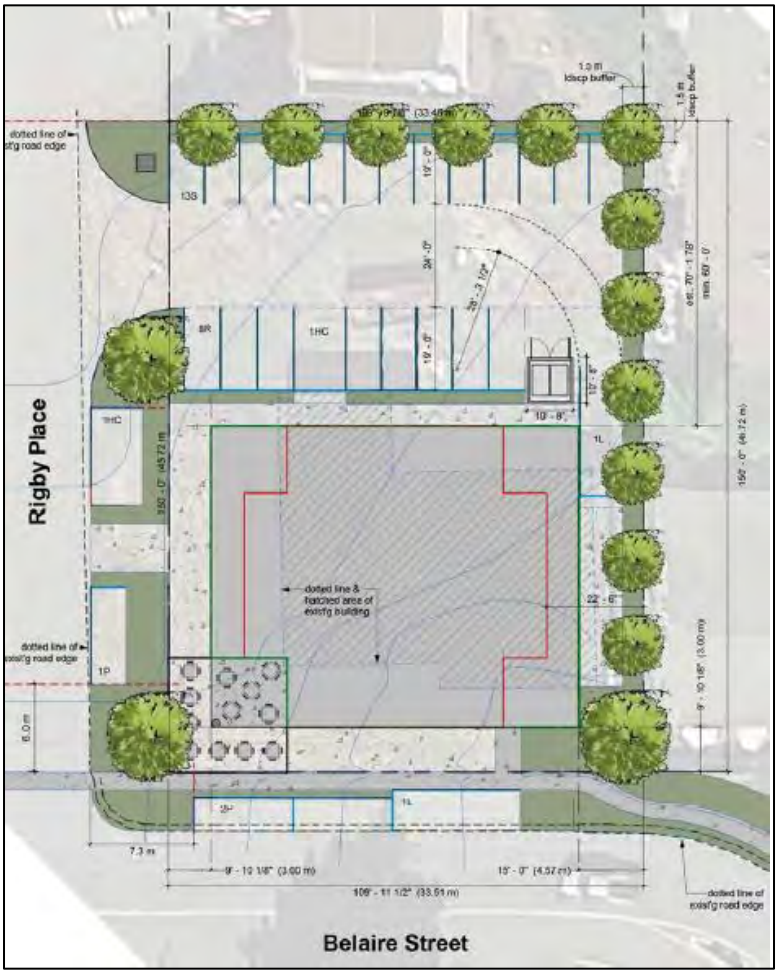
An application has been received to amend the OCP and Zoning Bylaw for a proposed three storey mixed-use building at 336 Belaire Street. The property is 1,530m^2 in size and contains building previously used as a police station which has been vacant for some time. The applicant has expressed interest in using the existing building in the short-term for commercial use. At a later date, the applicant intends to remove the existing building and construct a new three storey building. The new building will have a commercial first storey and second and third storey residential units. In particular, the applicant has expressed interest in a restaurant with a micro-brewery and a coffee shop for the first storey. A maximum of eight residential units are proposed for the subject property.



The applicant submitted a proposed site plan and three storey building concept for the property (with 613m^2 per floor), shown in Figure 1 and 2. The applicant's proposal package, concept drawings, a design rationale, neighbourhood context, and other information is attached to this report. At its August 19, 2019 meeting, Council required the applicant to provide a Traffic Impact Assessment and concept drawings, complete with cost estimates for street improvements on Rigby Place and Belaire Street. These were received on October 9th and have also been attached to this report.

Figure 1: Proposed Building Concept – 336 Belaire St.

Figure 2: Proposed Site Plan Concept – 336 Belaire St.



Official Community Plan (OCP)

The property is designated as 'Local Commercial' in the Official Community Plan (OCP). The 'Local Commercial' designation description is noted below:

> *"The Local Commercial designation is applied to small scale commercial centres located within and serving the daily needs of the surrounding residential population in neighbourhoods. It provides for a limited range of retail, office, and service uses, which do not compete with the commercial uses in the downtown core. The maximum density allowed in a Local Commercial designation is up to 0.5 FSR for commercial uses. The maximum floor area for any one commercial use is limited to 200 square metres. Development within a Local Commercial designation is subject to the Section 3.8.5 Development Permit Area Guidelines in this Plan".*

If residential use is supported at 336 Belaire Street it is recommended to add a policy to the 'Local Commercial' designation to state that residential use is supported in combination with local commercial uses (which is implied in the existing wording). A restaurant with a micro-brewery is not currently located in the downtown core. The proposed development meets the 0.5 FSR limit for commercial floor area. Each commercial use (coffee shop, restaurant etc.) is proposed to be 250m^2 or less. The proposed zone will have a clause establishing a 250m^2 limit for any one commercial use. This is considered consistent with the 200m^2 limit in the OCP due to the size of the site, the developments overall adherence to the 0.5 FSR limit for commercial uses and the use of an existing building with a large footprint to fill.

The property falls within Development Permit Area 3 'Commercial' (DPA 3). The objective of DPA 3 is to ensure that commercial development is complementary to the existing character of Ladysmith and aligned with the Town's vision for future growth. If residential use is supported at 336 Belaire Street, it is recommended to also apply Development Permit Area 4 'Multi-Unit Residential' (DPA 4) to the subject property. The objective of DPA 4 is to achieve a high level of design for multi-unit development, to enhance the Town's neighbourhoods, and to ensure that development is complementary to the existing character of Ladysmith. Prior to improvements to the existing building or construction of a new building, a development permit would be required.

Zoning Bylaw

The property is currently zoned Local Commercial (C-1), with a site specific clause limiting commercial uses to coffee shop, personal service establishment (i.e. hairdresser, yoga studio, florist, aesthetician), office and artist studio. A dwelling and secondary suite are also permitted. The maximum permitted height in the C-1 zone is 9m.

To accommodate the proposed development a comprehensive development zone is proposed. The applicant is requesting zoning allowing a building up to 11m in height (3 storeys), 613m^2 of ground floor commercial space, and up to eight residential units on the second and third storeys. A maximum of eight residential units are proposed, the size of which would be approximately 80m^2 for one bedroom units and 160m^2 for two bedroom units. The remaining space on the residential floors would be used for exterior deck space, an elevator, stairway, hallways, and ventilation service shafts for rooftop equipment. A 1.5m wide landscape buffer is proposed along the interior side and rear parcel line, which is consistent with the landscape buffer requirements in the Zoning Bylaw. Table 1 *outlines* the proposed zoning in greater detail.

Table 1: 336 Belaire St. Application Summary (3360-19-07) July 23, 2019

	Current	Proposed
Official Community Plan	Local Commercial	Local Commercial Add policy that states that residential use is supported in combination with local commercial uses.
Development Permit Area	DPA 3 Commercial	DPA 3 Commercial and DPA 4 Multi-Unit Residential
Zoning	Local Commercial (C-1)	Comprehensive Development 6 (CD-6)
Commercial Uses	Coffee shop Office Artist studio Personal service establishment (i.e. hairdresser, tailor, yoga studio, florist, laundromat)	Coffee shop Office (includes an office for medical and dental services) Personal service establishment (i.e. hairdresser, tailor, yoga studio, florist, laundromat) Retail sales Restaurant Neighbourhood pub (includes micro-brewery) Media production studio Community care facility Veterinary clinic
Residential Use (density)	One dwelling unit and one secondary suite	8 dwelling units (maximum) 53 units per hectare
Max gross floor area for commercial use	100m^2 per commercial use	Commercial use on first storey (613m^2) The basement would be limited to accessory storage related to the commercial and residential uses within the building.
Floor Space Ratio	0.5	0.9 (0.4 for commercial and 0.5 for residential)
Parcel Coverage	40%	40%
Height	9m	11m – with a 1.5m projecting elevator shaft
Minimum building setbacks from property lines	Front 6m Exterior Side 3m Interior Side 1.5m Rear 3m	Front (Belaire St.) 2m Exterior side (Rigby Pl.) 2m Interior side (adjacent to 332 Belaire St.) 4.5m Rear (adjacent to 209 Rigby Pl.) 17m
Accessory structure setback (i.e. garbage enclosure)	Front 6m Exterior Side 1m Interior Side 1m Rear 1m	Front (Belaire St.) 6m Exterior Side (Rigby Pl.) 3m Interior Side 4.5m Rear 13m
Landscaping and Screening	3m or 1.5m wide landscape buffer along rear and interior side parcel line.	1.5m wide landscape buffer along rear parcel line. 1.5m wide landscape buffer along interior side parcel line.
Parking	One off-street space per 30m^2 of commercial gross floor area. One off-street space per residential unit.	22 off-street parking spaces. Eight more required for residential use for the project's second phase.

Traffic and Parking
Pursuant to the Development Approval Information Bylaw 1887, the applicant was required by Council to retain professional Engineer(s) to submit:

- Concept drawings for Rigby Place and Belaire Street including proposed parking spaces, vehicle turn-arounds, sidewalks, rainwater management, crosswalks, cost estimates and identified variances (if applicable) to Town Engineering standards; and

- A traffic impact assessment identifying traffic impacts of the proposed development to the neighbourhood (including pedestrian and vehicle circulation, and safety considerations).

The Town's Engineering Department found no issues with the streetscape concepts and the findings of the traffic impact assessment. Since the value of the project is likely to exceed $50,000, the applicant would be required to complete street frontage improvements on the portion of Belaire Street and Rigby Place abutting the property (e.g. street parking spaces, sidewalks, curbs) when a building permit is applied for (pursuant to Bylaw 1834).

Commercial Parking and Loading: The Zoning Bylaw requires one off-street parking space per 30m^2 of commercial space. 613m^2 of commercial space is proposed in the development, thus approximately 21 off-street parking spaces would be required for commercial uses. If a restaurant with a micro-brewery is located in the building, one off-street parking space is required per five restaurant seats. The 613m^2 space would allow for a total of 100 seats (combined restaurant and coffee shop), generating the requirement for 20 off-street parking spaces. Two loading spaces are required for the commercial use. A loading space is proposed adjacent to the property in the streetscape concepts along Belaire Street and one is shown near the northeast corner of the building. Like parking spaces, loading spaces must be located on the same property as the uses they serve. Given the provision of an adjacent off-site loading space (which is an efficient use of road space) staff are recommending that the proposed zone contain a clause reducing the on-site loading requirement for the property to one.

Residential Parking: The Zoning Bylaw requires one off-street parking space per one bedroom residential unit, and two off-street parking spaces for residential units with two or more bedrooms. One visitor off-street parking space is also required per 5 residential units. Approximately 9-10 off-street parking spaces would be required for residential use.

Bicycle and Accessible Parking: The Zoning Bylaw also requires that two spaces be designed for persons with disabilities, and that bicycle parking be provided. The commercial use requires one "Class A[1]" bicycle parking space for every ten employees and approximately three "Class B[2]" parking spaces. For the residential component, two Class A spaces and two Class B spaces are required. Two parking spaces for persons with disabilities are also required and are shown in the attached concepts.

[1] Class A secured bicycle parking must be provided in a waterproof bicycle locker, secured bicycle room, or other secured area within a building and contain bicycle racks.

[2] Class B short-term bicycle parking spaces must be provided in the form of bicycle racks to which the frame and at least one wheel can be secured.

Total Parking Requirements relative to Phasing: A total of 20-21 parking spaces are required for the first phase of the development. 22 off-street parking spaces are proposed. Approximately 31 off-street parking spaces will be required when the site is redeveloped to include residential units. The streetscape design concepts attached to this report indicate that five public street parking spaces would be created adjacent to the property (two on Belaire and three on Rigby). The concept also shows that five spaces could be added across Rigby Place adjacent to the park. The applicant has proposed that the spaces adjacent to the park constitute an amenity contribution to be executed through an amenity zoning clause (noted below). Under the zoning bylaw, parking must be located on the same parcel as the use for which it is required. However, it is not necessary for the second phase of the proposal to demonstrate compliance with this parking standard at this time and staff note that there are a number of options to address parking when the site is redeveloped to include residential units. These include:

- Constructing additional parking on site.
- Obtaining a variance through DP guidelines that support variances to parking standards in favor of form and character.
- Shared parking and/or off-site parking configurations encouraged in DP guidelines.
- Utilizing shared parking arrangements, small car and motorcycle/scooter parking or authorized under Part 8 of the Zoning Bylaw to free up parking spaces for residential uses.
- A development variance permit.

INTERDEPARTMENTAL INVOLVEMENT/IMPLICATIONS:

The Infrastructure Services department reviewed the application including the recently submitted traffic impact assessment and street design concepts. Infrastructure Services found no issues with the assessment or the street design.

As an amenity contribution the applicant has expressed interest in contributing to improvements to Wickham Park. The Director of Parks Recreation and Culture is supportive of this proposal. The applicant is proposing a density benefit provision for the proposed zone pursuant to section 482 of the *Local Government Act*. The clause would allow the eight dwelling units proposed for the second phase only if the above-noted improvements to Wickham Park are provided. This clause would allow the first, commercial-only phase of the development to proceed without improvements to Wickham Park, requiring construction of these improvements only when the site is redeveloped to include the residential units.

SUMMARY:

An application has been received to amend the OCP and Zoning Bylaw for a proposed mixed-use development at 336 Belaire Street. Council is seeking CPAC's comments and recommendations regarding the proposal.

ATTACHMENT(S):

The Jailhouse: Application Submission
Street design concepts and cost estimates
Traffic Impact Assessment

the **Jailhouse**

aka the Old RCMP Building @ 336 Belaire Street, Ladysmith BC

Rezoning Visioning Statements

June 18, 2019

the JAILHOUSE
Public Information Meetings

The Jailhouse aka “the Old RCMP Building” is located on 336 Belaire Street at the corner of Rigby Place. The existing building has been unoccupied for numerous years and is in disrepair.

Initially, the C1 Zoned site was considered for a community brew business but with the site strategically located along a well-used gradual uphill walkable route connecting downtown/Transfer Beach to the Community Centre area as well as Coronation Square, it was felt that a residential component may be of benefit to the community.

To assess community sentiment regarding what use would be of a benefit in making a livable neighbourhood, two public information meetings were held.

The first meeting engaged the community in an interactive session to explore ideas for the Project’s purpose, configuration and use. It was well attended by over 70 people who contributed in an excellent discussion and survey comments.

Mixed-use was the overall preference with Community Brew and a family restaurant as favorable commercial uses. The residential component was also felt to be important in that it would provide affordable and quality living spaces.

The feedback from the first meeting was integral in developing the concept of the mixed-use four storey building which was presented at a second public meeting. The siting and design of the building was well received by over 50 attendees with a positive discussion that expressed general acceptance for the mixed-use project.

Two main topics of concerns were also expressed:

> Parking along Rigby Place dominated the discussion with conflicting comments. Some felt that parking would create too much traffic while others felt more parking was needed. There was also an inquiry regarding any plans to rectify the winter water overflow along the Wickham Park-side of Rigby Place.
>
> Building height and overlook was also a concern for immediate neighbours. Though there was general appreciation for the use and siting of the building, it was felt that four storeys would create too much overlook in to Belwood Village.

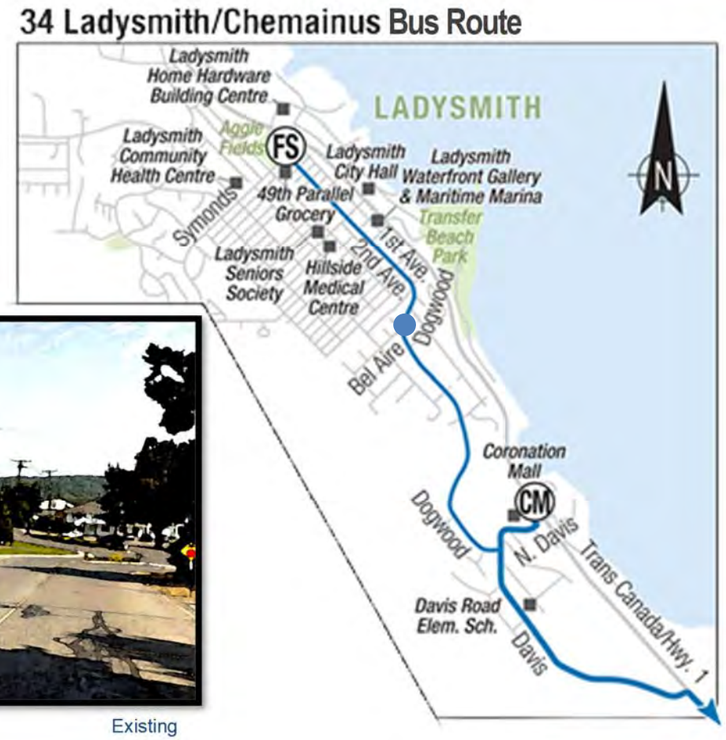
Subsequent private meetings were held, and consideration was given to overlook concerns. The building height will remain at three storeys, unfortunately lessening the residential contribution for the community.

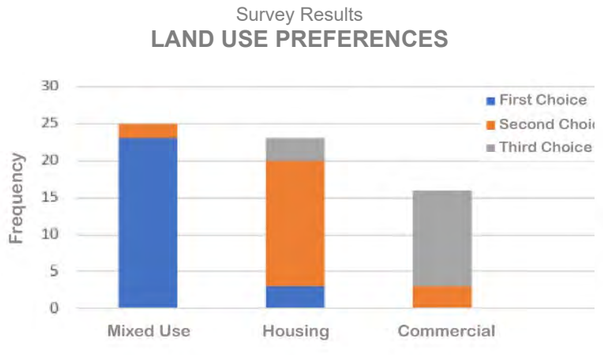
As for the Wickham Park/Rigby Place public parking, the walkability of the site and availability of public transit may alleviate the need for much additional parking. However, some parking would benefit those needing to use their own vehicles.

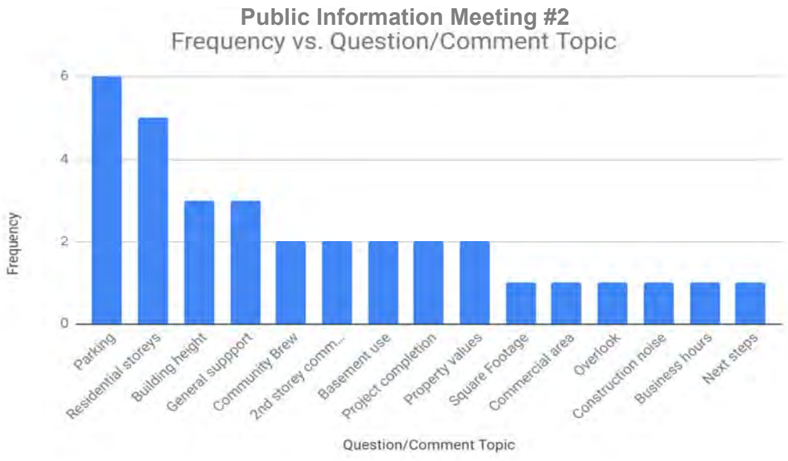
Sustainability Strategy #1
Complete Community Land Use

Self-reliance *with diversity of jobs :* ***Density increase*** *in neighbourhoods to support transit & local businesses :* ***Pedestrian-oriented*** *siting ;* ***Affordable housing***

Existing







Rezoning Rationale

The purpose of this rezoning application is to rezone the "Old RCMP" site, 336 Belaire Street, from a C1 commercial Zone to Mixed-use zone, permitting a project with an appropriate character that will "fit within the context" of an area, becoming a central node and adding vitality to the community.

"Love the idea of bringing life back into the neighborhood"
~ PIM01 Survey comment

Would love a community area near my house (Bayview Ave) to socialize and enjoy.
~ PIM01 Survey comment

"Developing an area for people to enjoy, accessible, and affordable."
~ Ladysmith's Visioning Public Preference Handbook

FB Comments:

"

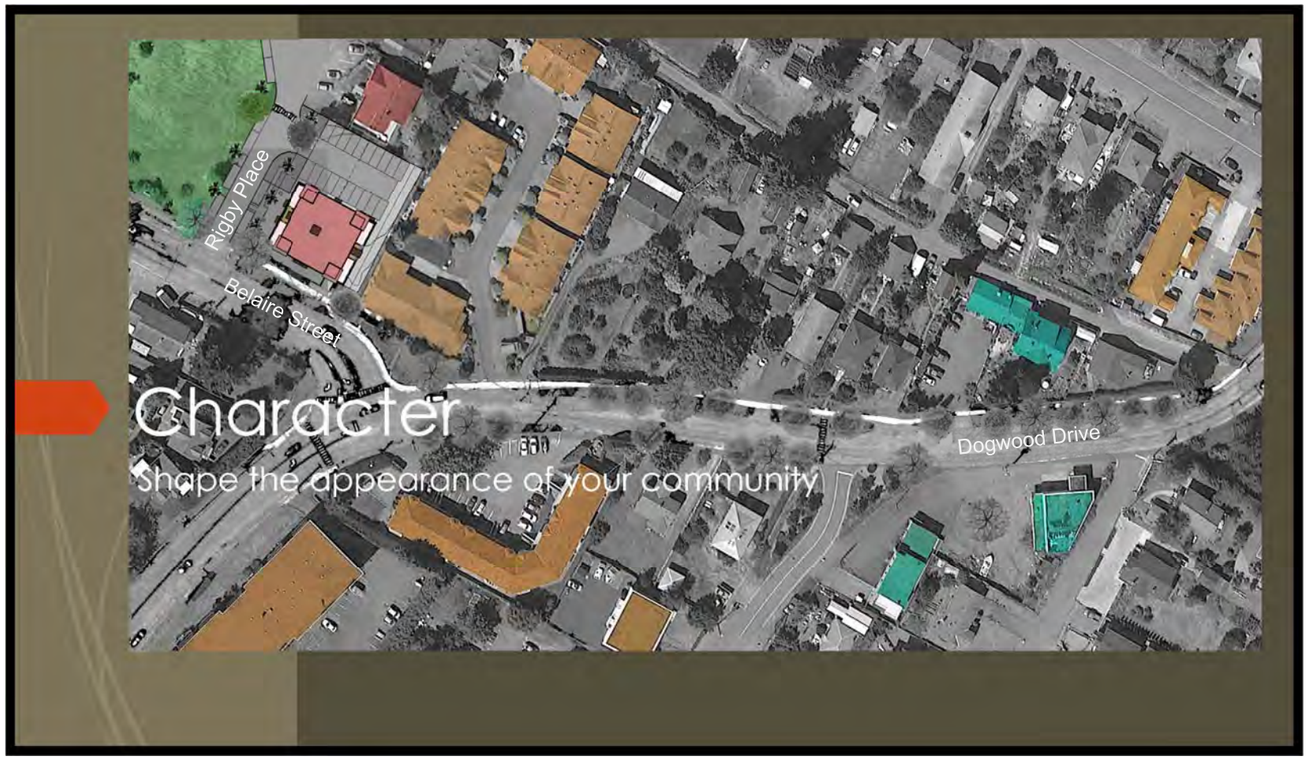
Fern MacGillivary Hornett

Every time I drive past the old RCMP station I think there has to be a better use for this property. Considering the taxes I pay to live here I don't feel I get good value for the money however I would be very supportive of having my taxes used to pay for the safe removal of that appalling eyesore and the land donated to Habitat for Humanity to build multi family affordable housing on that site. I would be proud to know the great citizens of Ladysmith have helped hard working low income families to have homes of their own. If outside developers can bring in their own crews and equipment to build expensive houses purely for profit why can't something be done for those who will never afford them? If you agree with me please like and share.

Henny Vogelzang If you hate that building, try running a business right behind them, it is embarrassing...and every year someone has to complain about the mess, which makes no sense at all, if they know it is a problem property, they should just put it on the list for regular maintenance demands.

1

"



Mixed-Use Zoning

Mixed-use is the preferred model by the community.

The residential component was felt to be an important component which integrates strategically at the edge of a multifamily residential and an existing home-based commercial activity [*mixed-use*] immediately to the northeast.

The Jailhouse commercial component with a 5 min. walk to an existing neighbourhood commercial node along Dogwood Drive and 10 min. to Ladysmith downtown will begin to create a streetscape that becomes a pedestrian commercial network.

Regarding the purpose, the community was in support for a Community Brew and Coffee Shop/Family restaurant. These uses blend well with developing a connection across the Rigby Place to Wickham Park, enlivening the public space with accessibility for upper level residents and patrons of the community brew and family restaurant.

the **JAILHOUSE**

Mixed-Use

Multifamily

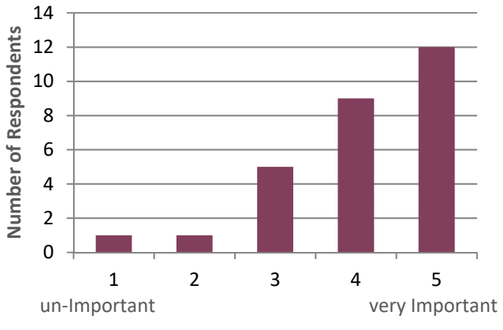
Commercial

Wickham Park

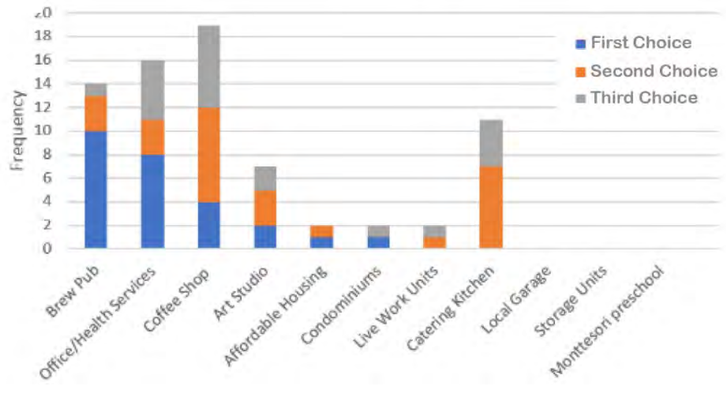
Sustainability Strategy #6
Local Food Systems

Promoting the purchase of locally-produced food through a buy / eat-local campaign; Supporting the connection of local restaurants to local food producers;

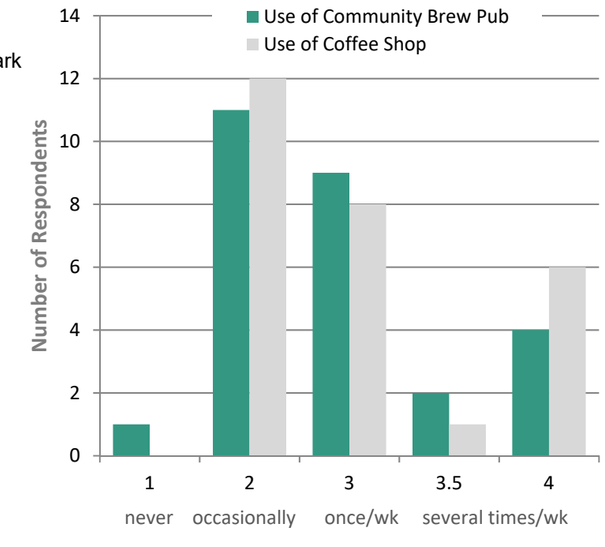
Survey Results
IMPORTANCE OF RESIDENTIAL COMPONENT



Survey Results
PURPOSE



Survey Results
PROPOSED BUILDING USE



Siting & our neighbours

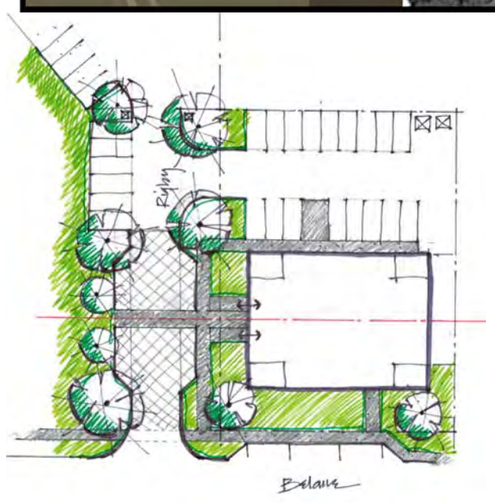
The Project has been sited primarily on the SW quadrant (**1**) bordered with Belaire Street and Rigby Place. This places on-site parking to the NE half the site (**2**) creating a 60ft x 110ft buffer to the NE neighbor and Belwood Village to the east, maximizing privacy.

Outdoor patios and entrances are focused around the Belaire Street/Rigby Place corner (**3**) where the building itself becomes a buffer between these activities and the adjacent residences.

A wide side-yard setback in combination with additional upper level setbacks (**4**) minimizes overlook while maximizing privacy for the adjacent neighbours.

Survey #2 Topic : BUILDING LOCATION ON SITE

How do you feel these fall within the scale of 1 to 5 ?	
1 **Overlook**	Configuration & location of the building on the site seeks to minimize overlook & maximize privacy for the neighbours.
2 **Mixed Use**	Optimization of the configuration and economics of the building.
3 **Streetscape**	Social places such as outdoor patios creates a community oriented street character.
4 **On-Site Parking**	On-site parking location gives greater spatial separation to neighbours.
5 **Public Parking**	Street parking for Wickham Park is enough.
6 **Activity**	Public activity is focused towards Rigby & Belaire corner to respect neighbours.



Public Parking

The site layout with parallel parking spaces along Rigby Place (**5**) and Belaire Street (**5**) was presented to the community. It received conflicting comments. Some expressed concerns there may not be enough public parking for Wickham Park and others felt parking invited more traffic. It was determined that either way, some public parking was needed for Wickham Park.

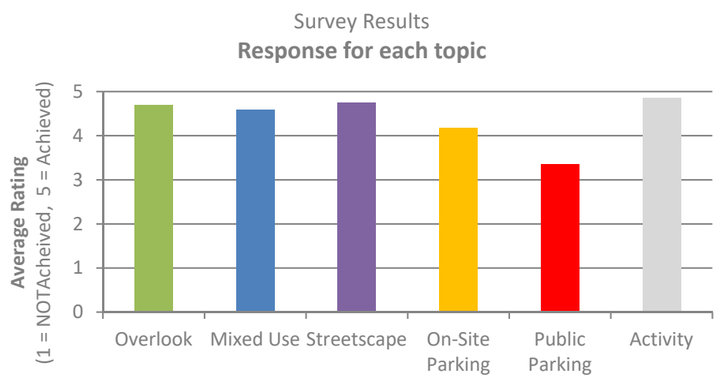
It is understood that parallel parking is preferable. However, with community comments received, alternate layouts could be considered to provide additional public parking which may alleviate these concerns. Street calming and textured surfaces could also be considered as possibilities for vehicles and pedestrians to share Rigby Place, increasing the connection and use of Wickham Park

"Cluster parking encouraged: 6-8 spaces with landscape buffering. If more than 10, provide landscape bays for division. Auto to pedestrian paths should include transitional elements, such as plantings, land forms, screens, and structures."

~ Ladysmith's Visioning Public Preference

Sustainability Strategy #2
Low Impact Transportation

Pursing innovative parking design strategies and exploring new street standards to make streets more environmentally & socially more friendly.



Design Rationale

The main floor at 40% site coverage with upper residential floors setback creates an impression of a one-storey tree lined street that fits with the scale of the neighbourhood.

The street level commercial will have a mix of storefront glazing and siding, materials that are generally in keeping with the historic character of Ladysmith.

Outdoor Patios of these commercial spaces along the Belair-Rigby corner will be sunny with views to Wickham Park making them attractive, vibrant, and safe public areas. They will enliven the streetscape of both Rigby Place and Belaire Street, becoming more than connectors but a place that is part of the walkable community and an on-going development of livable neighborhoods.

Sustainability Strategy #4
Multi-Use Open Space

Creating a network of parks and trails : Provide recreation opportunities to support healthy residents, and integrate heritage and art into the public realm experience.

Sustainability Strategy #7
A Healthy Community

Arts *- Continuing to support the arts, artists and artisans in the community;*
Public realm *- Continuing to enhance the quality of the public realm.*

Town Vision – Value & Themes
People

Public Spaces – Creating great spaces to be; Sidewalks into places of animation, conservation and colour; Parks for all ages; Great Streets that offer pedestrian experiences; Housing diversity that support residents at all stages of their lives to preserve friendships and relationships over the

"Roads form part of the transportation network. As part of a walkable community, vehicles share the road with other pedestrian activities, and form part of a vibrant community. Street calming techniques should be explored through the use of traffic islands, landscaped medians, curb extensions, raised street sections and textured pavement visual signals and messages."

~ Ladysmith's Vision Public Preference Handbook

Height

Ladysmith's Visioning Public Preference Handbook indicates instances where a four storey commercial-residential building is the preferred model for a mixed-use project.

"A four storey (12.7m) commercial and residential building type forming part of a street wall is the preferred model when integrating mix use."

~ Visioning Public Preference Handbook

For this project, the four-storey model would have provided the needed economic advantage to make a viable project. This model was presented at the public information meeting and received acceptance from the general audience.

However, subsequent private meetings with the immediate neighbours were held and with great consideration for their comments, the Owner has decided to forgo the fourth floor, limiting the height of the project to three stories.

Town Vision – Value & Themes
A Small Town Feel

New buildings – need to visibly respect and fit with the existing heritage rhythm, massing and forms;

Community Benefits

1. Removing of an existing eyesore with a high demolition/remedial cost, then replacing it with a three (vs four) storey mixed use project with a reduced economic return, is a generous benefit to the immediate neighbours at the expense of the greater community for more affordable housing.

2. During the public information meetings, there was some inquiry as to whether the water overflow situation along the Wickham Park side of Rigby Place would be rectified. Works and services is only required at the site property line, however, the Owner is willing to develop parking spaces on the Wickham Park side of Rigby Place and rectify this situation, with the understanding that the additional public parking spaces be applied to the project's commercial parking requirements.

3. Consideration given to providing street trees, outdoor furniture, and parking treatments to make Rigby Place and Wickham Park a place where Ladysmith residents can walk to and bring their family.

4. A commitment to the best sustainable building practices.

FB Comments:

"

John R Vincent I'm guessing that the old police station on the site is built like a fortress out of reinforced concrete right down to the jail cells in the basement. Demolition is going to be extraordinarily expensive; probably more than the value of the lot. Now if the Town was to offer the sale of the small park adjacent to the old RCMP station as a sweetener to a developer, that might encourage redevelopment of the whole.

Henny Vogelzang I dread the asbestos in that place, not to mention the black mold, I for one will be standing very strongly against blatant wrecking crews coming in when the time comes, my guess is it will require some hazardous waste removal systems.

1

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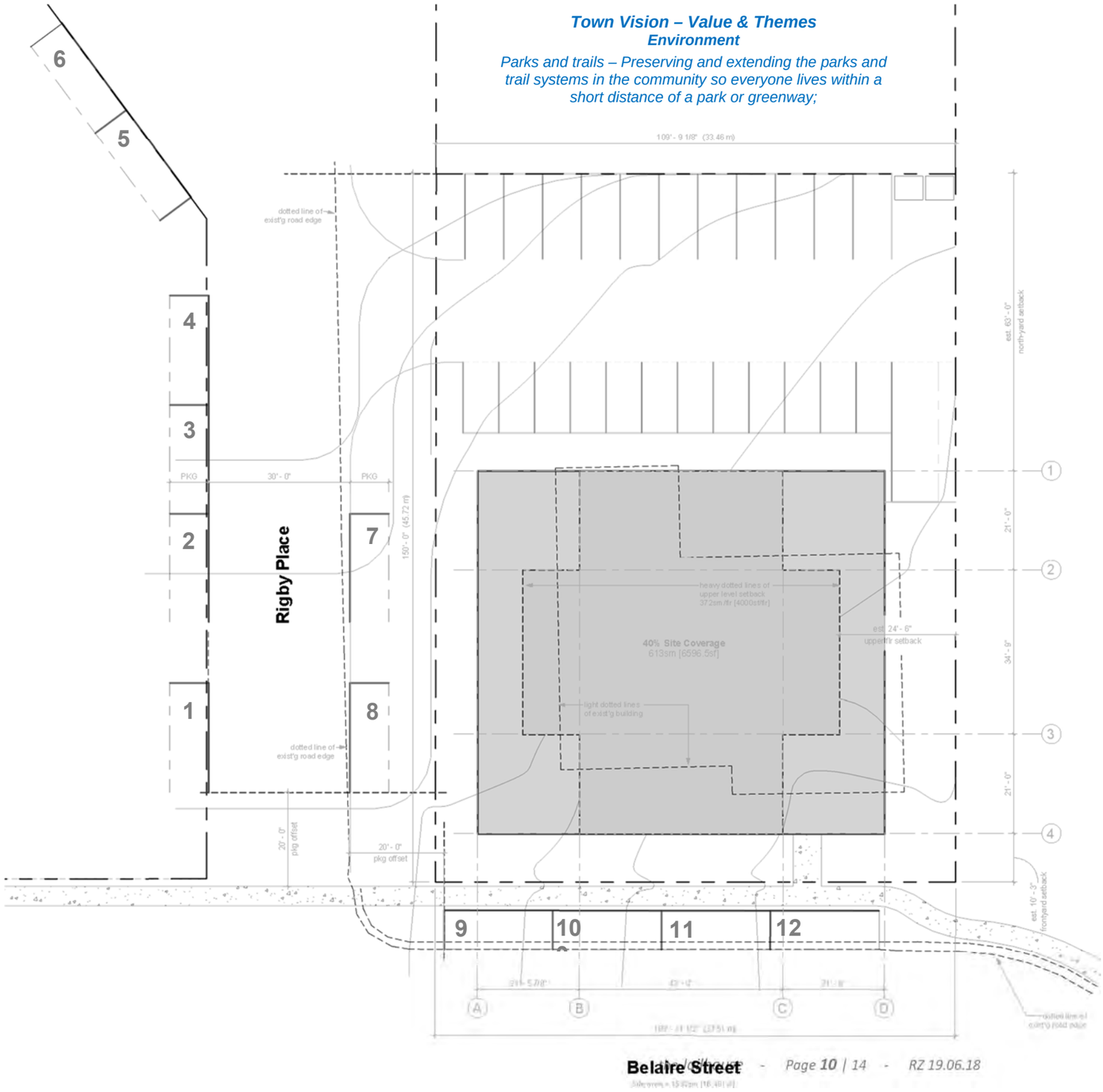
Sustainability Strategy #5
Innovative Infrastructure

Water management of stormwater : Provision of recycling and composting systems.



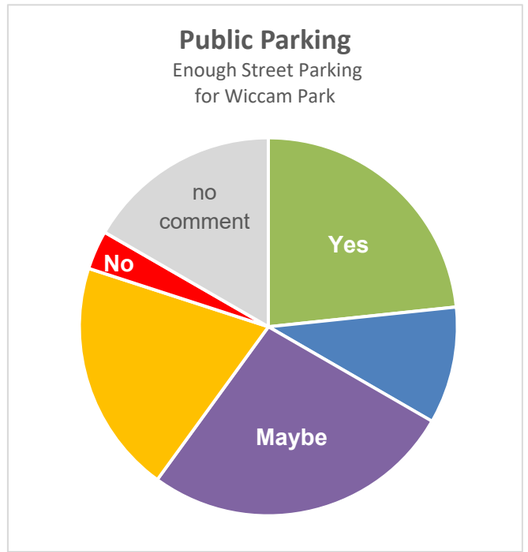
the JAILHOUSE
12 Additional Public Parking Proposal

Required on-site parking as well as sidewalks & public parking along the project parcel lines as determined by the Town of Ladysmith will be a requirement of the development.

As mentioned previously, upgrades of Rigby Place along Wickham Park will not be included in the requirements of this development.

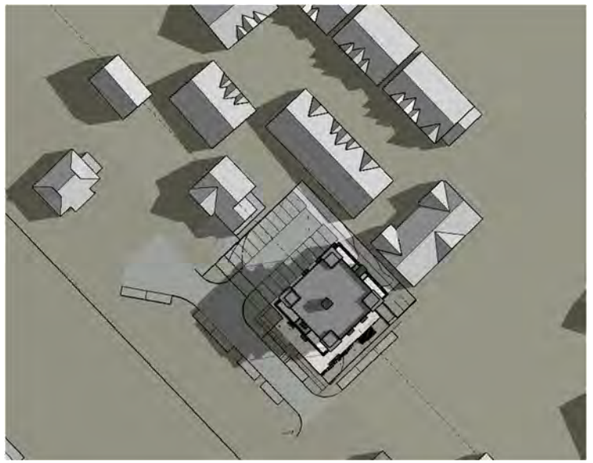
The community was presented with some parallel parking along Rigby Place. They were asked if the public parking was enough for Wickham Park. Their response was mixed with a significant level of concern that public parking may not be adequate.

With consideration to the walkability of the site and close proximity to public transit, if it is determined that additional parking would be beneficial, the Owner is open to consider including the additional parking as part of the development, with an understanding that the additional public parking spaces would be applied to the project's commercial parking requirements.



Shadowing

There is minimal shadow impact on the immediate neighbours.
The neighbouring unit facing Dogwood Drive will solely experience over-shadowing during the later hours of the day.
However, its SE outdoor area remains un-shaded for the entire morning both in the summer and winter.



SUMMER @ 6:00 am
Shadow overcast over Rigby Place

SUMMER @ Noon
Minimal to no shadow overcast

SUMMER @ 5:00 pm
Shadow overcast over the SE corner

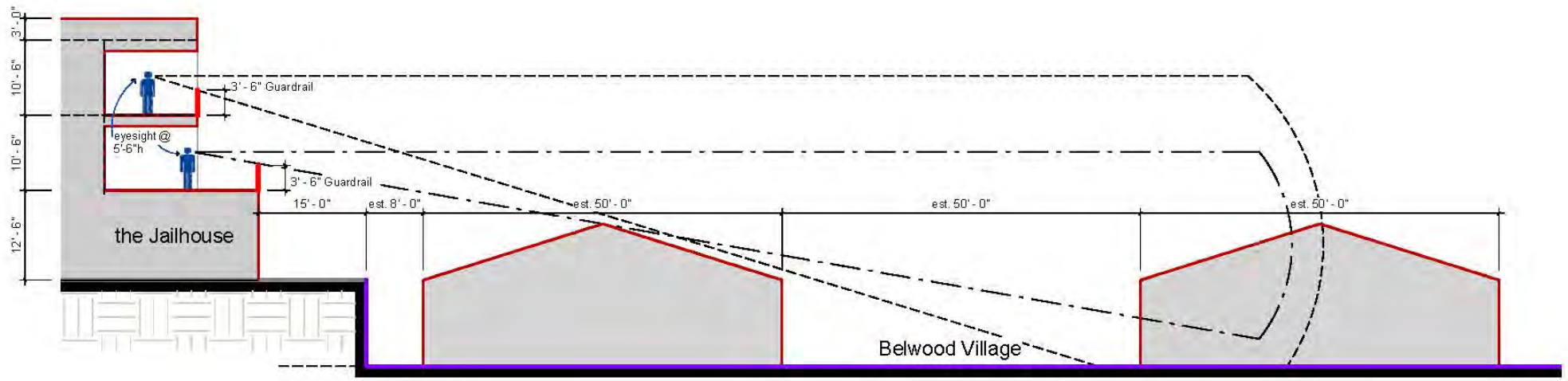
WINTER @ 7:00 am
Shadow overcast over NW corner

WINTER @ Noon
Short shadow overcast

WINTER @ 5:00 pm
Shadow overcast over the SE corner

Overlook

Concerns were primarily raised by immediate neighbour in regards to overlook of Belwood Village.
With a 15ft wide setback and an additional upper floor setback, overlook has been minimized and impact limited to primarily front yards.



View corridors

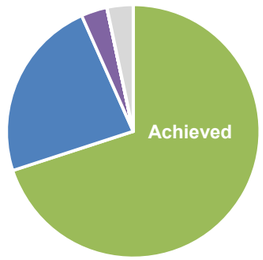
Concerns were raised by Fourth Avenue Extension neighbours regarding the height of the project, overlook and impact on views.
The view impact was shown to be minimal. Overlook concerns have been mitigated by retaining the existing three-storey building height.

Mid-200 block – Fourth Avenue Extension | *Views from two separate rear yards*

CONCLUSION

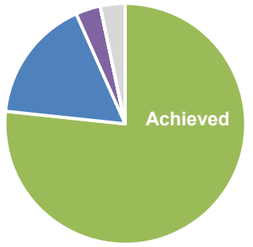
Walkability, a mix of multi and single family residential, proximity to existing neighbourhood commercial, relative location to downtown and other significant public areas, makes “the JAILHOUSE” (336 Belaire Street) an appropriate site for a three-storey mixed-use zone. The proposed site layout and building design concept have addressed concerns of both the wider community and as much as possible, the immediate neighbours, gaining support for the overall project with one exception, adequate public parking along Rigby Place for visitors coming to enjoy Wickham Park and the Community Brew Pub-Restaurant. If it is felt additional parking is needed, there is a willingness by the property owner, to work with the Town of Ladysmith to provide additional parking.

Overlook
Minimizes Overlook and Maximizes Privacy for Neighbours



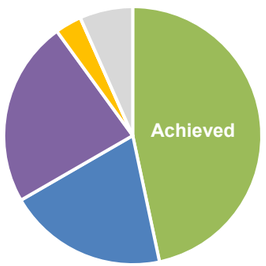
Mixed Use
Optimizes Building Configuration and Economics

Streetscape
Social Spaces Create a Community-Oriented Character



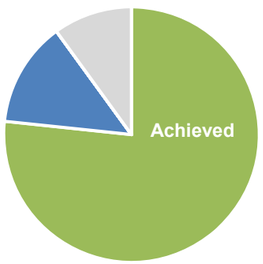
RATINGS	5	4	3	2	1	No Answer
	Achieved				Not Achieved	

On-Site Parking
Parking Location Gives More Separation to Neighbours



Public Parking
Enough Street Parking for Wickham Park

Activity
Public Activity Focused To Rigby & Belaire



Belaire Street Elevation

the **JAILHOUSE** Brew

CLIENT

AYPQ ARCHITECTURE

ADDRESS / CONTACT INFO.

13270 DOOLE ROAD
LADYSMITH, BC
V9G1G6

PROJECT NAME

THE JAILHOUSE

DESCRIPTION

LOCATION PLAN
1 : 2000

McELHANNEY PROJECT

2233-01086-00

OTHER REFERENCE

STATUS

ISSUED FOR ACCEPTANCE

GENERAL NOTES:

1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THE TOWNSHIP OF LADYSMITH ENGINEERING STANDARDS AND MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (MMCD LATEST EDITION). WHERE A CONFLICT EXISTS AMONG DOCUMENTS, THE MORE STRINGENT STANDARD WILL GOVERN
2. EXISTING UTILITY LOCATIONS AND ELEVATIONS ARE SCHEMATIC ONLY AND HAVE BEEN INTERPRETED FROM AS-BUILT DRAWINGS WHICH ARE CONSIDERED INCOMPLETE/INACCURATE. CONTRACTOR IS TO LOCATE EXISTING UTILITIES PRIOR TO CONSTRUCTION. ANY DISCREPANCIES ARE TO BE REPORTED TO THE CONTRACT ADMINISTRATOR.
3. CONTRACTOR IS TO EXPOSE PROPOSED CROSSINGS AND TIE-INS TO CONFIRM LOCATIONS AND ELEVATIONS PRIOR TO CONSTRUCTION. ANY DISCREPANCIES ARE TO BE REPORTED TO THE CONTRACT ADMINISTRATOR.
4. COORDINATES ARE GROUND LEVEL AND ALL ELEVATIONS ARE TO GEODETIC DATUM.
5. ANY ALTERNATIVES TO SPECIFIED MATERIALS OR APPURTENANCES TO BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.
6. THE LOCATIONS OF EXISTING SERVICES ARE APPROXIMATE AND SHALL BE CONFIRMED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
7. NO SUB-SURFACE INVESTIGATION HAS BEEN CONDUCTED AND GROUNDWATER LEVELS ARE UNKNOWN. GROUND AND STORMWATER MANAGEMENT AS WELL AS TRENCH DE-WATERING MAY BE REQUIRED AND IS THE RESPONSIBILITY OF THE CONTRACTOR.
8. ANY AFFECTED UTILITY POLES ARE TO BE SUPPORTED AS REQUIRED TO THE SATISFACTION OF THE UTILITY POLE'S OWNER.
9. ALL SURFACES TO BE RESTORED TO EXISTING CONDITION OR BETTER.
10. ALL WORKS TO BE IN ACCORDANCE WITH ISLAND HEALTH PERMIT NUMBER W-CN-XXXX.

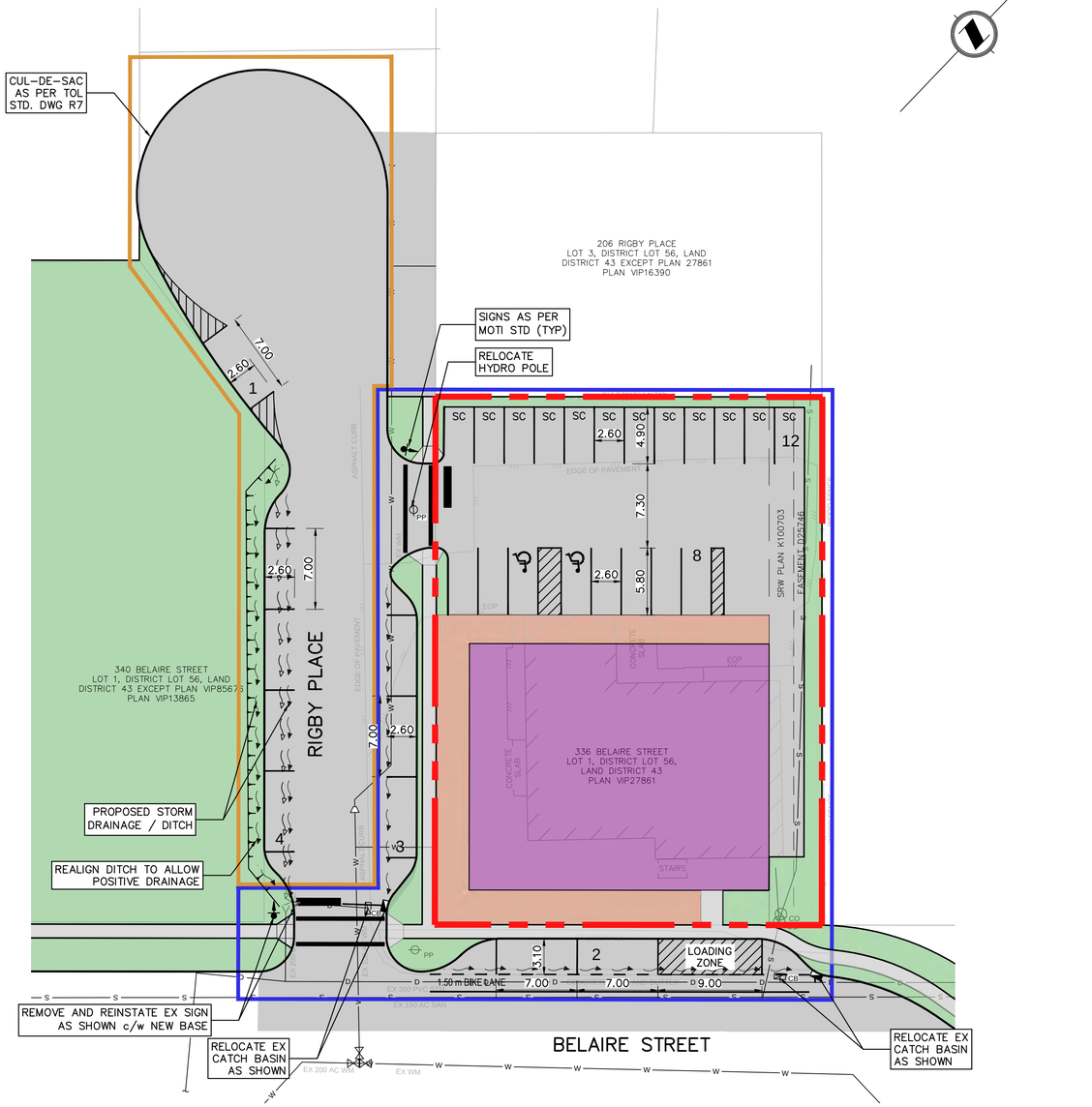
DRAWING LIST

SHEET #	SHEET TITLE	REVISIONS						
		PA	PB					
001	TITLE SHEET, LOCATION PLAN, AND GENERAL NOTES	X	X					
101	CONCEPTUAL SITE PLAN	X	X					

McElhanney

Suite 1
1351 Estevan Road
Nanaimo BC
Canada V9S 3Y3
Tel 250 716 3336

NOTE; DRAWINGS DO NOT INCLUDE UTILITY DESIGN



LEGEND:

- EXISTING SIDEWALK
- EXISTING PAVEMENT
- EXISTING DITCH
- PROPOSED STORM DRAINAGE / DITCH
- PROPOSED TOP OF BANK
- PROPOSED BUILDING
- PROPOSED PATH
- PROPOSED SIDEWALK
- PROPOSED ASPHALT
- PROPOSED LANDSCAPING
- PHASE 1
- PHASE 2 (OPTIONAL)

Rev	Date	Description	Drawn	Design	App'd
PB	OCT. 1, 2019	ISSUED FOR ACCEPTANCE	MCP	MCP	JI
PA	SEPT. 11, 2019	ISSUED FOR DISCUSSION	MCP	MCP	JI

0 1:250 10

ORIGINAL DWG SIZE: ANSI D (22" x 34")

McElhanney
Suite 1
1351 Estevan Road
Nanaimo BC
Canada V9S 3Y3
Tel 250 716 3336

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THIS DRAWING HAS NOT BEEN APPROVED AND MAY CONTAIN ERRORS AND OMISSIONS

AYPQ ARCHITECTURE
13270 DOOLE ROAD, LADYSMITH, BC V9G 1G6

THE JAILHOUSE
CONCEPTUAL SITE PLAN
LADYSMITH, BC

Drawing No. 101

Project Number 2233-01086-00

Rev. PB

Prepared By: C. St. Cyr (ML)
Checked By: J. Irving (ML)
Date: September 25, 2019

AYPQ ARCHITECTURE
"THE JAILHOUSE", LADYSMITH, BC
PHASE 1 - RIGBY PLACE & BELAIRE STREET UPGRADES
CLASS "D" - CONSTRUCTION COST ESTIMATE

					ML ESTIMATE 2019 UNIT RATES		
ITEM NO.	MMCD REF.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT	ASSUMPTIONS
1.0	**SITE PREPARATION**						
1.1	01 1.1	Mobilization/Demobilization	Lump Sum	1	$5,000.00	$5,000.00	
	01 55 00	**TRAFFIC REGULATION**					
1.2	01 55 00 1.5.2	Control of Public Traffic	Lump Sum	1	$2,500.00	$2,500.00	
		SITE PREPARATION SUBTOTAL				**$7,500.00**	
2.0	**ROADWORKS**						
		SITE PREPARATION					
2.1	31 24 13 1.8.5	Removal Existing Concrete & Asphalt (all thicknesses), offsite disposal	Square Metre	100	$10.00	$1,000.00	
2.2	31 22 01 1.4.4	Stripping Unsuitable Material (300mm thickness), offsite disposal	Cubic Metre	100	$23.00	$2,300.00	*300mm depth of unsuitable material*
2.3	31 24 13 1.8.9	Subgrade Preparation	Square Metre	300	$2.50	$750.00	
	32 11 16.1	**GRANULAR SUB-BASE:**					
2.4	32 11 16.1 1.4.3/.4	Granular sub-base - 250 mm thickness for parking areas	Square Metre	300	$17.00	$5,100.00	
	32 11 23	**GRANULAR BASE:**					
2.5	32 11 23 1.4.2/.3	Granular base - 100 mm thickness for road and site	Square Metre	300	$15.00	$4,500.00	
	32 12 16	**HOT-MIX ASPHALT CONCRETE PAVING:**					
2.6	32 12 16 1.5.1/.2	Asphaltic concrete paving - 50mm thickness	Square Metre	300	$45.00	$13,500.00	
2.7	32 12 16 1.5.7	Sawcut Existing Asphalt	Lineal Metre	60	$10.00	$600.00	*Assumes no replacement of existing asphalt*
2.8	Refer to Supplemental Specifications	Traffic Signs c/w Sign Pole and Base	Each	4	$500.00	$2,000.00	*2 signs in each parking area*
	32 17 23	**PAINTED PAVEMENT MARKINGS**					
2.9	32 17 23	Painted Pavement Markings	Lump Sum	1	$1,500.00	$1,500.00	
	03 30 20	**CONCRETE WALKS, CURB & GUTTER**					
2.10	03 30 20 1.4.3/.4	Non-mountable Concrete Curb & Gutter	Lineal Metre	93	$110.00	$10,230.00	
2.11	03 30 20 1.4.5	Concrete Sidewalk, 150mm thickness	Square Metre	125	$105.00	$13,125.00	
2.12	03 30 20 1.4.5	Wheel Chair Ramps	Each (pairs)	2	$1,500.00	$3,000.00	
2.13	32 93 01 1.9.1	Planting Trees & Ground Covers	Square Metre	92	$30.00	$2,760.00	*3 trees, topsoil & sod in remaining areas*
		ROADWORKS SUBTOTAL				**$60,365.00**	
3.0	**STORM SEWER**						
3.1	33 44 01 1.5.2/.4	Remove Existing Catchbasin, Extend Lead, Relocate & Backfill	Each	2	$3,500.00	$7,000.00	
		STORM SEWER SUBTOTAL				**$7,000.00**	

SECTION 1 SITE PREPARATION	**$7,500.00**
SECTION 2 ROAD WORKS	**$60,365.00**
SECTION 3 STORM SEWER	**$7,000.00**
TOTAL CONSTRUCTION WORKS	**$74,865**
CONTINGENCY (30%)	**$22,460**
ENGINEERING (15%)	**$11,230**
TOTAL PROJECT COST - PHASE 1	**$108,554**

1) Estimated costs are derived from recent experience on Vancouver Island, but there is no warrantay that actual cost will not vary. McElhanney accepts no liability for actual cost which may vary fro mthe estimated construction costs provided herein.

2) A "Class D" estimate is an order of magnituded estimate prepared with limited site information and is based on probable conditions affecting this project. It is used for planning, to establish a more specific definition of client needs and to obtain approval in principle. Design assumptions based on MMCD Design Guidelines and Town of Ladysmith Engineering Standards.

3) The cost estimate does not include costs for any site utilities

2019-10-07

McElhanney

Prepared By: C. St. Cyr (ML)
Checked By: J. Irving (ML)
Date: September 25, 2019

AYPQ ARCHITECTURE
"THE JAILHOUSE", LADYSMITH, BC
PHASE 2 - RIGBY PLACE UPGRADES
CLASS "D" - CONSTRUCTION COST ESTIMATE

PHASE 2

ITEM NO.	MMCD REF.	DESCRIPTION	UNIT	QUANTITY	ML ESTIMATE 2019 UNIT RATES UNIT PRICE	AMOUNT	ASSUMPTIONS
1.0	**SITE PREPARATION**						
1.1	01 1.1	Mobilization/Demobilization	Lump Sum	1	$5,000.00	$5,000.00	
	01 55 00	**TRAFFIC REGULATION**					
1.2	01 55 00 1.5.2	Control of Public Traffic	Lump Sum	1	$2,000.00	$2,000.00	
		SITE PREPARATION SUBTOTAL				**$7,000.00**	
2.0	**ROAD WORKS**						
		SITE PREPARATION					
2.1	31 22 01 1.4.4	Stripping Unsuitable Material (300mm thickness), offsite disposal	Cubic Metre	50	$23.00	$1,150.00	*300mm depth of unsuitable material*
2.2	31 23 01 1.10.6	Drainage Ditch/Swale	Lineal Metre	45	$50.00	$2,250.00	
2.2a		[Provisional] Rock Removal	Cubic Metre	0	$200.00	$0.00	*Requirement dependent on ground conditions; to be confirmed with geotechnical investigation*
2.3	31 24 13 1.3.6	Imported Embankment Fill	Cubic Metre	90	$25.00	$2,250.00	
2.4	33 42 13 1.5.3	Headwall - Concrete Sandbags (Culvert inlet)	Each	1	$1,000.00	$1,000.00	
2.5	31 24 13 1.8.9	Subgrade Preparation	Square Metre	510	$2.50	$1,275.00	
	32 11 16.1	**GRANULAR SUB-BASE:**					
2.6	32 11 16.1 1.4.3/.4	Granular sub-base - 250 mm thickness for parking areas	Square Metre	510	$17.00	$8,670.00	*Assumes existing granular base is not reusable*
	32 11 23	**GRANULAR BASE:**					
2.7	32 11 23 1.4.2/.3	Granular base - 100 mm thickness for road and site	Square Metre	510	$15.00	$7,650.00	
	32 12 16	**HOT-MIX ASPHALT CONCRETE PAVING:**					
2.8	32 12 16 1.5.1/.2	Asphaltic concrete paving - 50mm thickness	Square Metre	510	$45.00	$22,950.00	*No concrete curb required by Town*
2.9	32 12 16 1.5.7	Sawcut Existing Asphalt	Lineal Metre	20	$10.00	$200.00	*Assumes no replacement of existing asphalt*
2.10	Refer to Supplemental Specifications	Traffic Signs c/w Sign Pole and Base	Each	2	$500.00	$1,000.00	*2 signs in each parking area*
	32 17 23	**PAINTED PAVEMENT MARKINGS**					
2.11	32 17 23	Painted Pavement Markings	Lump Sum	1	$1,000.00	$1,000.00	
2.12	Refer to Supplemental Specifications	Topsoil & Hydroseed Drainage Ditch	Square Metre	80	$13.00	$1,040.00	
		ROADWORKS SUBTOTAL				**$50,435.00**	

1) Estimated costs are derived from recent experience on Vancouver Island, but there is no warrantay that actual cost will not vary. McElhanney accepts no liability for actual cost which may vary fro mthe estimated construction costs provided herein.

2) A "Class D" estimate is an order of magnituded estimate prepared with limited site information and is based on probable conditions affecting this project. It is used for planning, to establish a more specific definition of client needs and to obtain approval in principle. Design assumptions based on MMCD Design Guidelines and Town of Ladysmith Engineering Standards.

3) The cost estimate does not include costs for any site utilities

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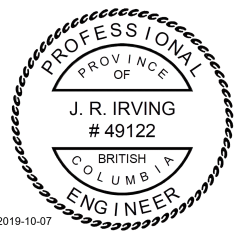
SECTION 1	**SITE PREPARATION**	**$7,000.00**
SECTION 2	**ROAD WORKS**	**$50,435.00**
	TOTAL CONSTRUCTION WORKS	**$57,435**
	CONTINGENCY (30%)	**$17,231**
	ENGINEERING (15%)	**$8,615**
	TOTAL PROJECT COST - PHASE 2	**$83,281**



2019-10-07

Our File: 2233-01086-00

TECHNICAL MEMO

To Angela YP Quek, Architect AIBC AYPQ Architecture	**Prepared by** **Emily Shibata**, Traffic Tech. Branch 2111 / Traffic and Road Safety **Reviewed by** **Parm Nahal**, P.Eng. Branch 2111 / Traffic and Road Safety
Re Traffic Impact Assessment – proposed mixed use development with a community brew pub, coffee shop, and residential space in Ladysmith, BC	**Date** October 10, 2019

The purpose of this technical memorandum is to review traffic operations for the proposed Jailhouse Brew Co. Ltd. mixed use development in Ladysmith, British Columbia, and provide a review of transit and active transportation in the area. This study evaluates the AM and PM weekday peak hour conditions in years 2019, 2020 (opening day), 2025 (opening day + 5 years), and 2040 (opening day + 20 years).

1. Introduction

1.1. PROJECT DESCRIPTION

The proposed project development is located in Ladysmith, British Columbia at the intersection of Rigby Place and Belaire Street. The project reserves the option to develop the project in two phases. The first phase consists solely of a maximum 6600 square foot commercial development, of which the present proposal is for 50% coffee shop and 50% neighbourhood pub/restaurant. The second phase is a full build plan which includes a maximum 6600 square foot commercial development (Phase 1) with two additional residential levels consisting of 8 maximum units (density of 53 units per hectare). The property will be accessed from Rigby Place. Parking will be located above ground on the project site next to the proposed development.

1.2. LOCATION

The project site is located between Rigby Place and Dogwood Drive, north of Belaire Street (Lot 1, District Lot 56, Oyster District, Plan 27891) in Ladysmith, British Columbia. Two intersections, Belaire

Street / Dogwood Drive and Belaire Street / Rigby Place, will be analyzed as part of this study. An overview of the project location is shown in *Figure 1*.

Jailhouse Brew Co. Ltd. Mixed Use Development - Traffic Impact Assessment

Project Location

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FIGURE 1

Not to Scale

2. Traffic Volume Development

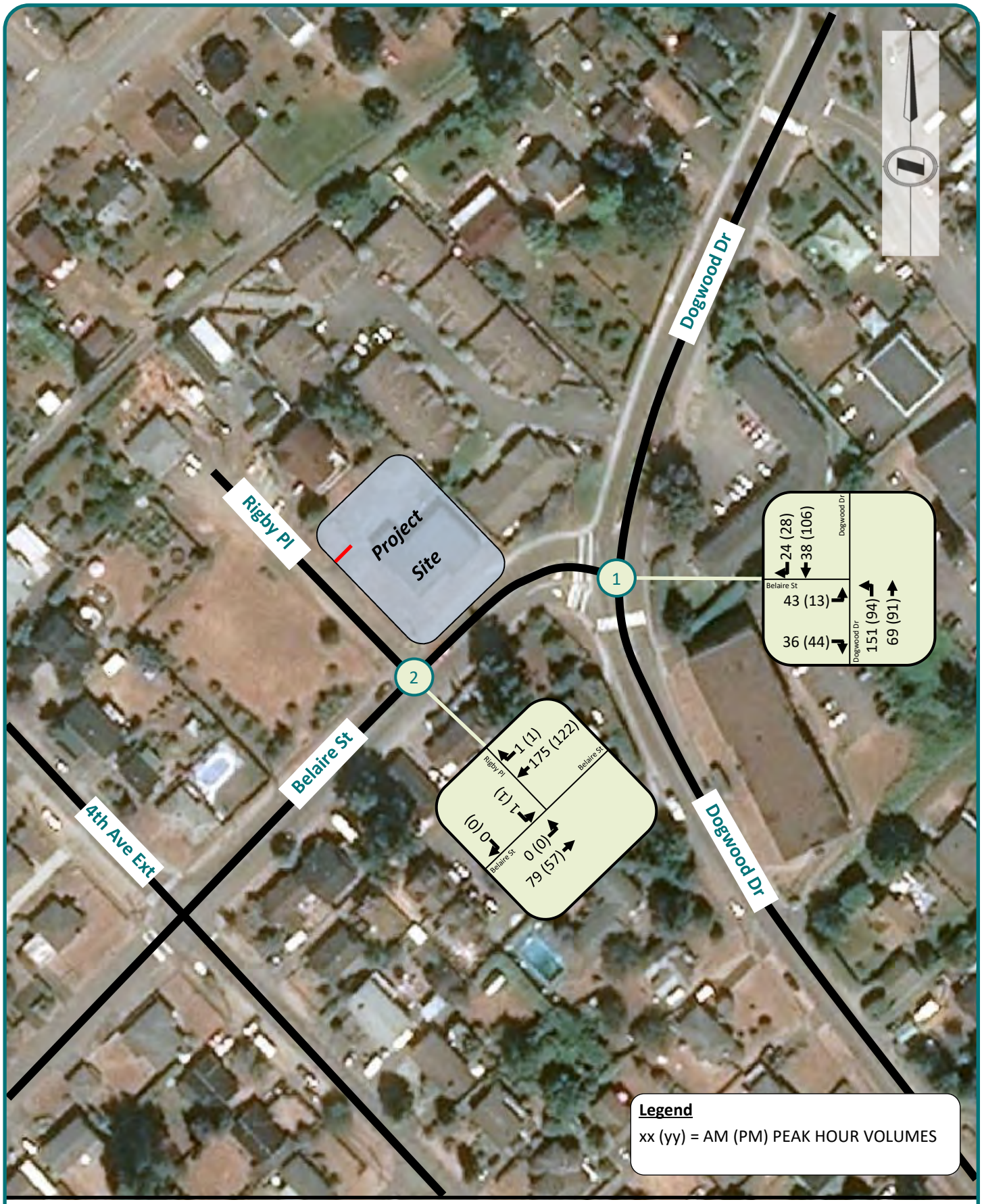
2.1. EXISTING 2019 TRAFFIC VOLUMES

Weekday AM and PM peak hour traffic volumes were collected by McElhanney Ltd. (McElhanney) on September 10, 2019 at the intersection of Belaire Street and Dogwood Drive. Peak hours were recorded on a weekday from 7:00 AM to 9:00 AM and 3:00 PM to 6:00 PM. The peak hour was established by finding the hour with the highest overall volumes. For this intersection, the AM peak hour occurred between 7:45 AM to 8:45 AM while the PM peak hour occurred between 4:15 PM to 5:15 PM.

A decision was made in consultation with the Town of Ladysmith that a second count at Belaire Street and 4th Avenue Extension was not required, as most traffic will be coming from Dogwood Drive. Existing volumes for the second study intersection, Belaire Street and Rigby Place, were determined based on the counts at Dogwood Drive. Rigby Place is a no through road only used to access a few single detached homes.

The 2019 weekday AM and PM peak hour traffic volumes at the study intersections are presented in *Figure 2*. Detailed traffic count sheets can be found in *Attachment A.*

The existing volumes used in this study were compared to nearby municipal traffic data. McElhanney's count closely related to counts taken at neighbouring intersections, which can be found in *Attachment B.*



Jailhouse Brew Co. Ltd. Mixed Use Development - Traffic Impact Assessment

2019 (Existing Conditions) Traffic Volumes

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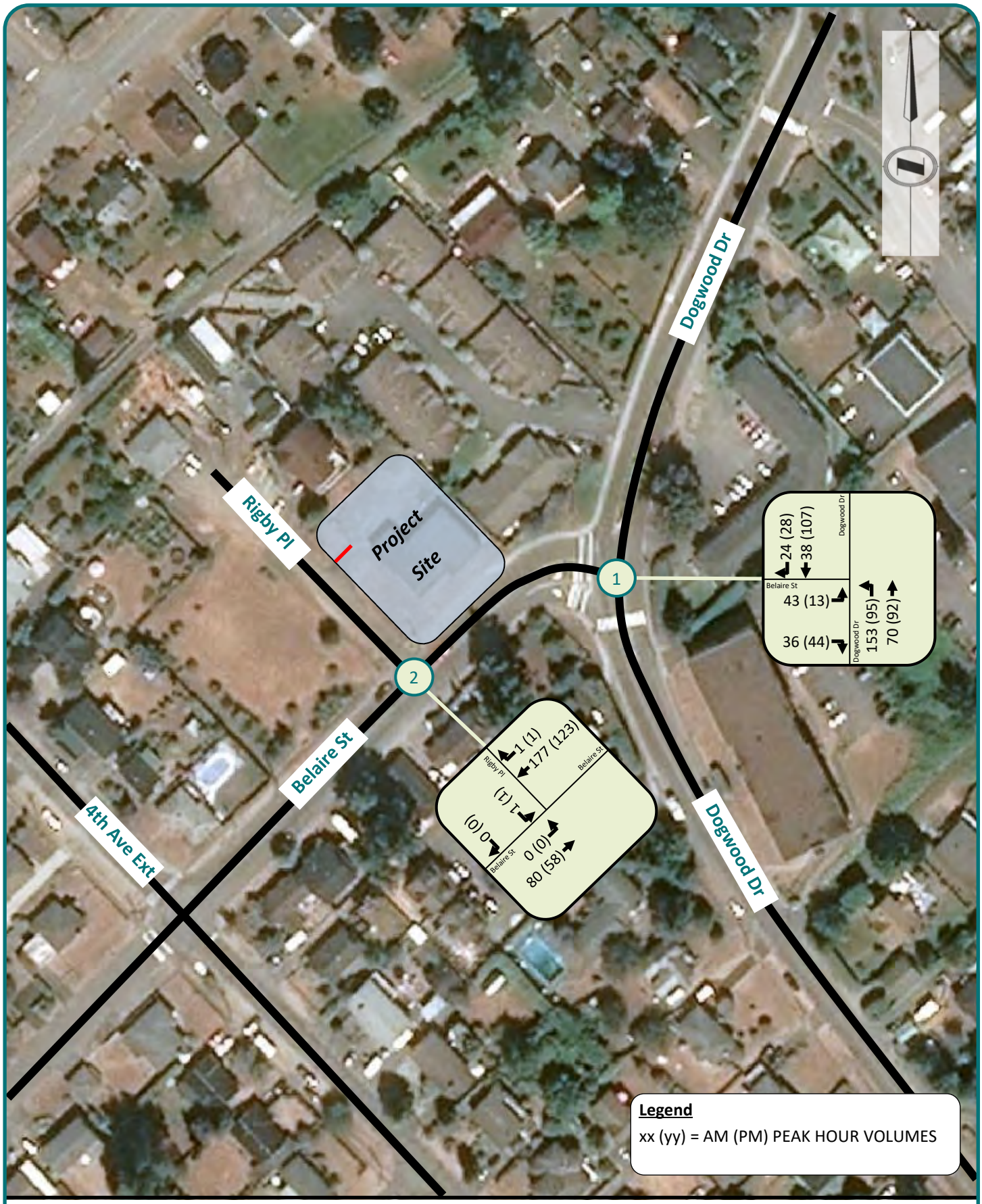
FIGURE 2

Not to Scale

2.2. FUTURE TRAFFIC VOLUMES

To develop 2020 (opening day), 2025 (opening day + 5 years), and 2040 (opening day + 20 years) background traffic volumes, McElhanney applied a 1.0% annually compounding growth rate to all movements of the study intersections.

The 2020, 2025, and 2040 background AM and PM weekday peak hour traffic volumes are presented in *Figure 3*, *Figure 4*, and *Figure 5* respectively.



Jailhouse Brew Co. Ltd. Mixed Use Development - Traffic Impact Assessment

2020 (Opening Day) Background Traffic Volumes

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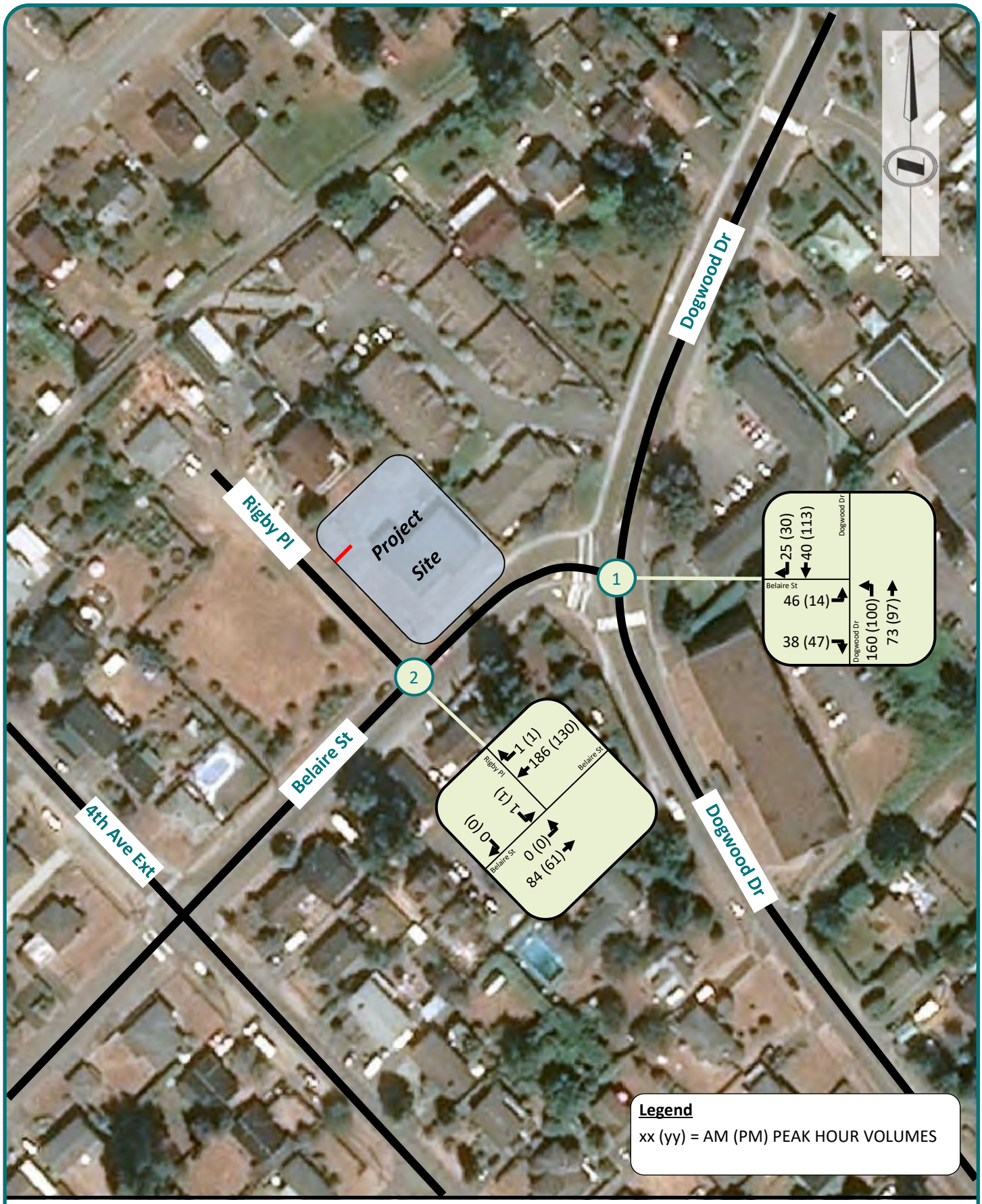
2233-01086-00

FIGURE 3

Not to Scale



Jailhouse Brew Co. Ltd. Mixed Use Development - Traffic Impact Assessment

2025 (Opening Day + 5 Years) Background Traffic Volumes

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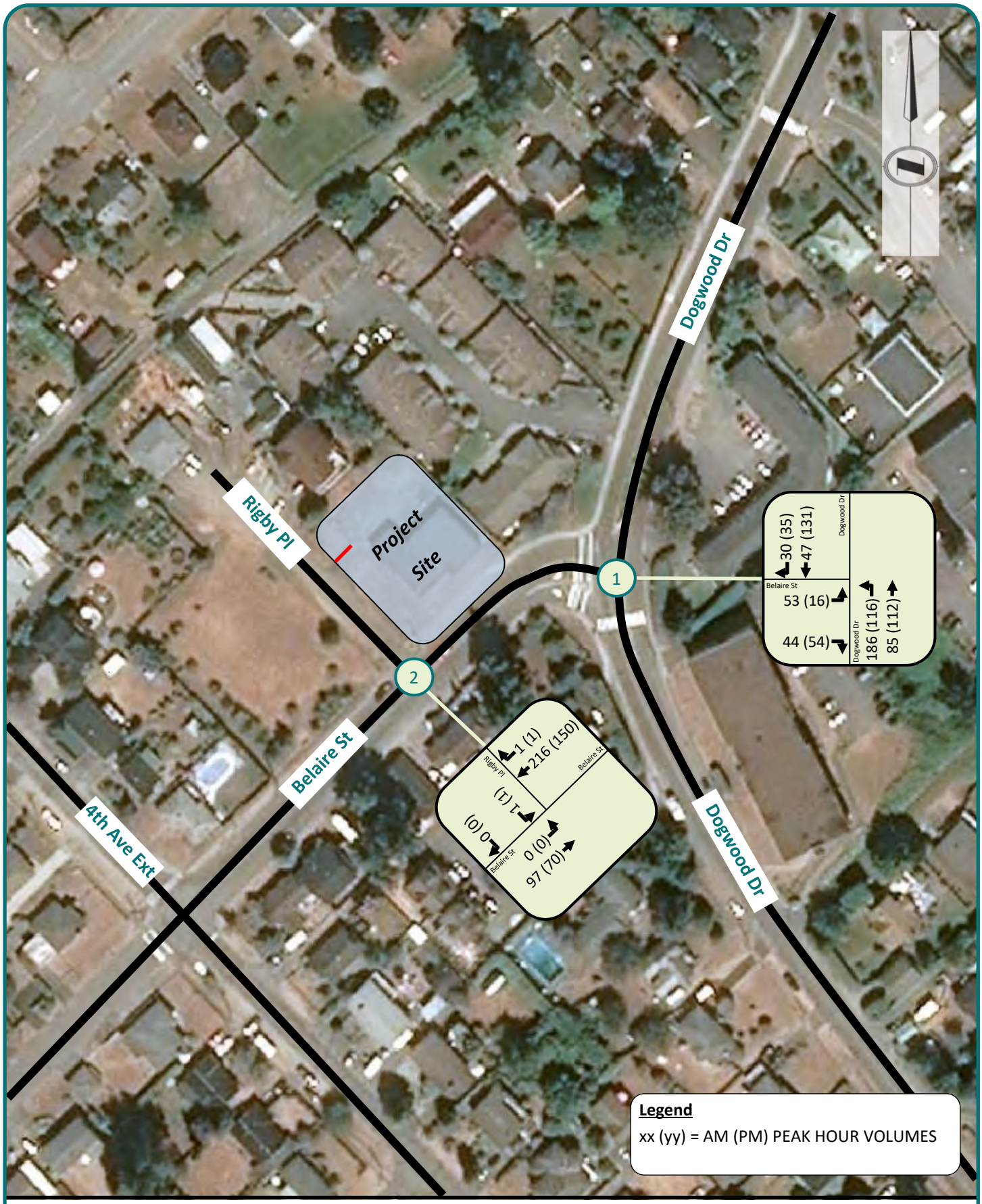
FIGURE 4

Not to Scale



Jailhouse Brew Co. Ltd. Mixed Use Development - Traffic Impact Assessment

2040 (Opening Day + 20 Years) Background Traffic Volumes

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2233-01086-00

FIGURE 5

Not to Scale

2.3. TRIP GENERATION

Project trip generation refers to the process of estimating the amount of vehicular traffic a development would add to the surrounding roadway system. The amount of traffic entering and exiting the road system was calculated for the weekday AM and PM peak hours.

Trip generation estimates were developed using Trip Generation, 10th Edition, 2017, Institute of Transportation Engineers (ITE). The proposed development phases and their trip generations are outlined below.

Phase 1: Commercial Only (Coffee Shop & Community Brew Pub/Restaurant)

Phase 1 consists of a 6600 square feet coffee shop and community brew pub/restaurant to be completed by the year 2020. Land use codes 925 - Drinking Place (community brew) and 936 - Coffee/Donut Shop without Drive-Through Window were used to determine the generated vehicular trips in a general urban/ suburban setting. The pub is assumed to be closed during the morning peak hour. The development will generate a total of 334 trips in the AM and 158 trips in the PM. *Table 1* presents the ITE trip generation rate used and the resulting estimated trips. The ITE trip generation manual does not have data for Land Use Code 936 beyond 2650 square feet, therefore the existing linear relationship between coffee shop size and trip generation was extrapolated to determine the trip generation for a coffee shop that is 3300 square feet. McElhanney identifies that the resulting trip generation is significant, but without other local information, the ITE manual provides the best guidance for this application.

Table 1: Trip Generation Summary - Phase 1

Development Type	Land Use Code	Units	# of Units	Period	Trip Rate	In / Out Ratio		Trips		
						IN	OUT	IN	OUT	Total
Drinking Place (Community Brew)	925	1000 square feet (ksf)	3.3	AM	0	0	0	0	0	0
				PM	11.36	66%	34%	25	13	38
Coffee/Donut Shop without Drive-Through Window	936	1000 square feet (ksf)	3.3	AM	101.14	51%	49%	170	164	334
				PM	36.31	50%	50%	60	60	120

Phase 2: Commercial and Residential

Phase 2 consists of a 6600 square feet commercial space (Phase 1) with 2 residential floors above it. This residential space will provide a maximum of 8 units (density of 53 units per hectare). The commercial portion of Phase 2 is the same as Phase 1, therefore the same land use codes were used. Land use code 220 - Multifamily Housing (Low-Rise) was used to determine the additional generated vehicular trips in a general urban/suburban setting. The residential development will add 3 AM trips and 4 PM trips to the Phase 1 commercial trips, totaling 337 trips in the AM and 162 trips in the PM overall for Phase 2. *Table 2* presents the ITE trip generation rate used and the resulting estimated trips.

Table 2: Trip Generation Summary - Phase 2

Development Type	Land Use Code	Units	# of Units	Period	Trip Rate	In / Out Ratio		Trips		
						IN	OUT	IN	OUT	Total
Drinking Place (Community Brew)	925	1000 square feet (ksf)	3.3	AM	0	0	0	0	0	0
				PM	11.36	66%	34%	25	13	38
Coffee/Donut Shop without Drive-Through Window	936	1000 square feet (ksf)	3.3	AM	101.14	51%	49%	170	164	334
				PM	36.31	50%	50%	60	60	120
Multifamily Housing (Low-Rise)	220	Dwelling units	8	AM	0.46	23%	77%	1	2	3
				PM	0.56	63%	37%	3	1	4

2.4. TRIP REDUCTIONS

Trip reductions may be applied to ITE's base trip generation values to account for alternative modes of transportation, internal capture trips, and pass-by trips. As transit is limited in the town of Ladysmith, no transit reductions were made. For a more conservative analysis, no walk / bike reductions were made.

Internal capture trips are trips by residents within the development to the commercial land uses that will not add any additional trips to the surrounding road network. Phase 1 does not consist of any residential spaces, and Phase 2 has a maximum of 8 units. Therefore, no internal capture reductions were made. Pass-by trips are additional stops at the study site by motorists on their way to a destination other than the project development. For a more conservative analysis, no pass-by reductions were made.

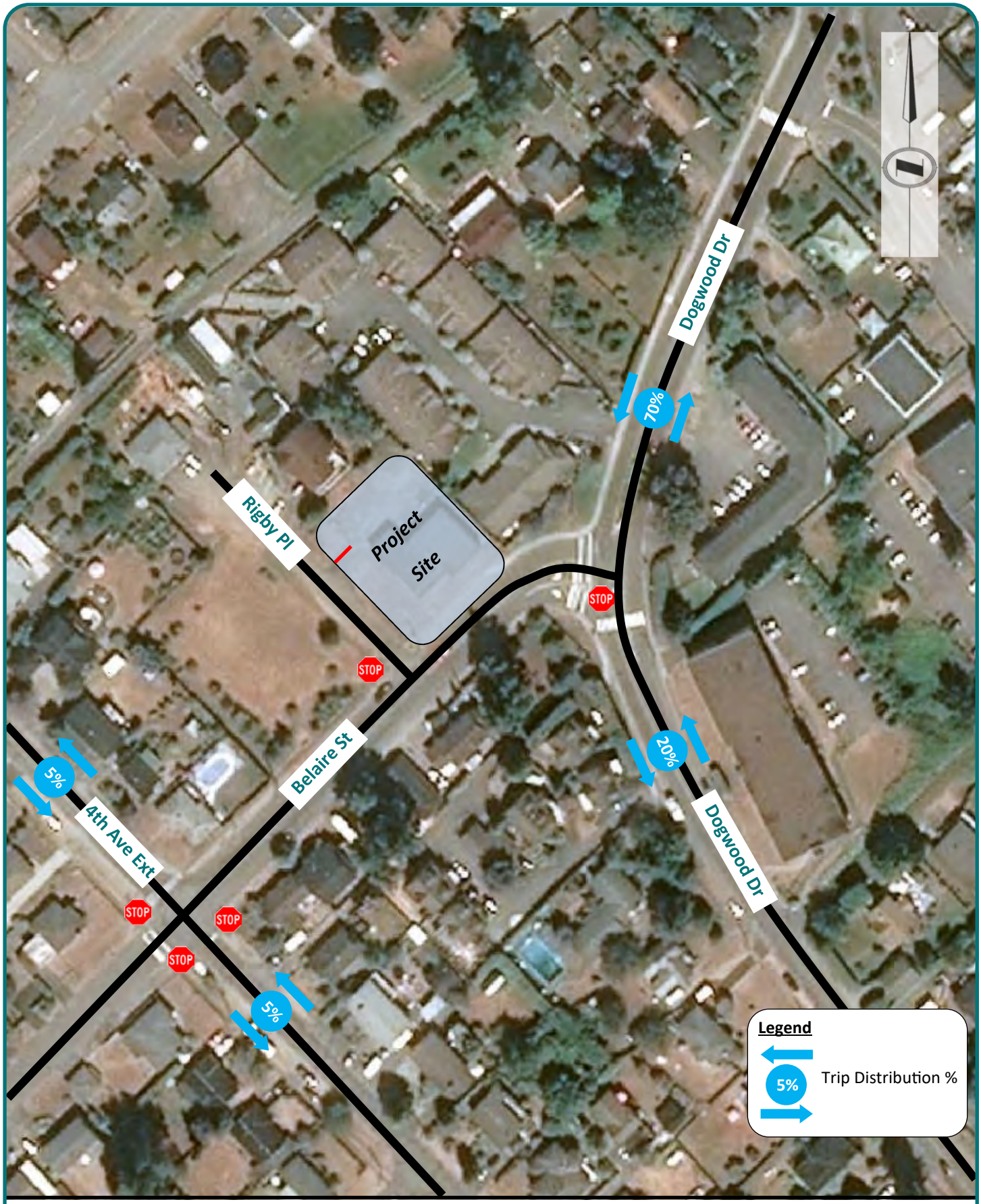
Overall, no trip reductions were made.

2.5. TRIP DISTRIBUTION

The trip distribution of traffic generated by the development was estimated based on the proximity of nearby arterial roads, businesses, and residences. When travelling to and from the development, most trips are expected to use Dogwood Drive, the nearest urban collector extending north to south. Therefore, the following trip distribution was assumed:

- 70% to / from Dogwood Drive (north)
- 20% to / from Dogwood Drive (south)
- 5% to / from 4th Avenue Extension (north)
- 5% to / from 4th Avenue Extension (south)

A graphical representation of the trip distribution is shown in *Figure 6*.



Jailhouse Brew Co. Ltd. Mixed Use Development - Traffic Impact Assessment

Trip Distribution

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FIGURE 6

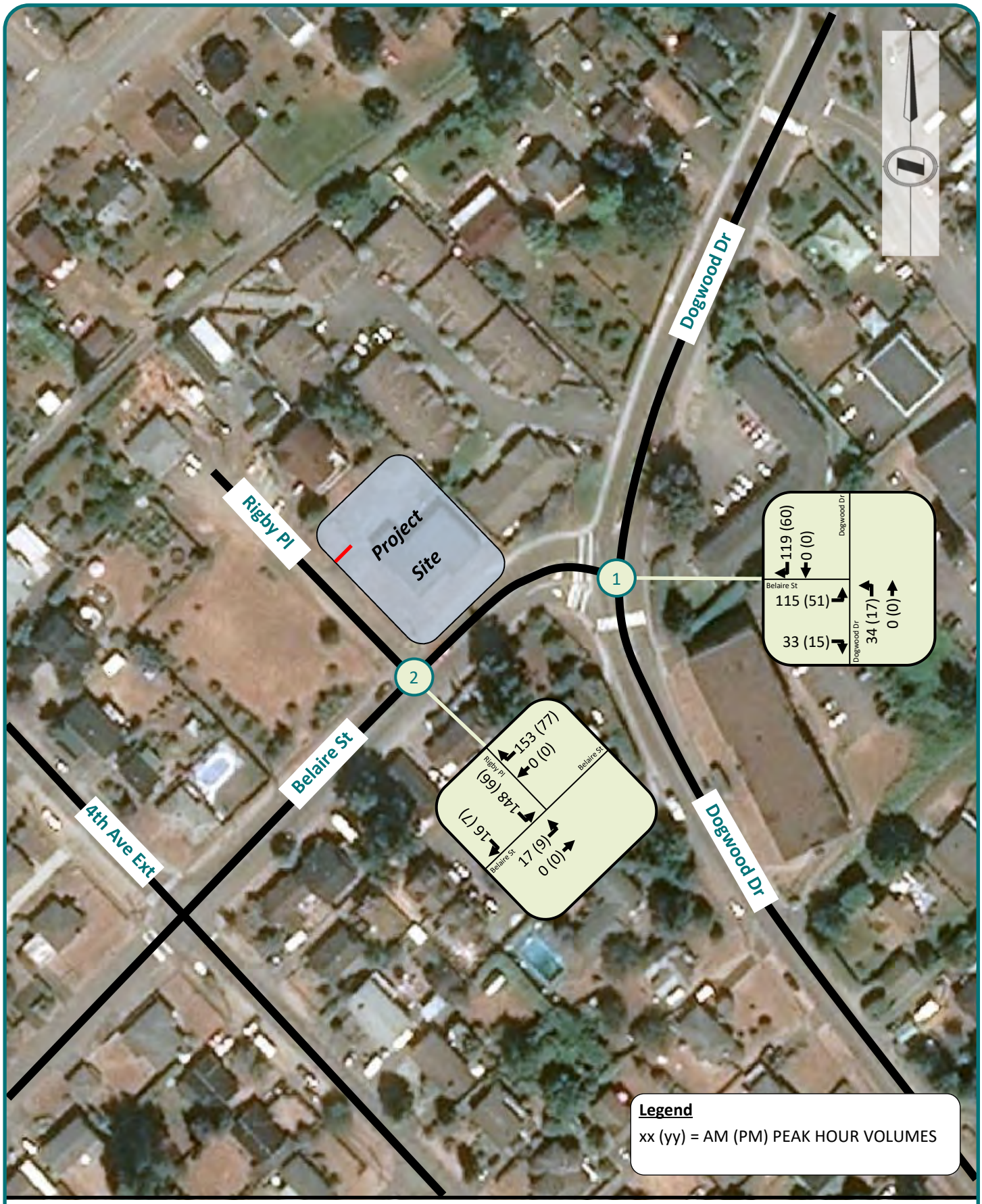
Not to Scale

2.6. WITH PROJECT TRAFFIC VOLUMES

To determine traffic volumes for 2020 (opening day), 2025 (opening day + 5 years), and 2040 (opening day + 20 years) with the development (i.e. combined), the site generated trips estimated for the subject development were added to the background traffic volumes for each of the study horizons.

Phase 1: Commercial Only (Coffee Shop & Community Brew Pub/Restaurant)

Phase 1 site generated trips and their distributions are shown in *Figure 7*. 2020, 2025, and 2040 combined traffic volumes are presented in *Figure 8*, *Figure 9*, and *Figure 10*, respectively.



Jailhouse Brew Co. Ltd. Mixed Use Development - Traffic Impact Assessment

Site Generated Traffic Volumes - Phase 1

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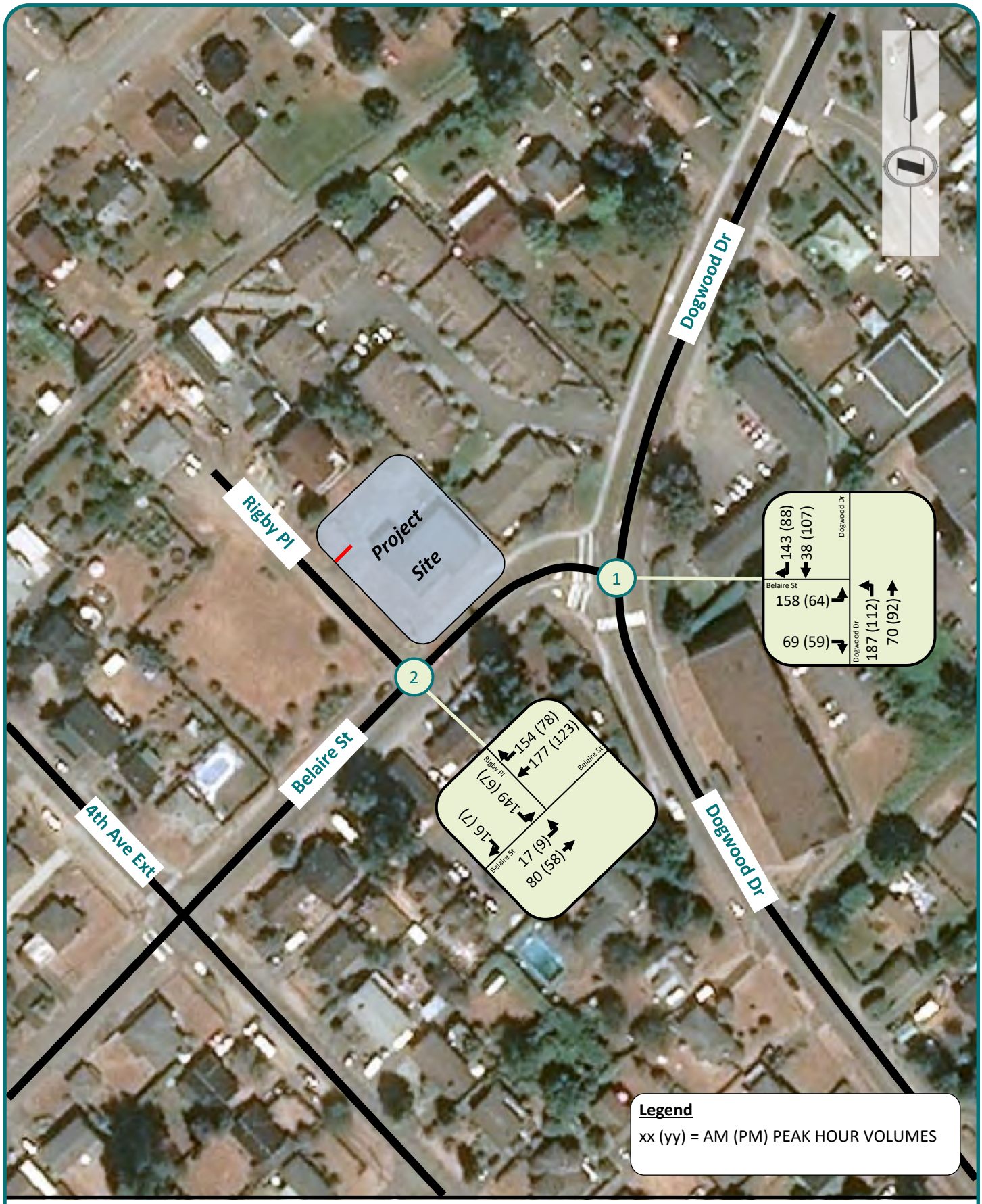
FIGURE 7

Not to Scale



Jailhouse Brew Co. Ltd. Mixed Use Development - Traffic Impact Assessment

2020 (Opening Day) Combined Traffic Volumes - Phase 1

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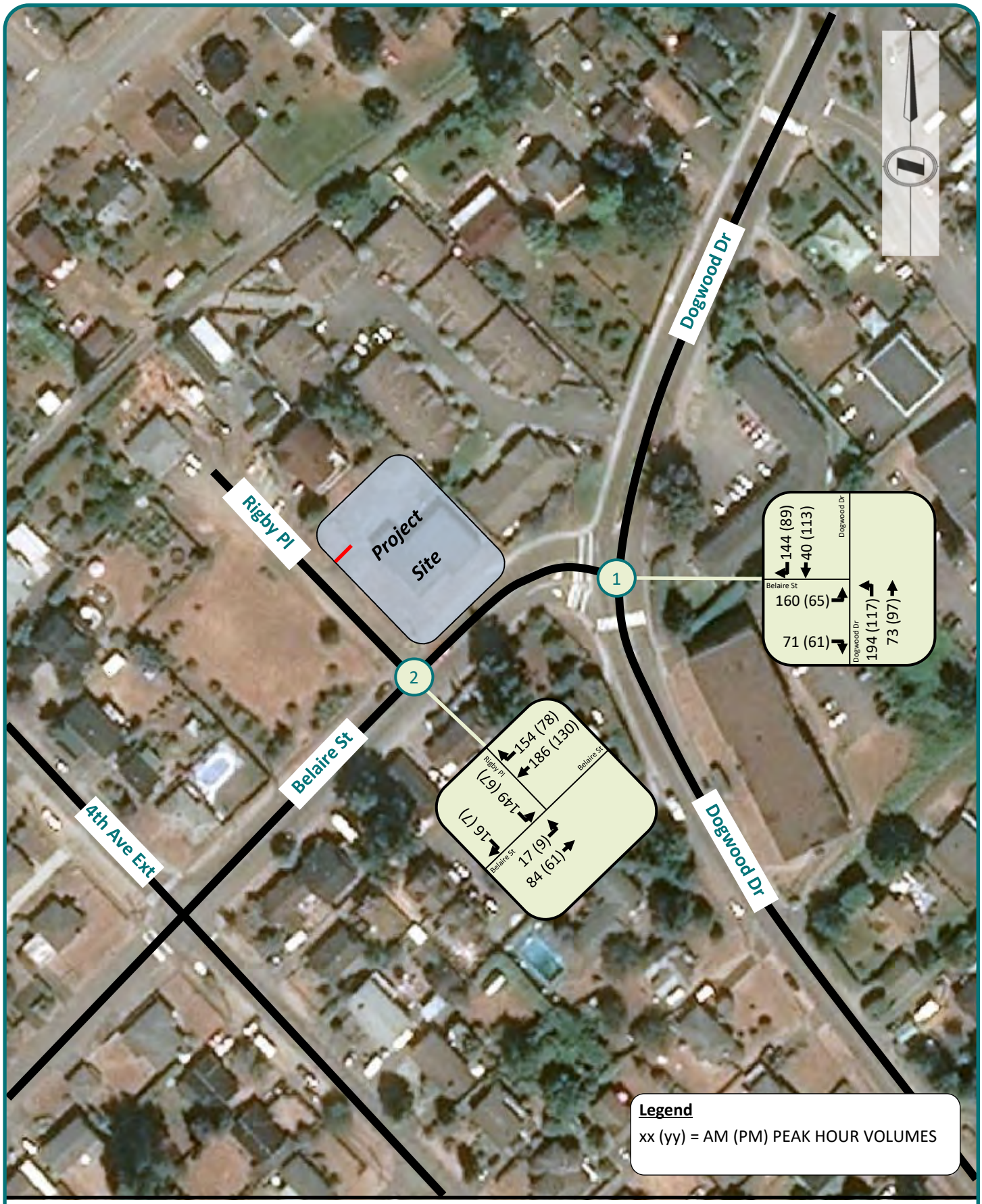
FIGURE 8

Not to Scale



Jailhouse Brew Co. Ltd. Mixed Use Development - Traffic Impact Assessment

2025 (Opening Day + 5 Years) Combined Traffic Volumes - Phase 1

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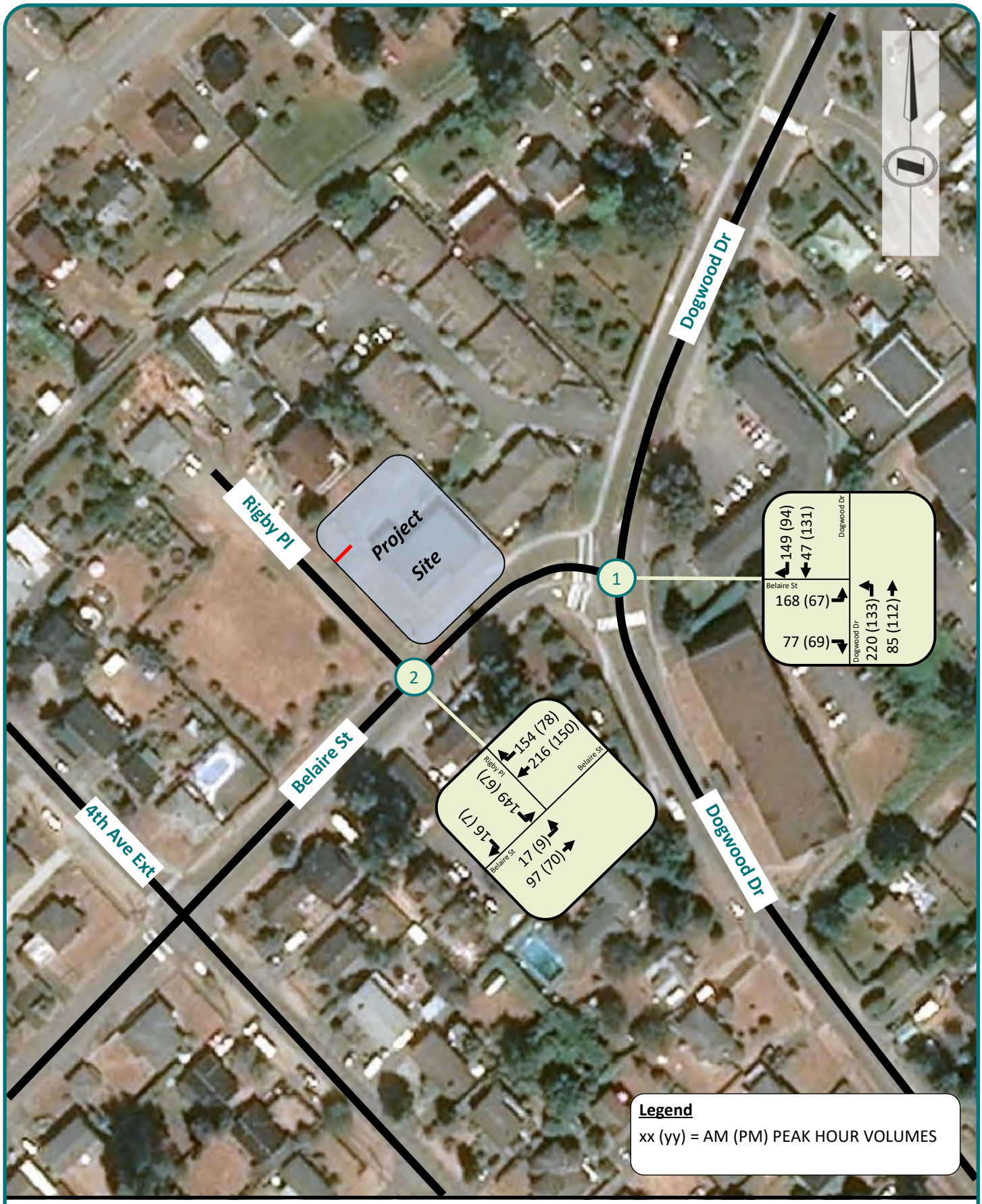
FIGURE 9

Not to Scale



Jailhouse Brew Co. Ltd. Mixed Use Development - Traffic Impact Assessment

2040 (Opening Day + 20 Years) Combined Traffic Volumes - Phase 1

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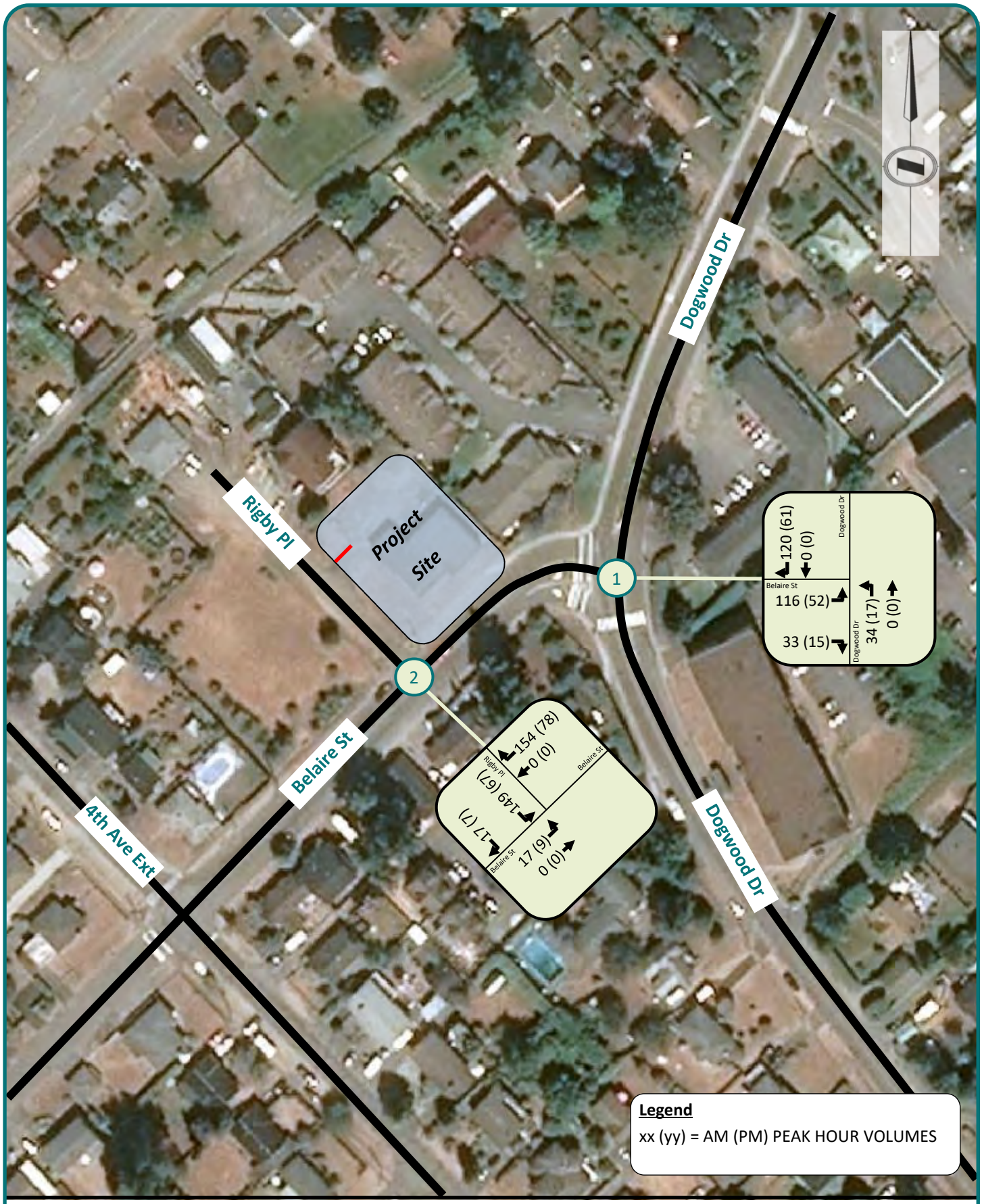
2233-01086-00

FIGURE 10

Not to Scale

Phase 2: Commercial and Residential

Phase 2 site generated trips and their distributions are shown in *Figure 11*. 2020, 2025, and 2040 combined traffic volumes are presented in *Figure 12*, *Figure 13*, and *Figure 14*, respectively.



Jailhouse Brew Co. Ltd. Mixed Use Development - Traffic Impact Assessment

Site Generated Traffic Volumes - Phase 2

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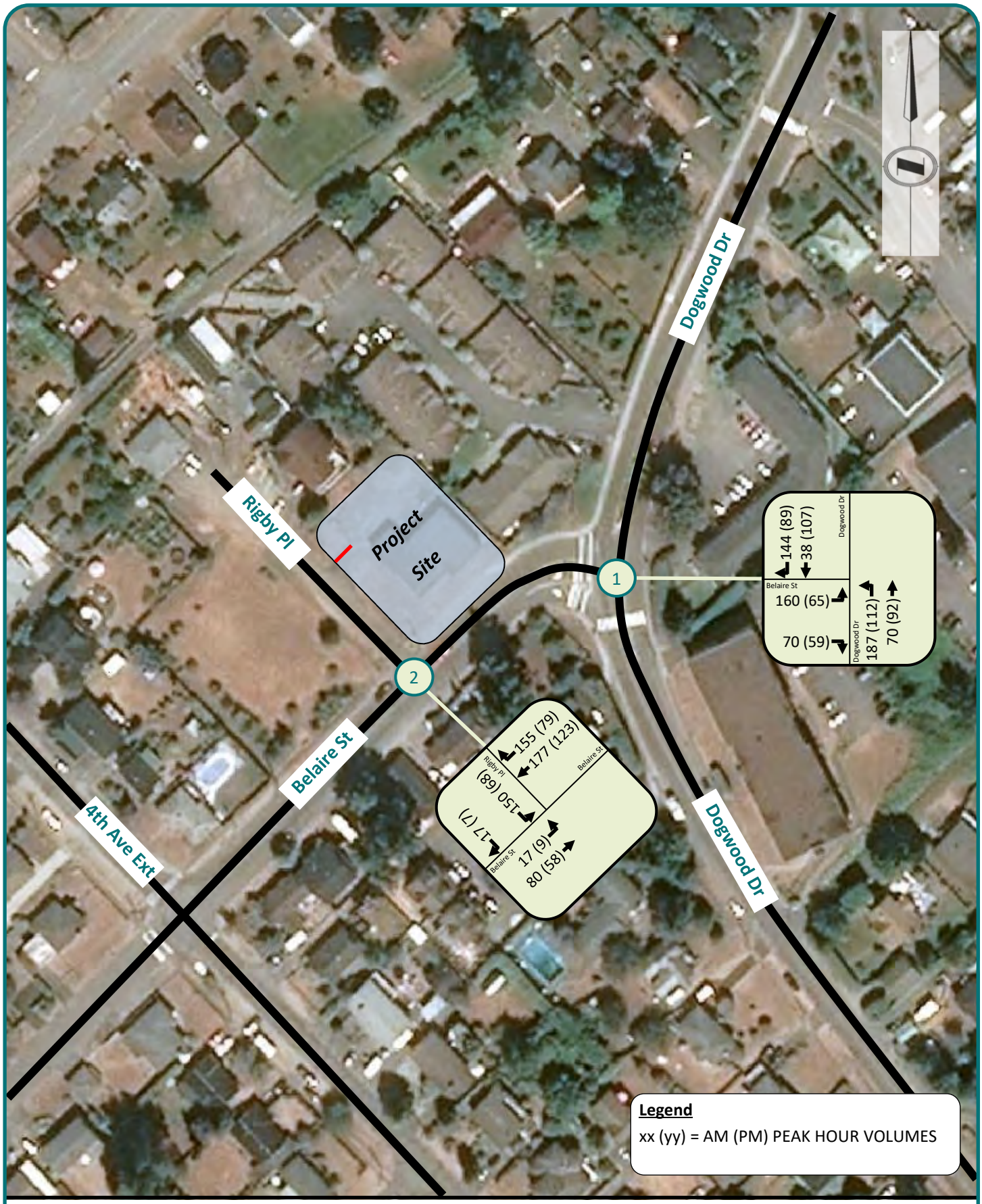
2233-01086-00

FIGURE 11

Not to Scale



Jailhouse Brew Co. Ltd. Mixed Use Development - Traffic Impact Assessment

2020 (Opening Day) Combined Traffic Volumes - Phase 2

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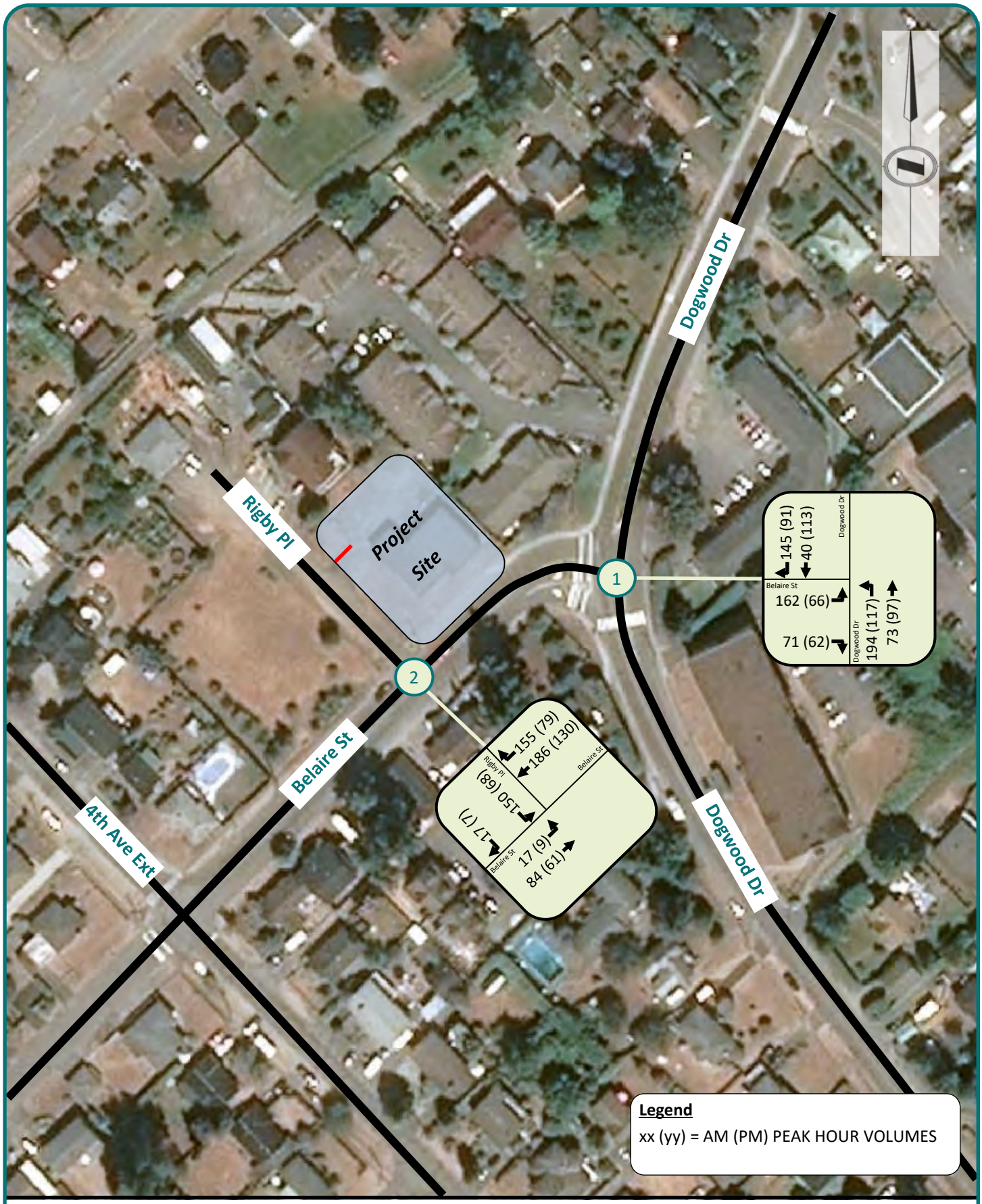
2233-01086-00

FIGURE 12

Not to Scale



Jailhouse Brew Co. Ltd. Mixed Use Development - Traffic Impact Assessment

2025 (Opening Day + 5 Years) Combined Traffic Volumes - Phase 2

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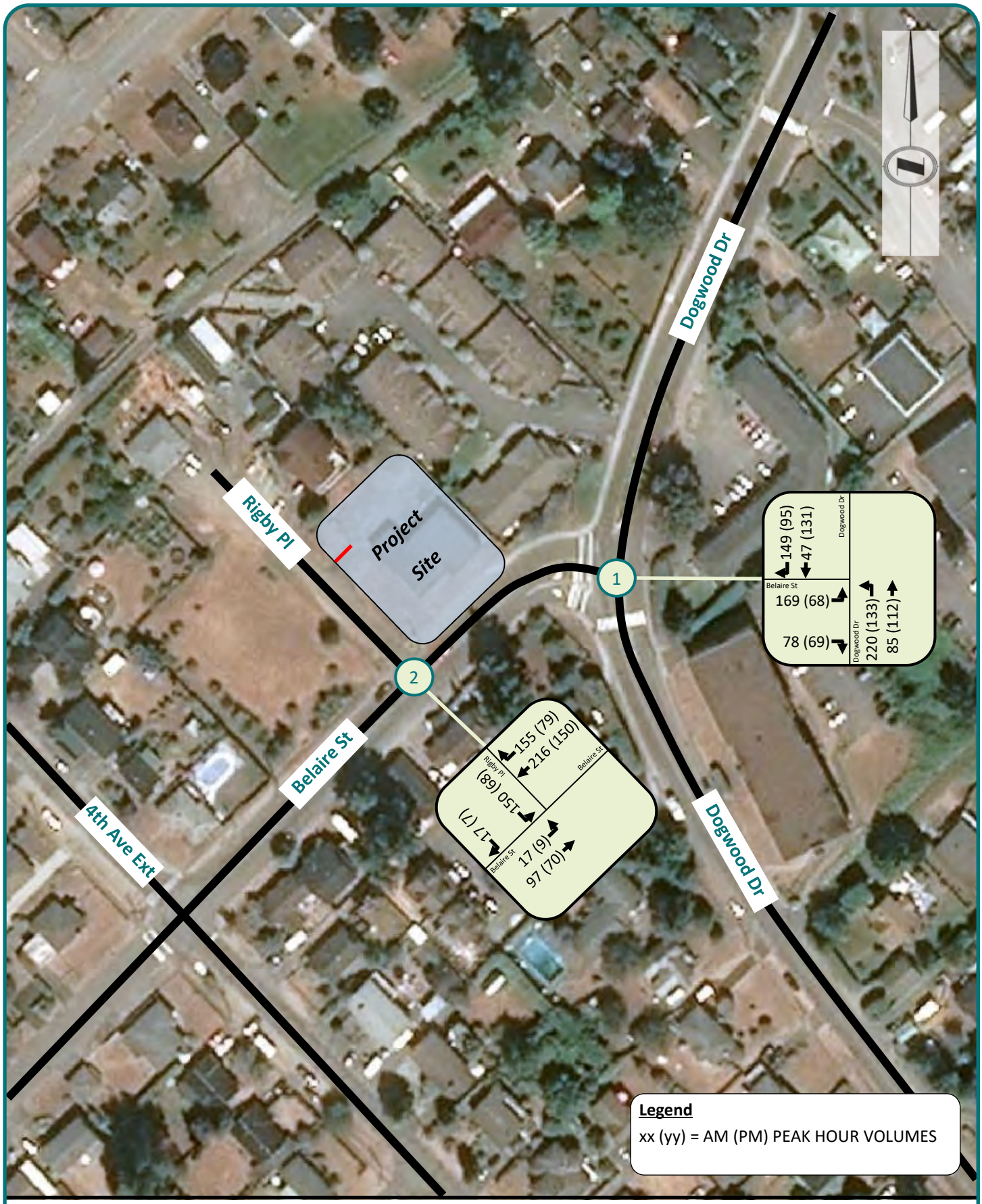
2233-01086-00

FIGURE 13

Not to Scale



Jailhouse Brew Co. Ltd. Mixed Use Development - Traffic Impact Assessment

2040 (Opening Day + 20 years) Combined Traffic Volumes - Phase 2

McElhanney
2233-01086-00

FIGURE 14

Not to Scale

3. Traffic Operational Analysis

Traffic operational analysis was conducted for four scenarios:

- 2019 (Existing Conditions)
- 2020 (Opening Day)
- 2025 (Opening Day + 5 years)
- 2040 (Opening Day + 20 years)

All scenarios were analyzed for the AM and PM weekday peak hours. The future scenarios (2020, 2025, and 2040) were analyzed with and without the addition of trips generated by the proposed development.

3.1. SYNCHRO ANALYSIS SOFTWARE

Synchro software, version 10, was used to report the level of service (LOS) and average delay at each of the study intersections. Synchro is a traffic software used to determine traffic conditions based on volumes, laning, and type of traffic control. Synchro calculates average delays and queue lengths for each movement at an intersection. Average delays are then translated into LOS. It should be noted Synchro results are calculated, and therefore are typically conservative compared to observed traffic flow, which is affected by driver behaviour. Detailed Synchro analysis reports can be found in *Attachment C*.

3.2. INTERSECTION LEVEL OF SERVICE CRITERIA

Operations of roadway facilities are described in terms of Level of Service (LOS). LOS is a qualitative description of traffic flow based on factors such as speed, travel time, delay, and freedom to manoeuvre. Six service levels are defined, ranging from LOS A, the best operating conditions, to LOS F, the worst operating conditions. LOS E corresponds to “at or near capacity” operations. When volumes exceed capacity, it results in stop-and-go conditions, which is designated as LOS F. The delay thresholds and corresponding LOS are presented in *Table 3*. The typical criterion for acceptable operation is LOS D. Therefore, any movement or intersection operating at LOS E or worse may require improvement.

Both study intersections are unsignalized (side-street stop-controlled) intersections. The LOS calculations were conducted based the methodology contained in Chapter 17 of the Highway Capacity Manual (HCM), Transportation Research Board, 2010. The LOS rating is based on the average delay expressed in seconds per vehicle.

It should be noted that although Synchro reports overall intersection LOS at side-street stop-controlled unsignalized intersections, the overall LOS is not a good indicator of the side street performance, as it is calculated from the average delay for all vehicles. As a result, the overall LOS is typically heavily skewed toward the LOS for the free flow major movement, particularly where the proportion of free flow volume on the major street is very high. To better acknowledge side street performance, only the individual movement LOS is presented.

Table 3: Intersection Level of Service Definitions for Unsignalized Intersections

Level of Service	Delay Criteria	Description
A	≤ 10	Represents free flow. Individual users are virtually unaffected by others in the traffic stream. Usually no conflicting traffic
B	> 10 to 15	Stable flow, but the presence of other users in the traffic stream begins to be noticeable. Occasionally some delay due to conflicting traffic
C	> 15 to 25	Stable flow, but the operation of individual users becomes significantly affected by interactions with others in the traffic stream. Delay is noticeable, but not inconveniencing.
D	> 25 to 35	Represents high-density, but stable flow. Delay is noticeable and irritating; increased likelihood of risk taking.
E	**> 35 to 50**	**Represents operating conditions at or near the capacity level. Delay approaching tolerance levels; risk taking behaviour is likely.**
F	**> 50**	**Represents forced or breakdown flow. Delay exceeds tolerance level; high likelihood of risk taking.**

Notes: Values shown are in seconds / vehicle. **BOLD** indicates unacceptable LOS.

3.3. LEVEL OF SERVICE RESULTS

2019 (Existing Conditions)

Traffic analysis was conducted at the study intersections for the 2019 (existing conditions) scenario. A summary of the 2019 AM and PM peak hour intersection LOS results – volume to capacity (v/c) ratio, 95th percentile queue length, delay, and LOS – can be found in *Table 4* and *Table 5*.

Table 4: 2019 (Existing Conditions) AM Peak Hour Intersection Level of Service Results

2019 AM Peak Hour - Results													
Intersection	Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Belaire Street / Dogwood Drive	v/c Ratio	0.10	-	0.04	-	-	-	0.11	0.05	-	-	0.04	
	Queue Length (95th%ile)	<5	-	<5	-	-	-	<5	0	-	-	0	
	Delay	13	-	9	-	-	-	8	0	-	-	0	
	LOS	B	-	A	-	-	-	A	A	-	-	A	
Belaire Street / Rigby Place	v/c Ratio	0.00		-	-	0.11		-	-	-	0.01	-	0.01
	Queue Length (95th%ile)	0		-	-	0		-	-	-	0	-	0
	Delay	0		-	-	0		-	-	-	10	-	10
	LOS	A		-	-	A		-	-	-	B	-	B

Notes:
1. Average delay is given in seconds per vehicle, 95th percentile queue length is given in metres.
2. 95th percentile queue lengths for results assume an average vehicle-in-queue length of 7.5m.

Table 5: 2019 (Existing Conditions) PM Peak Hour Intersection Level of Service Results

2019 PM Peak Hour - Results													
Intersection	Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Belaire Street / Dogwood Drive	v/c Ratio	0.03	-	0.05	-	-	-	0.07	0.06	-	-	0.09	
	Queue Length (95th%ile)	<5	-	<5	-	-	-	<5	0	-	-	0	
	Delay	12	-	9	-	-	-	8	0	-	-	0	
	LOS	B	-	A	-	-	-	A	A	-	-	A	
Belaire Street / Rigby Place	v/c Ratio	0.00		-	-	0.08		-	-	-	0.01	-	0.01
	Queue Length (95th%ile)	0		-	-	0		-	-	-	0	-	0
	Delay	0		-	-	0		-	-	-	10	-	10
	LOS	A		-	-	A		-	-	-	A	-	A

Notes:
1. Average delay is given in seconds per vehicle, 95th percentile queue length is given in metres.
2. 95th percentile queue lengths for results assume an average vehicle-in-queue length of 7.5m.

As shown in *Table 4* and *Table 5*, all intersections are expected to operate at an acceptable LOS with the existing 2019 AM and PM peak hour traffic volumes.

2020 (Opening Day)

Traffic analysis was conducted at the study intersections for the 2020 (opening day) scenario. A summary of the 2020 AM and PM peak hour intersection LOS results for background traffic only can be found in *Table 6* and *Table 7*. A summary of LOS results for both background and site generated traffic can be found in *Table 8* and *Table 9* for Phase 1 and *Table 10* and *Table 11* for Phase 2.

Table 6: 2020 (Opening Day) Background AM Peak Hour Intersection Level of Service Results

2020 Background AM Peak Hour - Results													
Intersection	Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Belaire Street / Dogwood Drive	v/c Ratio	0.10	-	0.04	-	-	-	0.11	0.05	-	-	0.04	
	Queue Length (95th%ile)	<5	-	<5	-	-	-	<5	0	-	-	0	
	Delay	13	-	9	-	-	-	8	0	-	-	0	
	LOS	B	-	A	-	-	-	A	A	-	-	A	
Belaire Street / Rigby Place	v/c Ratio	0.00		-	-	0.12		-	-	-	0.01	-	0.01
	Queue Length (95th%ile)	0		-	-	0		-	-	-	0	-	0
	Delay	0		-	-	0		-	-	-	10	-	10
	LOS	A		-	-	A		-	-	-	B	-	B

Notes:
1. Average delay is given in seconds per vehicle, 95th percentile queue length is given in metres.
2. 95th percentile queue lengths for results assume an average vehicle-in-queue length of 7.5m.

Table 7: 2020 (Opening Day) Background PM Peak Hour Intersection Level of Service Results

2020 Background PM Peak Hour - Results													
Intersection	Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Belaire Street / Dogwood Drive	v/c Ratio	0.03	-	0.05	-	-	-	0.07	0.06	-	-	0.09	
	Queue Length (95th%ile)	<5	-	<5	-	-	-	<5	0	-	-	0	
	Delay	12	-	9	-	-	-	8	0	-	-	0	
	LOS	B	-	A	-	-	-	A	A	-	-	A	
Belaire Street / Rigby Place	v/c Ratio	0.00		-	-	0.08		-	-	-	0.01	-	0.01
	Queue Length (95th%ile)	0		-	-	0		-	-	-	0	-	0
	Delay	0		-	-	0		-	-	-	10	-	10
	LOS	A		-	-	A		-	-	-	A	-	A

Notes:
1. Average delay is given in seconds per vehicle, 95th percentile queue length is given in metres.
2. 95th percentile queue lengths for results assume an average vehicle-in-queue length of 7.5m.

As shown in *Table 6* and *Table 7*, all intersections are expected to operate at an acceptable LOS with the 2020 AM and PM peak hour background traffic volumes.

Table 8: 2020 (Opening Day) Phase 1 Combined AM Peak Hour Intersection Level of Service Results

2020 Phase 1 Combined AM Peak Hour - Results													
Intersection	Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Belaire Street / Dogwood Drive	v/c Ratio	0.45	-	0.08	-	-	-	0.15	0.05	-	-	0.12	
	Queue Length (95th%ile)	17	-	<5	-	-	-	<5	0	-	-	0	
	Delay	22	-	9	-	-	-	8	0	-	-	0	
	LOS	C	-	A	-	-	-	A	A	-	-	A	
Belaire Street / Rigby Place	v/c Ratio	0.02		-	-	0.22		-	-	-	0.30	-	0.30
	Queue Length (95th%ile)	<5		-	-	0		-	-	-	10	-	10
	Delay	8		-	-	0		-	-	-	14	-	14
	LOS	A		-	-	A		-	-	-	B	-	B

Notes:
1. Average delay is given in seconds per vehicle, 95th percentile queue length is given in metres.
2. 95th percentile queue lengths for results assume an average vehicle-in-queue length of 7.5m.

Table 9: 2020 (Opening Day) Phase 1 Combined PM Peak Hour Intersection Level of Service Results

2020 Phase 1 Combined PM Peak Hour - Results													
Intersection	Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Belaire Street / Dogwood Drive	v/c Ratio	0.15	-	0.08	-	-	-	0.09	0.06	-	-	0.13	
	Queue Length (95th%ile)	<5	-	<5	-	-	-	<5	0	-	-	0	
	Delay	14	-	9	-	-	-	8	0	-	-	0	
	LOS	B	-	A	-	-	-	A	A	-	-	A	
Belaire Street / Rigby Place	v/c Ratio	0.01		-	-	0.13		-	-	-	0.11	-	0.11
	Queue Length (95th%ile)	<5		-	-	0		-	-	-	<5	-	<5
	Delay	8		-	-	0		-	-	-	11	-	11
	LOS	A		-	-	A		-	-	-	B	-	B

Notes:
1. Average delay is given in seconds per vehicle, 95th percentile queue length is given in metres.
2. 95th percentile queue lengths for results assume an average vehicle-in-queue length of 7.5m.

As shown in *Table 8* and *Table 9*, operations are expected to degrade slightly with the addition of Phase 1 development traffic when compared to the background traffic operations in 2020. The eastbound left turn movement at the intersection of Belaire Street and Dogwood Drive changes from LOS B to LOS C during the AM peak hour. The southbound movements at Belaire Street / Rigby Place change from LOS A to LOS B during the PM peak hour.

Overall, all study intersections are expected to operate at an acceptable LOS.

Table 10: 2020 (Opening Day) Phase 2 Combined AM Peak Hour Intersection Level of Service Results

2020 Phase 2 Combined AM Peak Hour - Results													
Intersection	Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Belaire Street / Dogwood Drive	v/c Ratio	0.46	-	0.08	-	-	-	0.15	0.05	-	-	0.12	
	Queue Length (95th%ile)	17	-	<5	-	-	-	<5	0	-	-	0	
	Delay	22	-	9	-	-	-	8	0	-	-	0	
	LOS	C	-	A	-	-	-	A	A	-	-	A	
Belaire Street / Rigby Place	v/c Ratio	0.02		-	-	0.22		-	-	-	0.31	-	0.31
	Queue Length (95th%ile)	<5		-	-	0		-	-	-	10	-	10
	Delay	8		-	-	0		-	-	-	14	-	14
	LOS	A		-	-	A		-	-	-	B	-	B

Notes:
1. Average delay is given in seconds per vehicle, 95th percentile queue length is given in metres.
2. 95th percentile queue lengths for results assume an average vehicle-in-queue length of 7.5m.

Table 11: 2020 (Opening Day) Phase 2 Combined PM Peak Hour Intersection Level of Service Results

2020 Phase 2 Combined PM Peak Hour - Results													
Intersection	Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Belaire Street / Dogwood Drive	v/c Ratio	0.15	-	0.08	-	-	-	0.09	0.06	-	-	0.13	
	Queue Length (95th%ile)	<5	-	<5	-	-	-	<5	0	-	-	0	
	Delay	14	-	9	-	-	-	8	0	-	-	0	
	LOS	B	-	A	-	-	-	A	A	-	-	A	
Belaire Street / Rigby Place	v/c Ratio	0.01		-	-	0.13		-	-	-	0.11	-	0.11
	Queue Length (95th%ile)	<5		-	-	0		-	-	-	<5	-	<5
	Delay	8		-	-	0		-	-	-	11	-	11
	LOS	A		-	-	A		-	-	-	B	-	B

Notes:
1. Average delay is given in seconds per vehicle, 95th percentile queue length is given in metres.
2. 95th percentile queue lengths for results assume an average vehicle-in-queue length of 7.5m.

As shown in *Table 10* and *Table 11*, operations are expected to degrade slightly with the addition of Phase 2 development traffic when compared to the background traffic operations in 2020. The eastbound left turn movement at the intersection of Belaire Street and Dogwood Drive changes from LOS B to LOS C during the AM peak hour. The southbound movements at Belaire Street / Rigby Place change from LOS A to LOS B during the PM peak hour.

Overall, all study intersections are expected to operate at an acceptable LOS.

2025 (Opening Day + 5 Years)

Traffic analysis was conducted at the study intersections for the 2025 (opening day + 5 years) scenario. A summary of the 2025 AM and PM peak hour intersection LOS results for background traffic only can be found in *Table 12* and *Table 13*. A summary of LOS results for both background and site generated traffic can be found in *Table 14* and *Table 15* for Phase 1 and *Table 16* and *Table 17* for Phase 2.

Table 12: 2025 (Opening Day + 5 Years) Background AM Peak Hour Intersection Level of Service Results

2025 Background AM Peak Hour - Results													
Intersection	Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Belaire Street / Dogwood Drive	v/c Ratio	0.11	-	0.04	-	-	-	0.12	0.05	-	-	0.04	
	Queue Length (95th%ile)	<5	-	<5	-	-	-	<5	0	-	-	0	
	Delay	14	-	9	-	-	-	8	0	-	-	0	
	LOS	B	-	A	-	-	-	A	A	-	-	A	
Belaire Street / Rigby Place	v/c Ratio	0.00		-	-	0.12		-	-	-	0.01	-	0.01
	Queue Length (95th%ile)	0		-	-	0		-	-	-	0	-	0
	Delay	0		-	-	0		-	-	-	10	-	10
	LOS	A		-	-	A		-	-	-	B	-	B

Notes:
1. Average delay is given in seconds per vehicle, 95th percentile queue length is given in metres.
2. 95th percentile queue lengths for results assume an average vehicle-in-queue length of 7.5m.

Table 13: 2025 (Opening Day + 5 Years) Background PM Peak Hour Intersection Level of Service Results

2025 Background PM Peak Hour - Results													
Intersection	Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Belaire Street / Dogwood Drive	v/c Ratio	0.03	-	0.06	-	-	-	0.08	0.06	-	-	0.09	
	Queue Length (95th%ile)	<5	-	<5	-	-	-	<5	0	-	-	0	
	Delay	12	-	9	-	-	-	8	0	-	-	0	
	LOS	B	-	A	-	-	-	A	A	-	-	A	
Belaire Street / Rigby Place	v/c Ratio	0.00		-	-	0.09		-	-	-	0.01	-	0.01
	Queue Length (95th%ile)	0		-	-	0		-	-	-	0	-	0
	Delay	0		-	-	0		-	-	-	10	-	10
	LOS	A		-	-	A		-	-	-	A	-	A

Notes:
1. Average delay is given in seconds per vehicle, 95th percentile queue length is given in metres.
2. 95th percentile queue lengths for results assume an average vehicle-in-queue length of 7.5m.

As shown in *Table 12* and *Table 13*, all intersections are expected to operate at an acceptable LOS with the 2025 AM and PM peak hour background traffic volumes.

Table 14: 2025 (Opening Day + 5 Years) Phase 1 Combined AM Peak Hour Intersection Level of Service Results

2025 Phase 1 Combined AM Peak Hour - Results													
Intersection	Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Belaire Street / Dogwood Drive	v/c Ratio	0.48	-	0.09	-	-	-	0.16	0.05	-	-	0.12	
	Queue Length (95th%ile)	19	-	<5	-	-	-	<5	0	-	-	0	
	Delay	23	-	9	-	-	-	8	0	-	-	0	
	LOS	C	-	A	-	-	-	A	A	-	-	A	
Belaire Street / Rigby Place	v/c Ratio	0.02		-	-	0.22		-	-	-	0.31	-	0.31
	Queue Length (95th%ile)	<5		-	-	0		-	-	-	10	-	10
	Delay	8		-	-	0		-	-	-	14	-	14
	LOS	A		-	-	A		-	-	-	B	-	B

Notes:
1. Average delay is given in seconds per vehicle, 95th percentile queue length is given in metres.
2. 95th percentile queue lengths for results assume an average vehicle-in-queue length of 7.5m.

Table 15: 2025 (Opening Day + 5 Years) Phase 1 Combined PM Peak Hour Intersection Level of Service Results

2025 Phase 1 Combined PM Peak Hour - Results													
Intersection	Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Belaire Street / Dogwood Drive	v/c Ratio	0.16	-	0.08	-	-	-	0.10	0.06	-	-	0.13	
	Queue Length (95th%ile)	<5	-	<5	-	-	-	<5	0	-	-	0	
	Delay	14	-	10	-	-	-	8	0	-	-	0	
	LOS	B	-	A	-	-	-	A	A	-	-	A	
Belaire Street / Rigby Place	v/c Ratio	0.01		-	-	0.14		-	-	-	0.11	-	0.11
	Queue Length (95th%ile)	<5		-	-	0		-	-	-	<5	-	<5
	Delay	8		-	-	0		-	-	-	11	-	11
	LOS	A		-	-	A		-	-	-	B	-	B

Notes:
1. Average delay is given in seconds per vehicle, 95th percentile queue length is given in metres.
2. 95th percentile queue lengths for results assume an average vehicle-in-queue length of 7.5m.

As shown in *Table 14* and *Table 15*, operations are expected to degrade slightly with the addition of Phase 1 development traffic when compared to the background traffic operations in 2025. The eastbound left turn movement at the intersection of Belaire Street and Dogwood Drive changes from LOS B to LOS C during the AM peak hour. The southbound movements at Belaire Street / Rigby Place change from LOS A to LOS B during the PM peak hour.

Overall, all study intersections are expected to operate at an acceptable LOS.

Table 16: 2025 (Opening Day + 5 Years) Phase 2 Combined AM Peak Hour Intersection Level of Service Results

2025 Phase 2 Combined AM Peak Hour - Results													
Intersection	Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Belaire Street / Dogwood Drive	v/c Ratio	0.48	-	0.09	-	-	-	0.16	0.05	-	-	0.12	
	Queue Length (95th%ile)	19	-	<5	-	-	-	<5	0	-	-	0	
	Delay	23	-	9	-	-	-	8	0	-	-	0	
	LOS	C	-	A	-	-	-	A	A	-	-	A	
Belaire Street / Rigby Place	v/c Ratio	0.02		-	-	0.22		-	-	-	0.31	-	0.31
	Queue Length (95th%ile)	<5		-	-	0		-	-	-	10	-	10
	Delay	8		-	-	0		-	-	-	14	-	14
	LOS	A		-	-	A		-	-	-	B	-	B

Notes:
1. Average delay is given in seconds per vehicle, 95th percentile queue length is given in metres.
2. 95th percentile queue lengths for results assume an average vehicle-in-queue length of 7.5m.

Table 17: 2025 (Opening Day + 5 years) Phase 2 Combined PM Peak Hour Intersection Level of Service Results

2025 Phase 2 Combined PM Peak Hour - Results													
Intersection	Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Belaire Street / Dogwood Drive	v/c Ratio	0.16	-	0.08	-	-	-	0.10	0.06	-	-	0.13	
	Queue Length (95th%ile)	<5	-	<5	-	-	-	<5	0	-	-	0	
	Delay	15	-	10	-	-	-	8	0	-	-	0	
	LOS	B	-	A	-	-	-	A	A	-	-	A	
Belaire Street / Rigby Place	v/c Ratio	0.01		-	-	0.14		-	-	-	0.12	-	0.12
	Queue Length (95th%ile)	<5		-	-	0		-	-	-	<5	-	<5
	Delay	8		-	-	0		-	-	-	11	-	11
	LOS	A		-	-	A		-	-	-	B	-	B

Notes:
1. Average delay is given in seconds per vehicle, 95th percentile queue length is given in metres.
2. 95th percentile queue lengths for results assume an average vehicle-in-queue length of 7.5m.

As shown in *Table 16* and *Table 17*, operations are expected to degrade slightly with the addition of Phase 2 development traffic when compared to the background traffic operations in 2025. The eastbound left turn movement at the intersection of Belaire Street and Dogwood Drive changes from LOS B to LOS C during the AM peak hour. The southbound movements at Belaire Street / Rigby Place change from LOS A to LOS B during the PM peak hour.

Overall, all study intersections are expected to operate at an acceptable LOS.

2040 (Opening Day + 20 Years)

Traffic analysis was conducted at the study intersections for the 2040 (opening day + 20 years) scenario. A summary of the 2040 AM and PM peak hour intersection LOS results for background traffic only can be found in *Table 18* and *Table 19*. A summary of LOS results for both background and site generated traffic can be found in *Table 20* and *Table 21* for Phase 1 and *Table 22* and *Table 23* for Phase 2.

Table 18: 2040 (Opening Day + 20 Years) Background AM Peak Hour Intersection Level of Service Results

2040 Background AM Peak Hour - Results													
Intersection	Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Belaire Street / Dogwood Drive	v/c Ratio	0.14	-	0.05	-	-	-	0.14	0.06	-	-	0.05	
	Queue Length (95th%ile)	<5	-	<5	-	-	-	<5	0	-	-	0	
	Delay	15	-	9	-	-	-	8	0	-	-	0	
	LOS	C	-	A	-	-	-	A	A	-	-	A	
Belaire Street / Rigby Place	v/c Ratio	0.00		-	-	0.14		-	-	-	0.01	-	0.01
	Queue Length (95th%ile)	0		-	-	0		-	-	-	0	-	0
	Delay	0		-	-	0		-	-	-	11	-	11
	LOS	A		-	-	A		-	-	-	B	-	B

Notes:
1. Average delay is given in seconds per vehicle, 95th percentile queue length is given in metres.
2. 95th percentile queue lengths for results assume an average vehicle-in-queue length of 7.5m.

Table 19: 2040 (Opening Day + 20 Years) Background PM Peak Hour Intersection Level of Service Results

2040 Background PM Peak Hour - Results													
Intersection	Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Belaire Street / Dogwood Drive	v/c Ratio	0.04	-	0.07	-	-	-	0.09	0.07	-	-	0.11	
	Queue Length (95th%ile)	<5	-	<5	-	-	-	<5	0	-	-	0	
	Delay	13	-	9	-	-	-	8	0	-	-	0	
	LOS	B	-	A	-	-	-	A	A	-	-	A	
Belaire Street / Rigby Place	v/c Ratio	0.00		-	-	0.10		-	-	-	0.01	-	0.01
	Queue Length (95th%ile)	0		-	-	0		-	-	-	0	-	0
	Delay	0		-	-	0		-	-	-	10	-	10
	LOS	A		-	-	A		-	-	-	A	-	A

Notes:
1. Average delay is given in seconds per vehicle, 95th percentile queue length is given in metres.
2. 95th percentile queue lengths for results assume an average vehicle-in-queue length of 7.5m.

As shown in *Table 18* and *Table 19*, all intersections are expected to operate at an acceptable LOS with the 2040 AM and PM peak background traffic volumes. It can be noted the eastbound left turn movement

at the intersection of Belaire Street and Dogwood Drive changes from LOS B to LOS C during the AM peak hour.

Table 20: 2040 (Opening Day + 20 Years) Phase 1 Combined AM Peak Hour Intersection Level of Service Results

2040 Phase 1 Combined AM Peak Hour - Results													
Intersection	Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Belaire Street / Dogwood Drive	v/c Ratio	0.57	-	0.09	-	-	-	0.18	0.06	-	-	0.13	
	Queue Length (95th%ile)	26	-	<5	-	-	-	5	0	-	-	0	
	Delay	30	-	9	-	-	-	8	0	-	-	0	
	LOS	D	-	A	-	-	-	A	A	-	-	A	
Belaire Street / Rigby Place	v/c Ratio	0.02		-	-	0.24		-	-	-	0.33	-	0.33
	Queue Length (95th%ile)	<5		-	-	0		-	-	-	11	-	11
	Delay	8		-	-	0		-	-	-	15	-	15
	LOS	A		-	-	A		-	-	-	B	-	B

Notes:
1. Average delay is given in seconds per vehicle, 95th percentile queue length is given in metres.
2. 95th percentile queue lengths for results assume an average vehicle-in-queue length of 7.5m.

Table 21: 2040 (Opening Day + 20 Years) Phase 1 Combined PM Peak Hour Intersection Level of Service Results

2040 Phase 1 Combined PM Peak Hour - Results													
Intersection	Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Belaire Street / Dogwood Drive	v/c Ratio	0.19	-	0.09	-	-	-	0.11	0.07	-	-	0.15	
	Queue Length (95th%ile)	5	-	<5	-	-	-	<5	0	-	-	0	
	Delay	16	-	10	-	-	-	8	0	-	-	0	
	LOS	C	-	A	-	-	-	A	A	-	-	A	
Belaire Street / Rigby Place	v/c Ratio	0.01		-	-	0.15		-	-	-	0.12	-	0.12
	Queue Length (95th%ile)	<5		-	-	0		-	-	-	<5	-	<5
	Delay	8		-	-	0		-	-	-	11	-	11
	LOS	A		-	-	A		-	-	-	B	-	B

Notes:
1. Average delay is given in seconds per vehicle, 95th percentile queue length is given in metres.
2. 95th percentile queue lengths for results assume an average vehicle-in-queue length of 7.5m.

As shown in *Table 20* and *Table 21*, operations are expected to degrade slightly with the addition of Phase 1 development traffic when compared to the background traffic operations in 2040. The eastbound left turn movement at the intersection of Belaire Street and Dogwood Drive changes from LOS C to LOS D during the AM peak hour and LOS B to LOS C during the PM peak hour. The southbound movements at Belaire Street / Rigby Place change from LOS A to LOS B during the PM peak hour.

Overall, all study intersections are expected to operate at an acceptable LOS.

Table 22: 2040 (Opening Day + 20 Years) Phase 2 Combined AM Peak Hour Intersection Level of Service Results

2040 Phase 2 Combined AM Peak Hour - Results													
Intersection	Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Belaire Street / Dogwood Drive	v/c Ratio	0.58	-	0.10	-	-	-	0.18	0.06	-	-	0.13	
	Queue Length (95th%ile)	26	-	<5	-	-	-	5	0	-	-	0	
	Delay	30	-	9	-	-	-	8	0	-	-	0	
	LOS	D	-	A	-	-	-	A	A	-	-	A	
Belaire Street / Rigby Place	v/c Ratio	0.02		-	-	0.24		-	-	-	0.33	-	0.33
	Queue Length (95th%ile)	<5		-	-	0		-	-	-	11	-	11
	Delay	8		-	-	0		-	-	-	15	-	15
	LOS	A		-	-	A		-	-	-	B	-	B

Notes:
1. Average delay is given in seconds per vehicle, 95th percentile queue length is given in metres.
2. 95th percentile queue lengths for results assume an average vehicle-in-queue length of 7.5m.

Table 23: 2040 (Opening Day + 20 years) Phase 2 Combined PM Peak Hour Intersection Level of Service Results

2040 Phase 2 Combined PM Peak Hour - Results													
Intersection	Attribute	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Belaire Street / Dogwood Drive	v/c Ratio	0.19	-	0.09	-	-	-	0.11	0.07	-	-	0.15	
	Queue Length (95th%ile)	5	-	<5	-	-	-	<5	0	-	-	0	
	Delay	16	-	10	-	-	-	8	0	-	-	0	
	LOS	C	-	A	-	-	-	A	A	-	-	A	
Belaire Street / Rigby Place	v/c Ratio	0.01		-	-	0.15		-	-	-	0.12	-	0.12
	Queue Length (95th%ile)	<5		-	-	0		-	-	-	<5	-	<5
	Delay	8		-	-	0		-	-	-	11	-	11
	LOS	A		-	-	A		-	-	-	B	-	B

Notes:
1. Average delay is given in seconds per vehicle, 95th percentile queue length is given in metres.
2. 95th percentile queue lengths for results assume an average vehicle-in-queue length of 7.5m.

As shown in *Table 22* and *Table 31*, operations are expected to degrade slightly with the addition of Phase 2 development traffic when compared to the background traffic operations in 2040. The eastbound left turn movement at the intersection of Belaire Street and Dogwood Drive changes from LOS C to LOS D during the AM peak hour and LOS B to LOS C during the PM peak hour. The southbound movements at Belaire Street / Rigby Place change from LOS A to LOS B during the PM peak hour.

Overall, all study intersections are expected to operate at an acceptable LOS.

4. Transit and Active Transportation

4.1. EXISTING CONDITIONS

Transit

The proposed development is located near three bus stops, one at the northwest corner of Belaire Street and Rigby Place, and the other two on the east and west sides of Dogwood Drive south of Belaire Street. These stops are serviced by the following BC Transit routes:

- Route 31: Ladysmith / Alderwood
- Route 34: Ladysmith / Chemainus
- Route 36: Ladysmith / Duncan Express

Route 31 is a local service, for the most part looping in a clockwise direction around Ladysmith. This route operates 6 trips daily, with the transit headway ranging from 35 minutes to 3 hours and 40 minutes. Routes 34 and 36 are regional services, connecting Ladysmith to Chemainus and Duncan, respectively. On these routes, only 2-4 trips are made daily. For all three routes, there is no service on Sundays or statutory holidays. A complete map and schedule of the transit system for the Town of Ladysmith can be seen in *Attachment D*.

Cycling

There are several cycling routes within the proximity of the project development. Dogwood Drive north of Belaire Street, Belaire Street between Dogwood Drive and 4th Avenue Extension, and 4th Avenue Extension north of Belaire Street are all designated bike routes according to the Town of Ladysmith's Bicycle Plan. The remainder of Dogwood Drive and 4th Avenue Extension are classified as routes commonly used by cyclists. A complete map of the cycling network in Ladysmith can be found in *Attachment E*.

Pedestrians

Within the study area there are sidewalks on one of more of the sides of the street for the more heavily used roads such as along Dogwood Drive and Belaire Street. However, there is currently no sidewalk on either side of the street along Rigby Place. Designated pedestrian crosswalks are in place on the south and west sides of the Belaire Street / Dogwood Drive intersection. There are no marked crosswalks at the intersection of Belaire Street and Rigby Place.

4.2. FUTURE CONDITIONS

As described in Ladysmith's Community Vision Report, the town plans to continue lobbying for Provincial support in expanding the region's public transportation network. Ladysmith's Official Community Plan (OCP) has identified the need for priority bicycle facility improvements on the designated bike routes within the study area for the project development. The OCP recommends a separated cycling facility on Dogwood Drive and Belaire Street to connect Bayview Avenue and 4th Avenue Extension.

5. Conclusions and Recommendations

5.1. CONCLUSIONS

The purpose of this technical memorandum is to review traffic operations for the proposed AYPQ Architecture development in Ladysmith, British Columbia, and provide a review of transit and active transportation in the area.

Traffic Analysis

Traffic analysis was conducted for the two study intersections during the AM and PM peak hour periods. Analysis was conducted for four scenarios, 2019 (existing conditions), 2020 (opening day), 2025 (opening day + 5 years), and 2040 (opening day + 20 years).

For all scenarios, all intersections operate at an acceptable level of service through both the AM and PM peak hour periods without and with development trips.

Transit and Active Transportation

The current transit and active transportation network within the study area has the necessary facilities to operate but lacks the consistency to be relied upon by travellers. Moving into the future, the Town of Ladysmith plans to continue with the Official Community Plan's recommendations for improvements to be made to the transportation system.

5.2. RECOMMENDATIONS

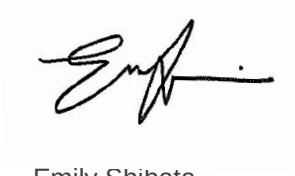
Based on the current and site generated traffic volumes, all study intersections operate at an acceptable LOS. Improvements to the intersection are not required at this time.

6. Closing

The information within this report is true and accurate to the best of our knowledge. If you have any questions or concerns regarding this analysis, please contact the undersigned.

McELHANNEY LTD.

Prepared by:



Emily Shibata
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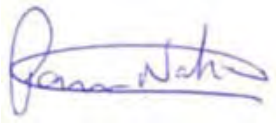
Reviewed by:



Parm Nahal, P.Eng.
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ATTACHMENT A – STUDY INTERSECTION TRAFFIC COUNT SHEETS

Dogwood Drive and Belaire Street - AM Count

Class	Description
A	cars, minivans, pickup trucks etc
B	motor homes, RV trailers
C	buses of all kinds
D & E	semis, delivery trucks, uhauls etc

	From North Dogwood Dr.								From South Dogwood Dr.								From West Belaire St.							
	Straight				Right				Left				Straight				Right				Left			
	A	B	C	D&E	A	B	C	D&E	A	B	C	D&E	A	B	C	D&E	A	B	C	D&E	A	B	C	D&E
7:00am-7:15am	7	1	1	0	1	0	0	0	8	0	0	0	5	0	0	0	5	0	0	0	3	0	0	0
7:15am-7:30am	3	0	0	1	0	0	0	0	5	0	0	0	15	0	0	0	5	0	0	0	3	0	0	0
7:30am-7:45am	8	0	0	0	0	0	0	0	11	0	0	0	14	0	1	0	5	0	0	0	8	0	0	0
7:45am-8:00am	7	0	0	0	1	0	0	0	30	0	0	0	13	0	0	0	3	0	1	0	13	0	0	0
8:00am-8:15am	7	0	0	0	3	0	0	0	30	0	0	0	18	0	0	0	3	0	1	0	13	0	0	0
8:15am-8:30am	10	0	0	0	11	0	0	0	63	0	0	0	22	0	1	0	14	0	0	0	10	0	0	0
8:30am-8:45am	14	0	0	0	7	0	1	1	27	1	0	0	15	0	0	0	14	0	0	0	6	0	0	1
8:45am-9:00am	8	0	0	0	4	0	0	0	18	0	0	0	16	0	0	0	13	0	0	0	6	0	0	0
Total:	64	1	1	1	27	0	1	1	192	1	0	0	118	0	2	0	62	0	2	0	62	0	0	1
Total:	**67**				**29**				**193**				**120**				**64**				**63**			

Day: Tuesday Date: Sept. 10th, 2019 Recorder: Curtis St. Cyr

Dogwood Drive and Belaire Street - PM Count

Class	Description
A	cars, minivans, pickup trucks etc
B	motor homes, RV trailers
C	buses of all kinds
D & E	semis, delivery trucks, uhauls etc

	From North Dogwood Dr.								From South Dogwood Dr.								From West Belaire St.							
	Straight				Right				Left				Straight				Right				Left			
	A	B	C	D&E	A	B	C	D&E	A	B	C	D&E	A	B	C	D&E	A	B	C	D&E	A	B	C	D&E
3:00pm-3:15pm	25	0	0	0	5	0	1	0	15	0	0	0	27	0	0	0	15	0	0	0	5	0	0	0
3:15pm-3:30pm	19	0	1	0	3	0	0	0	19	0	0	0	25	0	0	0	10	0	0	0	3	0	0	0
3:30pm-3:45pm	23	0	0	0	5	1	0	2	29	0	0	0	21	0	0	0	10	0	0	1	5	0	0	0
3:45pm-4:00pm	22	0	0	0	6	0	0	0	16	0	1	0	22	0	0	0	7	1	0	0	1	0	0	0
4:00pm-4:15pm	17	0	0	0	11	0	0	1	15	0	0	0	31	0	1	0	10	1	0	0	4	0	0	0
4:15pm-4:30pm	25	0	1	0	5	0	0	0	26	0	0	0	25	0	0	0	18	0	0	0	3	0	0	0
4:30pm-4:45pm	32	0	0	0	7	0	0	0	20	0	0	0	19	1	0	0	8	0	0	0	4	0	0	0
4:45pm-5:00pm	19	0	0	0	11	0	0	0	18	1	0	0	21	2	0	0	6	0	0	0	3	1	0	0
5:00pm-5:15pm	29	0	0	0	4	1	0	0	29	0	0	0	23	0	0	0	12	0	0	0	2	0	0	0
5:15pm-5:30pm	29	0	0	0	4	0	0	0	23	0	0	0	27	0	0	0	8	0	0	0	6	0	0	0
5:30pm-5:45pm	18	0	0	0	9	0	0	0	21	1	0	0	19	0	0	0	7	0	0	0	6	0	0	0
5:45pm-6:00pm	17	0	0	0	10	0	1	0	18	0	0	0	30	0	1	0	8	0	0	0	7	0	0	0
Total:	275	0	2	0	80	2	2	3	249	2	1	0	290	3	2	0	119	2	0	1	49	1	0	0
Total:	**277**				**87**				**252**				**295**				**122**				**50**			

Day: Tuesday Date: Sept. 10th, 2019 Recorder: Curtis St. Cyr

ATTACHMENT B – NEARBY TRAFFIC COUNT SHEETS

MetroCount Traffic Executive
Speed Statistics

SpeedStat-306 -- English (ENC)

Datasets:

Site:	**[Dogwood Road] Holland Creek Ball Park**
Attribute:	
Direction:	5 - South bound A>B, North bound B>A. **Lane:** 1
Survey Duration:	14:59 August 30, 2019 => 10:04 September 18, 2019,
Zone:	
File:	Dogwood Road 0 2019-09-18 1005.EC1 (Plus)
Identifier:	QZ17AX7E MC5900-X13 (c)MetroCount 09Nov16
Algorithm:	Factory default axle (v5.02)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**15:00 August 30, 2019 => 10:04 September 18, 2019 (18.795)**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Speed range:	10 - 160 km/h.
Direction:	North, East, South, West (bound), P = North, Lane = 0-16
Separation:	GapX > 0 sec, Span 0 - 100 metre
Name:	Default Profile
Scheme:	Vehicle classification (Scheme F3)
Units:	Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile:	Vehicles = 73983 / 74048 (99.91%)

Speed Statistics

SpeedStat-306
Site: Dogwood Road.1.2SN
Description: **Holland Creek Ball Park**
Filter time: **15:00 August 30, 2019 => 10:04 September 18, 2019**
Scheme: Vehicle classification (Scheme F3)
Filter: Cls(1-13) Dir(NESW) Sp(10,160) GapX(>0) Span(0 - 100) Lane(0-16)

Vehicles = 73983
Posted speed limit = 30 km/h, Exceeding = 67925 (91.81%), Mean Exceeding = 43.54 km/h
Maximum = 121.8 km/h, **Minimum** = 10.5 km/h, **Mean** = 42.1 km/h
85% Speed = 50.49 km/h, **95% Speed** = 55.08 km/h, **Median** = 42.48 km/h
20 km/h Pace = 32 - 52, **Number in Pace** = 57109 (77.19%)
Variance = 68.65, **Standard Deviation** = 8.29 km/h

Speed Bins (Partial days)

Speed	Bin	Below	Above	Energy	vMult	n * vMult
0 - 10	0 0.000%	0 0.000%	73983 100.0%	0.00	0.00	0.00
10 - 20	281 0.380%	281 0.380%	73702 99.62%	0.00	0.00	0.00
20 - 30	5777 7.809%	6058 8.188%	67925 91.81%	0.00	0.00	0.00
30 - 40	22083 29.85%	28141 38.04%	45842 61.96%	0.00	0.00	0.00
40 - 50	33620 45.44%	61761 83.48%	12222 16.52%	0.00	0.00	0.00
50 - 60	11363 15.36%	73124 98.84%	859 1.161%	0.00	0.00	0.00
60 - 70	821 1.110%	73945 99.95%	38 0.051%	0.00	0.00	0.00
70 - 80	34 0.046%	73979 99.99%	4 0.005%	0.00	0.00	0.00
80 - 90	2 0.003%	73981 100.00%	2 0.003%	0.00	0.00	0.00
90 - 100	0 0.000%	73981 100.00%	2 0.003%	0.00	0.00	0.00
100 - 110	0 0.000%	73981 100.00%	2 0.003%	0.00	0.00	0.00
110 - 120	0 0.000%	73981 100.00%	2 0.003%	0.00	0.00	0.00
120 - 130	2 0.003%	73983 100.0%	0 0.000%	0.00	0.00	0.00
130 - 140	0 0.000%	73983 100.0%	0 0.000%	0.00	0.00	0.00
140 - 150	0 0.000%	73983 100.0%	0 0.000%	0.00	0.00	0.00
150 - 160	0 0.000%	73983 100.0%	0 0.000%	0.00	0.00	0.00
160 - 170	0 0.000%	73983 100.0%	0 0.000%	0.00	0.00	0.00
170 - 180	0 0.000%	73983 100.0%	0 0.000%	0.00	0.00	0.00
180 - 190	0 0.000%	73983 100.0%	0 0.000%	0.00	0.00	0.00
190 - 200	0 0.000%	73983 100.0%	0 0.000%	0.00	0.00	0.00

Total Speed Rating = 0.00
Total Moving Energy (Estimated) = 0.00

Speed limit fields (Partial days)

	Limit	Below	Above
0	30 (PSL)	6058 8.2%	67925 91.8%

MetroCount Traffic Executive
Vehicle Counts

VehicleCount-305 -- English (ENC)

Datasets:

Site:	**[Dogwood Road] Holland Creek Ball Park**
Attribute:	
Direction:	5 - South bound A>B, North bound B>A. **Lane:** 1
Survey Duration:	14:59 August 30, 2019 => 10:04 September 18, 2019,
Zone:	
File:	Dogwood Road 0 2019-09-18 1005.EC1 (Plus)
Identifier:	QZ17AX7E MC5900-X13 (c)MetroCount 09Nov16
Algorithm:	Factory default axle (v5.02)
Data type:	Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time:	**15:00 August 30, 2019 => 10:04 September 18, 2019 (18.795)**
Included classes:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
Speed range:	10 - 160 km/h.
Direction:	North, East, South, West (bound), P = North, Lane = 0-16
Separation:	GapX > 0 sec, Span 0 - 100 metre
Name:	Default Profile
Scheme:	Vehicle classification (Scheme F3)
Units:	Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile:	Vehicles = 73983 / 74048 (99.91%)

* August 30, 2019 - Total=1598 (Incomplete) , 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**200**	**373**	**313**	**223**	**193**	**143**	**78**	**43**	**32**	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	98	97	64	48	43	21	11	9	3
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14	88	90	54	46	39	22	13	13	6
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	99	84	59	61	58	27	14	9	7	3
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	87	103	67	44	41	34	21	10	3	5

* August 31, 2019 - Total=3513, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
17	**13**	**5**	**1**	**8**	**17**	**23**	**68**	**124**	**221**	**267**	**322**	**340**	**322**	**317**	**301**	**285**	**265**	**191**	**150**	**134**	**55**	**45**	**22**	
3	4	2	1	2	2	5	8	23	54	52	75	**91**	80	84	87	76	78	50	37	41	13	17	8	9
6	4	0	0	0	3	5	17	26	43	73	74	**81**	75	78	69	77	68	47	35	34	17	8	2	5
3	2	3	0	1	4	5	16	34	66	79	**90**	**78**	94	88	69	64	63	51	43	32	18	12	9	5
5	3	0	0	5	8	8	27	41	58	63	**83**	**90**	73	67	76	68	56	43	35	27	7	8	3	6

AM Peak 1130 - 1230 (345), AM PHF=0.95 PM Peak 1200 - 1300 (340), PM PHF=0.93

* September 1, 2019 - Total=2976, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
25	**11**	**6**	**1**	**5**	**9**	**21**	**50**	**86**	**186**	**236**	**249**	**294**	**282**	**247**	**266**	**261**	**221**	**151**	**147**	**100**	**64**	**36**	**22**	
9	4	2	0	1	1	3	8	10	37	67	49	**78**	**80**	58	63	66	64	43	38	30	16	9	10	8
5	3	0	0	1	1	4	11	16	40	64	59	**68**	**63**	70	62	73	55	39	35	28	11	12	6	1
5	2	1	1	3	2	4	12	30	45	54	66	**72**	**81**	61	61	58	54	28	41	18	20	10	1	5
6	2	3	0	0	5	10	19	30	64	51	**75**	**76**	58	58	80	64	48	41	33	24	17	5	5	1

AM Peak 1145 - 1245 (293), AM PHF=0.94 PM Peak 1245 - 1345 (300), PM PHF=0.93

* September 2, 2019 - Total=3183, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
15	**7**	**5**	**0**	**3**	**9**	**21**	**58**	**111**	**163**	**217**	**292**	**262**	**313**	**308**	**321**	**273**	**235**	**192**	**154**	**125**	**53**	**29**	**17**	
8	2	2	0	0	0	2	11	21	37	45	75	**71**	83	80	**94**	71	66	38	43	45	16	8	4	0
1	0	1	0	0	1	6	12	26	31	49	51	**61**	77	64	**99**	73	51	60	35	36	10	13	3	2
5	4	2	0	2	4	6	15	29	35	54	**79**	55	79	**84**	62	63	56	46	36	25	16	3	8	1
1	1	0	0	1	4	7	20	35	60	69	**87**	75	74	**80**	66	66	62	48	40	19	11	5	2	1

AM Peak 1130 - 1230 (298), AM PHF=0.86 PM Peak 1430 - 1530 (357), PM PHF=0.90

* September 3, 2019 - Total=4566, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
4	**5**	**3**	**1**	**11**	**23**	**74**	**139**	**248**	**302**	**431**	**396**	**426**	**409**	**368**	**407**	**365**	**333**	**244**	**172**	**113**	**48**	**28**	**16**	
0	1	2	0	1	2	5	23	58	60	86	98	**118**	100	99	100	104	98	46	63	38	12	9	7	4
2	1	1	0	2	3	16	40	64	72	91	89	**121**	94	99	94	91	88	71	40	32	17	9	4	4
1	1	0	1	4	5	22	32	53	76	138	**99**	**97**	118	74	101	89	83	73	39	30	10	4	5	2
1	2	0	0	4	13	31	44	73	94	116	**110**	**90**	97	96	112	81	64	54	30	13	9	6	0	2

AM Peak 1130 - 1230 (448), AM PHF=0.93 PM Peak 1200 - 1300 (426), PM PHF=0.88

* September 4, 2019 - Total=4607, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
12	**5**	**6**	**3**	**7**	**17**	**61**	**177**	**389**	**283**	**322**	**340**	**377**	**368**	**404**	**444**	**391**	**348**	**236**	**174**	**128**	**65**	**33**	**17**	
4	4	2	0	0	1	3	35	**81**	68	91	82	91	96	73	**121**	103	107	68	47	42	21	13	4	2
4	0	2	1	5	5	9	39	**143**	67	75	87	93	92	**111**	101	99	84	74	47	35	16	9	7	3
2	1	1	1	0	1	22	47	**75**	75	68	96	88	86	**114**	108	95	72	53	36	35	17	6	6	1
2	0	1	1	2	10	27	56	**90**	73	88	75	105	94	**106**	114	94	85	41	44	16	11	5	0	2

AM Peak 0800 - 0900 (389), AM PHF=0.68 PM Peak 1415 - 1515 (452), PM PHF=0.93

* September 5, 2019 - Total=4595, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
8	**5**	**1**	**2**	**4**	**16**	**50**	**153**	**365**	**286**	**322**	**367**	**400**	**360**	**424**	**382**	**400**	**345**	**270**	**181**	**132**	**71**	**35**	**16**	
2	4	0	0	1	2	6	34	96	63	67	92	**100**	98	97	**112**	94	97	67	65	35	23	14	6	1
3	0	0	1	2	3	9	33	106	64	81	88	**96**	96	**106**	84	93	90	67	37	36	22	10	4	0
1	0	0	1	1	4	11	34	87	76	81	83	**114**	86	**109**	85	106	79	71	41	33	8	8	4	0
2	1	1	0	0	7	24	52	76	83	93	**104**	90	80	**112**	101	107	79	65	38	28	18	3	2	1

AM Peak 1145 - 1245 (414), AM PHF=0.91 PM Peak 1415 - 1515 (439), PM PHF=0.98

* September 6, 2019 - Total=4497, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
2	**2**	**5**	**2**	**8**	**19**	**69**	**151**	**329**	**302**	**302**	**327**	**316**	**334**	**441**	**399**	**402**	**345**	**236**	**207**	**128**	**86**	**57**	**28**	
1	0	1	0	1	1	6	26	71	64	65	**87**	87	70	107	**109**	100	97	58	64	39	25	17	8	4
0	0	1	0	0	4	8	32	104	67	67	**79**	81	92	**104**	94	106	86	62	48	37	24	19	6	2
0	1	1	0	3	3	16	36	71	77	82	**86**	75	89	**116**	110	105	82	66	54	24	19	16	9	5
1	1	2	2	4	11	39	57	83	94	**88**	75	73	83	**114**	86	91	80	50	41	28	18	5	5	0

AM Peak 1045 - 1145 (340), AM PHF=0.97 PM Peak 1415 - 1515 (443), PM PHF=0.95

* September 7, 2019 - Total=3760, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
11	**12**	**4**	**3**	**5**	**17**	**24**	**67**	**145**	**264**	**316**	**356**	**380**	**340**	**285**	**300**	**337**	**271**	**220**	**162**	**110**	**65**	**42**	**24**	
4	2	0	0	0	2	3	12	25	46	79	82	**95**	92	75	77	83	70	64	42	35	21	8	6	5
2	5	1	2	1	3	6	13	32	74	83	96	**97**	80	57	56	78	73	48	37	34	15	9	8	10
5	5	1	0	1	5	4	13	43	75	67	**92**	**87**	86	68	80	80	67	46	54	21	13	15	4	3
0	0	2	1	3	7	11	29	45	69	87	**86**	**101**	82	85	87	96	61	62	29	20	16	10	6	1

AM Peak 1130 - 1230 (370), AM PHF=0.95 PM Peak 1200 - 1300 (380), PM PHF=0.94

* September 8, 2019 - Total=3401, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
19	**8**	**7**	**2**	**7**	**7**	**17**	**57**	**99**	**209**	**256**	**392**	**322**	**318**	**319**	**314**	**299**	**215**	**186**	**143**	**102**	**53**	**32**	**18**	
5	4	2	1	3	0	2	8	13	35	65	89	**102**	82	**78**	75	75	51	59	43	25	14	12	7	2
10	1	2	1	1	1	6	10	31	55	61	**99**	75	69	**94**	80	81	64	31	37	27	11	9	5	1
3	1	1	0	0	1	4	14	25	44	62	**110**	71	**79**	77	77	67	46	61	36	25	14	5	2	0
1	2	2	0	3	5	5	25	30	75	68	**94**	74	**88**	70	82	76	54	35	27	25	14	6	4	0

AM Peak 1115 - 1215 (405), AM PHF=0.92 PM Peak 1330 - 1430 (339), PM PHF=0.90

* September 9, 2019 - Total=4117, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
3	**1**	**1**	**1**	**2**	**19**	**62**	**151**	**348**	**257**	**272**	**314**	**340**	**369**	**351**	**366**	**317**	**318**	**219**	**203**	**91**	**67**	**34**	**11**	
2	0	0	0	1	3	7	27	61	59	54	78	**89**	84	**92**	85	82	85	57	58	35	23	17	5	4
1	0	0	0	0	4	14	29	122	72	68	65	**83**	**96**	86	95	100	78	58	51	28	16	6	1	3
0	1	0	0	0	0	15	39	69	49	72	71	**85**	**101**	90	94	65	79	58	53	19	12	5	4	1
0	0	1	1	1	12	26	56	96	77	78	**100**	83	**88**	83	92	70	76	46	41	9	16	6	1	1

AM Peak 1145 - 1245 (357), AM PHF=0.89 PM Peak 1315 - 1415 (377), PM PHF=0.93

* September 10, 2019 - Total=4349, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
9	**3**	**2**	**1**	**5**	**21**	**77**	**162**	**342**	**258**	**285**	**310**	**375**	**291**	**363**	**365**	**393**	**352**	**272**	**188**	**137**	**81**	**46**	**11**	
4	2	0	0	1	1	9	34	71	63	64	63	**91**	72	83	97	90	**105**	57	46	44	26	19	4	0
3	0	0	1	2	3	16	34	122	58	66	64	**92**	68	79	91	**111**	93	84	54	50	25	14	4	1
1	0	0	0	1	4	23	41	77	65	75	81	**90**	76	94	98	**94**	81	73	49	25	15	6	2	1
1	1	2	0	1	13	29	53	72	72	80	**102**	102	75	107	79	**98**	73	58	39	18	15	7	1	0

AM Peak 1145 - 1245 (375), AM PHF=0.92 PM Peak 1615 - 1715 (408), PM PHF=0.92

* September 11, 2019 - Total=4479, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
2	**4**	**4**	**2**	**7**	**17**	**60**	**159**	**357**	**310**	**301**	**320**	**311**	**350**	**424**	**388**	**404**	**348**	**268**	**206**	**122**	**70**	**33**	**12**	
0	1	1	0	3	2	6	30	73	**82**	65	71	82	66	95	**98**	113	92	78	61	36	27	8	4	2
1	1	1	2	2	4	12	34	**123**	81	79	87	73	97	102	**109**	87	86	69	51	34	23	14	3	2
1	2	1	0	1	3	14	45	**75**	75	76	64	67	81	**108**	92	107	99	59	52	32	13	6	3	3
0	0	1	0	1	8	28	50	**86**	72	81	98	89	106	**119**	89	97	71	62	42	20	7	5	2	0

AM Peak 0815 - 0915 (366), AM PHF=0.74 PM Peak 1430 - 1530 (434), PM PHF=0.91

* September 12, 2019 - Total=4118, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
7	**5**	**3**	**3**	**9**	**20**	**57**	**143**	**354**	**241**	**287**	**305**	**323**	**326**	**389**	**369**	**387**	**279**	**252**	**153**	**124**	**37**	**31**	**14**	
2	0	1	1	1	1	7	28	**75**	56	64	66	88	75	90	**99**	95	80	72	53	32	9	15	7	0
2	1	0	1	0	4	14	32	**110**	49	81	69	64	97	95	**104**	98	73	72	44	42	12	5	3	2
3	1	0	0	4	5	14	43	**98**	64	73	76	82	75	**99**	76	97	56	45	23	22	7	6	3	3
0	3	2	1	4	10	22	40	**71**	72	69	94	89	79	**105**	90	97	70	63	33	28	9	5	1	0

AM Peak 0800 - 0900 (354), AM PHF=0.80 PM Peak 1430 - 1530 (407), PM PHF=0.97

* September 13, 2019 - Total=4468, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
5	**5**	**2**	**4**	**4**	**27**	**50**	**142**	**368**	**272**	**281**	**373**	**382**	**360**	**426**	**368**	**394**	**327**	**263**	**163**	**102**	**67**	**60**	**23**	
0	2	0	1	0	2	12	26	85	67	61	**93**	89	93	**112**	91	107	99	71	53	25	16	23	7	5
2	0	0	2	1	5	6	33	104	68	71	**101**	79	84	**108**	94	104	87	75	33	25	19	13	9	4
3	2	0	0	0	4	11	38	91	65	68	**88**	100	93	**90**	79	98	71	65	34	25	17	17	5	1
0	1	2	1	3	16	21	45	88	72	81	**91**	114	90	**116**	104	85	70	52	43	27	15	7	2	6

AM Peak 1100 - 1200 (373), AM PHF=0.92 PM Peak 1400 - 1500 (426), PM PHF=0.92

* September 14, 2019 - Total=3515, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
16	**7**	**9**	**1**	**4**	**14**	**24**	**65**	**142**	**229**	**300**	**343**	**339**	**323**	**315**	**310**	**271**	**237**	**179**	**167**	**94**	**63**	**36**	**27**	
5	3	1	1	1	3	4	10	22	45	72	90	**85**	**88**	73	82	82	64	50	48	32	19	8	14	6
4	1	2	0	0	5	5	15	26	62	79	90	**75**	**86**	70	70	64	61	46	43	23	13	8	4	3
1	2	2	0	2	0	9	15	30	56	74	78	**99**	76	89	69	64	56	42	49	24	15	16	6	4
6	1	4	0	1	6	6	25	64	66	75	**85**	**80**	73	83	89	61	56	41	27	15	16	4	3	3

AM Peak 1145 - 1245 (344), AM PHF=0.87 PM Peak 1230 - 1330 (353), PM PHF=0.89

* September 15, 2019 - Total=3243, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
16	**6**	**5**	**4**	**3**	**7**	**25**	**50**	**94**	**195**	**251**	**303**	**330**	**294**	**316**	**276**	**291**	**236**	**190**	**168**	**95**	**51**	**23**	**14**	
6	2	1	2	0	0	5	8	15	35	64	68	**81**	74	89	69	68	62	46	51	35	16	8	4	0
3	1	0	0	1	1	6	11	22	43	72	79	**91**	76	80	67	67	53	51	37	15	10	6	4	2
4	1	4	2	2	4	9	10	35	53	53	**78**	**74**	66	70	63	87	62	39	40	24	18	6	2	1
3	2	0	0	0	2	5	21	22	64	62	**78**	**84**	78	77	77	69	59	54	40	21	7	3	4	0

AM Peak 1130 - 1230 (328), AM PHF=0.90 PM Peak 1200 - 1300 (330), PM PHF=0.91

* September 16, 2019 - Total=4197, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
3	**0**	**1**	**0**	**7**	**20**	**67**	**147**	**362**	**233**	**286**	**290**	**308**	**385**	**361**	**362**	**412**	**332**	**243**	**165**	**116**	**60**	**23**	**14**	
0	0	0	0	3	1	8	29	**83**	69	69	65	74	86	94	95	**94**	87	69	39	40	22	7	7	0
2	0	0	0	1	6	16	31	**126**	48	63	64	81	101	96	84	**101**	95	63	37	38	14	9	2	0
1	0	0	0	0	4	23	34	**69**	49	75	85	80	94	72	91	**114**	72	52	43	21	8	5	2	3
0	0	1	0	3	9	20	53	**84**	67	79	76	73	104	99	92	**103**	78	59	46	17	16	2	3	2

AM Peak 0800 - 0900 (362), AM PHF=0.72 PM Peak 1600 - 1700 (412), PM PHF=0.90

* September 17, 2019 - Total=4139, 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
5	**4**	**5**	**3**	**6**	**29**	**41**	**149**	**353**	**303**	**286**	**308**	**329**	**308**	**393**	**380**	**341**	**298**	**239**	**163**	**107**	**52**	**22**	**15**	
0	3	1	0	1	4	5	31	69	**74**	62	65	90	58	78	**90**	93	99	65	49	26	14	6	8	1
0	0	0	0	1	4	4	27	**110**	70	74	75	63	73	99	**106**	89	68	60	43	30	14	6	3	3
3	0	2	1	1	8	11	43	**80**	84	86	85	87	92	**94**	93	71	60	47	32	32	11	5	2	2
2	1	2	2	3	13	21	48	**94**	75	64	83	89	85	**122**	91	88	71	67	39	19	13	5	2	0

AM Peak 0815 - 0915 (358), AM PHF=0.81 PM Peak 1430 - 1530 (412), PM PHF=0.84

* September 18, 2019 - Total=662 (Incomplete) , 15 minute drops

0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	
6	**3**	**2**	**2**	**7**	**26**	**52**	**152**	**386**	**26**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1	0	0	0	1	5	9	28	80	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	1	1	0	3	2	3	35	114	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	0	0	0	0	4	16	35	84	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0	2	1	2	3	15	24	54	108	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ATTACHMENT C – SYNCHRO REPORTS

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	43	36	151	69	38	24
Future Vol, veh/h	43	36	151	69	38	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	150	230	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	48	40	168	77	42	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	469	56	69	0	-	0
Stage 1	56	-	-	-	-	-
Stage 2	413	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	555	1013	1538	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	670	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	495	1013	1538	-	-	-
Mov Cap-2 Maneuver	495	-	-	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	670	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11	5.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1538	-	495	1013	-	-
HCM Lane V/C Ratio	0.109	-	0.097	0.039	-	-
HCM Control Delay (s)	7.6	-	13	8.7	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.4	-	0.3	0.1	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	79	175	1	1	0
Future Vol, veh/h	0	79	175	1	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	88	194	1	1	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	195	0	-	0	283	195
Stage 1	-	-	-	-	195	-
Stage 2	-	-	-	-	88	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1384	-	-	-	709	849
Stage 1	-	-	-	-	840	-
Stage 2	-	-	-	-	938	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1384	-	-	-	709	849
Mov Cap-2 Maneuver	-	-	-	-	709	-
Stage 1	-	-	-	-	840	-
Stage 2	-	-	-	-	938	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1384	-	-	-	709
HCM Lane V/C Ratio	-	-	-	-	0.002
HCM Control Delay (s)	0	-	-	-	10.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	44	94	91	106	28
Future Vol, veh/h	13	44	94	91	106	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	150	230	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	14	49	104	101	118	31

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	443	134	149	0	-	0
Stage 1	134	-	-	-	-	-
Stage 2	309	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	574	918	1439	-	-	-
Stage 1	895	-	-	-	-	-
Stage 2	747	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	533	918	1439	-	-	-
Mov Cap-2 Maneuver	533	-	-	-	-	-
Stage 1	831	-	-	-	-	-
Stage 2	747	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	3.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1439	-	533	918	-	-
HCM Lane V/C Ratio	0.073	-	0.027	0.053	-	-
HCM Control Delay (s)	7.7	-	11.9	9.1	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.1	0.2	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	57	122	1	1	0
Future Vol, veh/h	0	57	122	1	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	63	136	1	1	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	137	0	-	0	200	137
Stage 1	-	-	-	-	137	-
Stage 2	-	-	-	-	63	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1453	-	-	-	791	914
Stage 1	-	-	-	-	892	-
Stage 2	-	-	-	-	962	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1453	-	-	-	791	914
Mov Cap-2 Maneuver	-	-	-	-	791	-
Stage 1	-	-	-	-	892	-
Stage 2	-	-	-	-	962	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1453	-	-	-	791
HCM Lane V/C Ratio	-	-	-	-	0.001
HCM Control Delay (s)	0	-	-	-	9.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	43	36	153	70	38	24
Future Vol, veh/h	43	36	153	70	38	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	150	230	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	48	40	170	78	42	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	474	56	69	0	-	0
Stage 1	56	-	-	-	-	-
Stage 2	418	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	551	1013	1538	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	666	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	490	1013	1538	-	-	-
Mov Cap-2 Maneuver	490	-	-	-	-	-
Stage 1	861	-	-	-	-	-
Stage 2	666	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.1	5.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1538	-	490	1013	-	-
HCM Lane V/C Ratio	0.111	-	0.098	0.039	-	-
HCM Control Delay (s)	7.6	-	13.1	8.7	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.4	-	0.3	0.1	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	80	177	1	1	0
Future Vol, veh/h	0	80	177	1	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	89	197	1	1	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	198	0	-	0	287	198
Stage 1	-	-	-	-	198	-
Stage 2	-	-	-	-	89	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1381	-	-	-	706	846
Stage 1	-	-	-	-	838	-
Stage 2	-	-	-	-	937	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1381	-	-	-	706	846
Mov Cap-2 Maneuver	-	-	-	-	706	-
Stage 1	-	-	-	-	838	-
Stage 2	-	-	-	-	937	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1381	-	-	-	706
HCM Lane V/C Ratio	-	-	-	-	0.002
HCM Control Delay (s)	0	-	-	-	10.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	44	95	92	107	28
Future Vol, veh/h	13	44	95	92	107	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	150	230	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	14	49	106	102	119	31

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	449	135	150	0	-	0
Stage 1	135	-	-	-	-	-
Stage 2	314	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	569	917	1437	-	-	-
Stage 1	894	-	-	-	-	-
Stage 2	743	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	527	917	1437	-	-	-
Mov Cap-2 Maneuver	527	-	-	-	-	-
Stage 1	828	-	-	-	-	-
Stage 2	743	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	3.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1437	-	527	917	-	-
HCM Lane V/C Ratio	0.073	-	0.027	0.053	-	-
HCM Control Delay (s)	7.7	-	12	9.1	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.1	0.2	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	58	123	1	1	0
Future Vol, veh/h	0	58	123	1	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	64	137	1	1	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	138	0	-	0	202	138
Stage 1	-	-	-	-	138	-
Stage 2	-	-	-	-	64	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1452	-	-	-	789	913
Stage 1	-	-	-	-	891	-
Stage 2	-	-	-	-	961	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1452	-	-	-	789	913
Mov Cap-2 Maneuver	-	-	-	-	789	-
Stage 1	-	-	-	-	891	-
Stage 2	-	-	-	-	961	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1452	-	-	-	789
HCM Lane V/C Ratio	-	-	-	-	0.001
HCM Control Delay (s)	0	-	-	-	9.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	8.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	158	69	187	70	38	143
Future Vol, veh/h	158	69	187	70	38	143
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	150	230	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	176	77	208	78	42	159

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	616	122	201	0	-	0
Stage 1	122	-	-	-	-	-
Stage 2	494	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	456	932	1377	-	-	-
Stage 1	906	-	-	-	-	-
Stage 2	615	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	387	932	1377	-	-	-
Mov Cap-2 Maneuver	387	-	-	-	-	-
Stage 1	769	-	-	-	-	-
Stage 2	615	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18	5.9	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1377	-	387	932	-	-
HCM Lane V/C Ratio	0.151	-	0.454	0.082	-	-
HCM Control Delay (s)	8.1	-	21.8	9.2	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.5	-	2.3	0.3	-	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	80	177	154	149	16
Future Vol, veh/h	17	80	177	154	149	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	19	89	197	171	166	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	368	0	-	0	410	283
Stage 1	-	-	-	-	283	-
Stage 2	-	-	-	-	127	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1196	-	-	-	600	758
Stage 1	-	-	-	-	767	-
Stage 2	-	-	-	-	901	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1196	-	-	-	590	758
Mov Cap-2 Maneuver	-	-	-	-	590	-
Stage 1	-	-	-	-	754	-
Stage 2	-	-	-	-	901	-

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1196	-	-	-	603
HCM Lane V/C Ratio	0.016	-	-	-	0.304
HCM Control Delay (s)	8.1	0	-	-	13.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	1.3

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	64	59	112	92	107	88
Future Vol, veh/h	64	59	112	92	107	88
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	150	230	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	71	66	124	102	119	98

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	518	168	217	0	-	0
Stage 1	168	-	-	-	-	-
Stage 2	350	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	520	879	1359	-	-	-
Stage 1	864	-	-	-	-	-
Stage 2	716	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	473	879	1359	-	-	-
Mov Cap-2 Maneuver	473	-	-	-	-	-
Stage 1	785	-	-	-	-	-
Stage 2	716	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.8	4.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1359	-	473	879	-	-
HCM Lane V/C Ratio	0.092	-	0.15	0.075	-	-
HCM Control Delay (s)	7.9	-	14	9.4	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0.5	0.2	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	58	123	78	67	7
Future Vol, veh/h	9	58	123	78	67	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	10	64	137	87	74	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	224	0	-	0	265	181
Stage 1	-	-	-	-	181	-
Stage 2	-	-	-	-	84	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1351	-	-	-	726	864
Stage 1	-	-	-	-	853	-
Stage 2	-	-	-	-	942	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1351	-	-	-	720	864
Mov Cap-2 Maneuver	-	-	-	-	720	-
Stage 1	-	-	-	-	846	-
Stage 2	-	-	-	-	942	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1351	-	-	-	732
HCM Lane V/C Ratio	0.007	-	-	-	0.112
HCM Control Delay (s)	7.7	0	-	-	10.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Intersection	
Int Delay, s/veh	8.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	160	70	187	70	38	144
Future Vol, veh/h	160	70	187	70	38	144
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	150	230	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	178	78	208	78	42	160

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	616	122	202	0	-	0
Stage 1	122	-	-	-	-	-
Stage 2	494	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	456	932	1376	-	-	-
Stage 1	906	-	-	-	-	-
Stage 2	615	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	387	932	1376	-	-	-
Mov Cap-2 Maneuver	387	-	-	-	-	-
Stage 1	769	-	-	-	-	-
Stage 2	615	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.1	5.9	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1376	-	387	932	-	-
HCM Lane V/C Ratio	0.151	-	0.459	0.083	-	-
HCM Control Delay (s)	8.1	-	22	9.2	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.5	-	2.3	0.3	-	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	80	177	155	150	17
Future Vol, veh/h	17	80	177	155	150	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	19	89	197	172	167	19

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	369	0	-	0	410	283
Stage 1	-	-	-	-	283	-
Stage 2	-	-	-	-	127	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1195	-	-	-	600	758
Stage 1	-	-	-	-	767	-
Stage 2	-	-	-	-	901	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1195	-	-	-	590	758
Mov Cap-2 Maneuver	-	-	-	-	590	-
Stage 1	-	-	-	-	754	-
Stage 2	-	-	-	-	901	-

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1195	-	-	-	604
HCM Lane V/C Ratio	0.016	-	-	-	0.307
HCM Control Delay (s)	8.1	0	-	-	13.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	1.3

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	65	59	112	92	107	89
Future Vol, veh/h	65	59	112	92	107	89
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	150	230	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	72	66	124	102	119	99

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	519	169	218	0	-	0
Stage 1	169	-	-	-	-	-
Stage 2	350	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	519	878	1358	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	716	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	472	878	1358	-	-	-
Mov Cap-2 Maneuver	472	-	-	-	-	-
Stage 1	784	-	-	-	-	-
Stage 2	716	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.8	4.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1358	-	472	878	-	-
HCM Lane V/C Ratio	0.092	-	0.153	0.075	-	-
HCM Control Delay (s)	7.9	-	14	9.4	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0.5	0.2	-	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	58	123	79	68	7
Future Vol, veh/h	9	58	123	79	68	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	10	64	137	88	76	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	225	0	-	0	265	181
Stage 1	-	-	-	-	181	-
Stage 2	-	-	-	-	84	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1350	-	-	-	726	864
Stage 1	-	-	-	-	853	-
Stage 2	-	-	-	-	942	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1350	-	-	-	720	864
Mov Cap-2 Maneuver	-	-	-	-	720	-
Stage 1	-	-	-	-	846	-
Stage 2	-	-	-	-	942	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1350	-	-	-	731
HCM Lane V/C Ratio	0.007	-	-	-	0.114
HCM Control Delay (s)	7.7	0	-	-	10.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	46	38	160	73	40	25
Future Vol, veh/h	46	38	160	73	40	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	150	230	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	51	42	178	81	44	28

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	495	58	72	0	-	0
Stage 1	58	-	-	-	-	-
Stage 2	437	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	536	1011	1534	-	-	-
Stage 1	967	-	-	-	-	-
Stage 2	653	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	474	1011	1534	-	-	-
Mov Cap-2 Maneuver	474	-	-	-	-	-
Stage 1	855	-	-	-	-	-
Stage 2	653	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.3	5.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1534	-	474	1011	-	-
HCM Lane V/C Ratio	0.116	-	0.108	0.042	-	-
HCM Control Delay (s)	7.7	-	13.5	8.7	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.4	-	0.4	0.1	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	84	186	1	1	0
Future Vol, veh/h	0	84	186	1	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	93	207	1	1	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	208	0	-	0	301	208
Stage 1	-	-	-	-	208	-
Stage 2	-	-	-	-	93	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1369	-	-	-	693	835
Stage 1	-	-	-	-	829	-
Stage 2	-	-	-	-	933	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1369	-	-	-	693	835
Mov Cap-2 Maneuver	-	-	-	-	693	-
Stage 1	-	-	-	-	829	-
Stage 2	-	-	-	-	933	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1369	-	-	-	693
HCM Lane V/C Ratio	-	-	-	-	0.002
HCM Control Delay (s)	0	-	-	-	10.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	14	47	100	97	113	30
Future Vol, veh/h	14	47	100	97	113	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	150	230	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	16	52	111	108	126	33

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	473	143	159	0	-	0
Stage 1	143	-	-	-	-	-
Stage 2	330	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	552	907	1427	-	-	-
Stage 1	887	-	-	-	-	-
Stage 2	731	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	509	907	1427	-	-	-
Mov Cap-2 Maneuver	509	-	-	-	-	-
Stage 1	818	-	-	-	-	-
Stage 2	731	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	3.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1427	-	509	907	-	-
HCM Lane V/C Ratio	0.078	-	0.031	0.058	-	-
HCM Control Delay (s)	7.7	-	12.3	9.2	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0.1	0.2	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	61	130	1	1	0
Future Vol, veh/h	0	61	130	1	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	68	144	1	1	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	145	0	-	0	213	145
Stage 1	-	-	-	-	145	-
Stage 2	-	-	-	-	68	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1443	-	-	-	778	905
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	957	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1443	-	-	-	778	905
Mov Cap-2 Maneuver	-	-	-	-	778	-
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	957	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1443	-	-	-	778
HCM Lane V/C Ratio	-	-	-	-	0.001
HCM Control Delay (s)	0	-	-	-	9.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	8.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	160	71	194	73	40	144
Future Vol, veh/h	160	71	194	73	40	144
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	150	230	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	178	79	216	81	44	160

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	637	124	204	0	-	0
Stage 1	124	-	-	-	-	-
Stage 2	513	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	443	929	1374	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	603	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	373	929	1374	-	-	-
Mov Cap-2 Maneuver	373	-	-	-	-	-
Stage 1	762	-	-	-	-	-
Stage 2	603	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.8	5.9	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1374	-	373	929	-	-
HCM Lane V/C Ratio	0.157	-	0.477	0.085	-	-
HCM Control Delay (s)	8.1	-	23.1	9.2	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.6	-	2.5	0.3	-	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	84	186	154	149	16
Future Vol, veh/h	17	84	186	154	149	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	19	93	207	171	166	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	378	0	-	0	424	293
Stage 1	-	-	-	-	293	-
Stage 2	-	-	-	-	131	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1186	-	-	-	589	749
Stage 1	-	-	-	-	759	-
Stage 2	-	-	-	-	898	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1186	-	-	-	579	749
Mov Cap-2 Maneuver	-	-	-	-	579	-
Stage 1	-	-	-	-	746	-
Stage 2	-	-	-	-	898	-

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	13.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1186	-	-	-	592
HCM Lane V/C Ratio	0.016	-	-	-	0.31
HCM Control Delay (s)	8.1	0	-	-	13.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	1.3

Intersection	
Int Delay, s/veh	4.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	65	61	117	97	113	89
Future Vol, veh/h	65	61	117	97	113	89
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	150	230	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	72	68	130	108	126	99

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	544	176	225	0	-	0
Stage 1	176	-	-	-	-	-
Stage 2	368	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	502	870	1350	-	-	-
Stage 1	857	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	454	870	1350	-	-	-
Mov Cap-2 Maneuver	454	-	-	-	-	-
Stage 1	775	-	-	-	-	-
Stage 2	702	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12	4.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1350	-	454	870	-	-
HCM Lane V/C Ratio	0.096	-	0.159	0.078	-	-
HCM Control Delay (s)	8	-	14.4	9.5	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0.6	0.3	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	61	130	78	67	7
Future Vol, veh/h	9	61	130	78	67	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	10	68	144	87	74	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	231	0	-	0	276	188
Stage 1	-	-	-	-	188	-
Stage 2	-	-	-	-	88	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1343	-	-	-	716	857
Stage 1	-	-	-	-	846	-
Stage 2	-	-	-	-	938	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1343	-	-	-	710	857
Mov Cap-2 Maneuver	-	-	-	-	710	-
Stage 1	-	-	-	-	839	-
Stage 2	-	-	-	-	938	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1343	-	-	-	722
HCM Lane V/C Ratio	0.007	-	-	-	0.114
HCM Control Delay (s)	7.7	0	-	-	10.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Intersection	
Int Delay, s/veh	8.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	162	71	194	73	40	145
Future Vol, veh/h	162	71	194	73	40	145
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	150	230	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	180	79	216	81	44	161

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	638	125	205	0	-	0
Stage 1	125	-	-	-	-	-
Stage 2	513	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	442	928	1372	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	603	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	373	928	1372	-	-	-
Mov Cap-2 Maneuver	373	-	-	-	-	-
Stage 1	761	-	-	-	-	-
Stage 2	603	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19	5.9	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1372	-	373	928	-	-
HCM Lane V/C Ratio	0.157	-	0.483	0.085	-	-
HCM Control Delay (s)	8.1	-	23.3	9.2	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.6	-	2.5	0.3	-	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	84	186	155	150	17
Future Vol, veh/h	17	84	186	155	150	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	19	93	207	172	167	19

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	379	0	-	0	424	293
Stage 1	-	-	-	-	293	-
Stage 2	-	-	-	-	131	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1185	-	-	-	589	749
Stage 1	-	-	-	-	759	-
Stage 2	-	-	-	-	898	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1185	-	-	-	579	749
Mov Cap-2 Maneuver	-	-	-	-	579	-
Stage 1	-	-	-	-	746	-
Stage 2	-	-	-	-	898	-

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	13.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1185	-	-	-	593
HCM Lane V/C Ratio	0.016	-	-	-	0.313
HCM Control Delay (s)	8.1	0	-	-	13.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	1.3

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	66	62	117	97	113	91
Future Vol, veh/h	66	62	117	97	113	91
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	150	230	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	73	69	130	108	126	101

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	545	177	227	0	-	0
Stage 1	177	-	-	-	-	-
Stage 2	368	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	501	869	1347	-	-	-
Stage 1	856	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	452	869	1347	-	-	-
Mov Cap-2 Maneuver	452	-	-	-	-	-
Stage 1	773	-	-	-	-	-
Stage 2	702	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.1	4.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1347	-	452	869	-	-
HCM Lane V/C Ratio	0.097	-	0.162	0.079	-	-
HCM Control Delay (s)	8	-	14.5	9.5	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0.6	0.3	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	61	130	79	68	7
Future Vol, veh/h	9	61	130	79	68	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	10	68	144	88	76	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	232	0	-	0	276	188
Stage 1	-	-	-	-	188	-
Stage 2	-	-	-	-	88	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1342	-	-	-	716	857
Stage 1	-	-	-	-	846	-
Stage 2	-	-	-	-	938	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1342	-	-	-	710	857
Mov Cap-2 Maneuver	-	-	-	-	710	-
Stage 1	-	-	-	-	839	-
Stage 2	-	-	-	-	938	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1342	-	-	-	722
HCM Lane V/C Ratio	0.007	-	-	-	0.115
HCM Control Delay (s)	7.7	0	-	-	10.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	53	44	186	85	47	30
Future Vol, veh/h	53	44	186	85	47	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	150	230	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	59	49	207	94	52	33

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	577	69	85	0	-	0
Stage 1	69	-	-	-	-	-
Stage 2	508	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	480	997	1518	-	-	-
Stage 1	956	-	-	-	-	-
Stage 2	606	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	415	997	1518	-	-	-
Mov Cap-2 Maneuver	415	-	-	-	-	-
Stage 1	826	-	-	-	-	-
Stage 2	606	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.2	5.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1518	-	415	997	-	-
HCM Lane V/C Ratio	0.136	-	0.142	0.049	-	-
HCM Control Delay (s)	7.7	-	15.1	8.8	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.5	-	0.5	0.2	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	97	216	1	1	0
Future Vol, veh/h	0	97	216	1	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	108	240	1	1	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	241	0	-	0	349	241
Stage 1	-	-	-	-	241	-
Stage 2	-	-	-	-	108	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1331	-	-	-	650	800
Stage 1	-	-	-	-	801	-
Stage 2	-	-	-	-	919	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1331	-	-	-	650	800
Mov Cap-2 Maneuver	-	-	-	-	650	-
Stage 1	-	-	-	-	801	-
Stage 2	-	-	-	-	919	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1331	-	-	-	650
HCM Lane V/C Ratio	-	-	-	-	0.002
HCM Control Delay (s)	0	-	-	-	10.5
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	16	54	116	112	131	35
Future Vol, veh/h	16	54	116	112	131	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	150	230	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	18	60	129	124	146	39

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	548	166	185	0	-	0
Stage 1	166	-	-	-	-	-
Stage 2	382	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	499	881	1396	-	-	-
Stage 1	866	-	-	-	-	-
Stage 2	692	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	453	881	1396	-	-	-
Mov Cap-2 Maneuver	453	-	-	-	-	-
Stage 1	786	-	-	-	-	-
Stage 2	692	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.3	4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1396	-	453	881	-	-
HCM Lane V/C Ratio	0.092	-	0.039	0.068	-	-
HCM Control Delay (s)	7.8	-	13.3	9.4	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0.1	0.2	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	70	150	1	1	0
Future Vol, veh/h	0	70	150	1	1	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	0	78	167	1	1	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	168	0	-	0	246	168
Stage 1	-	-	-	-	168	-
Stage 2	-	-	-	-	78	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1416	-	-	-	745	879
Stage 1	-	-	-	-	864	-
Stage 2	-	-	-	-	948	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1416	-	-	-	745	879
Mov Cap-2 Maneuver	-	-	-	-	745	-
Stage 1	-	-	-	-	864	-
Stage 2	-	-	-	-	948	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1416	-	-	-	745
HCM Lane V/C Ratio	-	-	-	-	0.001
HCM Control Delay (s)	0	-	-	-	9.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	10.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	168	77	220	85	47	149
Future Vol, veh/h	168	77	220	85	47	149
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	150	230	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	187	86	244	94	52	166

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	717	135	218	0	-	0
Stage 1	135	-	-	-	-	-
Stage 2	582	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	398	917	1358	-	-	-
Stage 1	894	-	-	-	-	-
Stage 2	561	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	326	917	1358	-	-	-
Mov Cap-2 Maneuver	326	-	-	-	-	-
Stage 1	733	-	-	-	-	-
Stage 2	561	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.4	5.9	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1358	-	326	917	-	-
HCM Lane V/C Ratio	0.18	-	0.573	0.093	-	-
HCM Control Delay (s)	8.2	-	29.8	9.3	-	-
HCM Lane LOS	A	-	D	A	-	-
HCM 95th %tile Q(veh)	0.7	-	3.4	0.3	-	-

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	97	216	154	149	16
Future Vol, veh/h	17	97	216	154	149	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	19	108	240	171	166	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	411	0	-	0	472	326
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	146	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1153	-	-	-	552	718
Stage 1	-	-	-	-	734	-
Stage 2	-	-	-	-	884	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1153	-	-	-	542	718
Mov Cap-2 Maneuver	-	-	-	-	542	-
Stage 1	-	-	-	-	721	-
Stage 2	-	-	-	-	884	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1153	-	-	-	555
HCM Lane V/C Ratio	0.016	-	-	-	0.33
HCM Control Delay (s)	8.2	0	-	-	14.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	1.4

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	67	69	133	112	131	94
Future Vol, veh/h	67	69	133	112	131	94
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	150	230	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	74	77	148	124	146	104

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	618	198	250	0	-	0
Stage 1	198	-	-	-	-	-
Stage 2	420	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	454	846	1321	-	-	-
Stage 1	838	-	-	-	-	-
Stage 2	665	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	403	846	1321	-	-	-
Mov Cap-2 Maneuver	403	-	-	-	-	-
Stage 1	744	-	-	-	-	-
Stage 2	665	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.8	4.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1321	-	403	846	-	-
HCM Lane V/C Ratio	0.112	-	0.185	0.091	-	-
HCM Control Delay (s)	8.1	-	15.9	9.7	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.4	-	0.7	0.3	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	70	150	78	67	7
Future Vol, veh/h	9	70	150	78	67	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	10	78	167	87	74	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	254	0	-	0	309	211
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	98	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1317	-	-	-	685	832
Stage 1	-	-	-	-	827	-
Stage 2	-	-	-	-	928	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1317	-	-	-	680	832
Mov Cap-2 Maneuver	-	-	-	-	680	-
Stage 1	-	-	-	-	820	-
Stage 2	-	-	-	-	928	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	10.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1317	-	-	-	692
HCM Lane V/C Ratio	0.008	-	-	-	0.119
HCM Control Delay (s)	7.8	0	-	-	10.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Intersection	
Int Delay, s/veh	10.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	169	78	220	85	47	149
Future Vol, veh/h	169	78	220	85	47	149
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	150	230	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	188	87	244	94	52	166

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	717	135	218	0	-	0
Stage 1	135	-	-	-	-	-
Stage 2	582	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	398	917	1358	-	-	-
Stage 1	894	-	-	-	-	-
Stage 2	561	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	326	917	1358	-	-	-
Mov Cap-2 Maneuver	326	-	-	-	-	-
Stage 1	733	-	-	-	-	-
Stage 2	561	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.5	5.9	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1358	-	326	917	-	-
HCM Lane V/C Ratio	0.18	-	0.576	0.095	-	-
HCM Control Delay (s)	8.2	-	30	9.3	-	-
HCM Lane LOS	A	-	D	A	-	-
HCM 95th %tile Q(veh)	0.7	-	3.4	0.3	-	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	97	216	155	150	17
Future Vol, veh/h	17	97	216	155	150	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	19	108	240	172	167	19

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	412	0	-	0	472	326
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	146	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1152	-	-	-	552	718
Stage 1	-	-	-	-	734	-
Stage 2	-	-	-	-	884	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1152	-	-	-	542	718
Mov Cap-2 Maneuver	-	-	-	-	542	-
Stage 1	-	-	-	-	721	-
Stage 2	-	-	-	-	884	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1152	-	-	-	556
HCM Lane V/C Ratio	0.016	-	-	-	0.334
HCM Control Delay (s)	8.2	0	-	-	14.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	1.5

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	68	69	133	112	131	95
Future Vol, veh/h	68	69	133	112	131	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	150	230	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	76	77	148	124	146	106

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	619	199	252	0	-	0
Stage 1	199	-	-	-	-	-
Stage 2	420	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	454	845	1319	-	-	-
Stage 1	837	-	-	-	-	-
Stage 2	665	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	403	845	1319	-	-	-
Mov Cap-2 Maneuver	403	-	-	-	-	-
Stage 1	743	-	-	-	-	-
Stage 2	665	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.8	4.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1319	-	403	845	-	-
HCM Lane V/C Ratio	0.112	-	0.187	0.091	-	-
HCM Control Delay (s)	8.1	-	16	9.7	-	-
HCM Lane LOS	A	-	C	A	-	-
HCM 95th %tile Q(veh)	0.4	-	0.7	0.3	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	70	150	79	68	7
Future Vol, veh/h	9	70	150	79	68	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	10	78	167	88	76	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	255	0	-	0	309	211
Stage 1	-	-	-	-	211	-
Stage 2	-	-	-	-	98	-
Critical Hdwy	4.11	-	-	-	6.41	6.21
Critical Hdwy Stg 1	-	-	-	-	5.41	-
Critical Hdwy Stg 2	-	-	-	-	5.41	-
Follow-up Hdwy	2.209	-	-	-	3.509	3.309
Pot Cap-1 Maneuver	1316	-	-	-	685	832
Stage 1	-	-	-	-	827	-
Stage 2	-	-	-	-	928	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1316	-	-	-	680	832
Mov Cap-2 Maneuver	-	-	-	-	680	-
Stage 1	-	-	-	-	820	-
Stage 2	-	-	-	-	928	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	10.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1316	-	-	-	692
HCM Lane V/C Ratio	0.008	-	-	-	0.12
HCM Control Delay (s)	7.8	0	-	-	10.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

ATTACHMENT D – BC TRANSIT NETWORK MAP AND SCHEDULE

Ladysmith

31 Ladysmith / Alderwood

Monday through Friday

(FS) 1st and Symonds	(SC) Seniors Centre	(MS) Malone and 6th	(LH) Ladysmith Health Centre	(BA) Birchwood and Alderwood	(LH) Ladysmith Health Centre	(SC) Seniors Centre	(FS) 1st and Symonds
6:30	6:32	6:37	6:42	6:46	6:49	6:52	6:55
8:25	8:27	8:32	8:37	8:41	8:44	8:47	8:50
10:40	10:42	10:47	10:52	10:56	10:59	11:02	11:05
11:15	11:17	11:22	11:27	11:31	11:34	11:37	11:40
2:55	**2:57**	**3:02**	**3:07**	**3:11**	**3:14**	**3:17**	**3:20**
5:55	**5:57**	**6:02**	**6:07**	**6:11**	**6:14**	**6:17**	**6:20**
Saturday							
8:05	8:07	8:12	8:17	8:21	8:24	8:27	8:30
9:25	9:27	9:32	9:37	9:41	9:44	9:47	9:50
11:30	11:32	11:37	11:42	11:46	11:49	11:52	11:55
1:45	**1:47**	**1:52**	**1:57**	**2:01**	**2:04**	**2:07**	**2:10**
4:00	**4:02**	**4:07**	**4:12**	**4:16**	**4:19**	**4:22**	**4:25**
5:15	**5:17**	**5:22**	**5:27**	**5:31**	**5:34**	**5:37**	**5:40**

Note: No service Sunday or statutory holidays.

34 Ladysmith / Chemainus

Monday through Friday

(FS) 1st and Symonds	(CM) Coronation Mall	(WT) Westdowne and Town and Country	(CS) Pine and Chemainus	(CS) Pine and Chemainus	(CM) Coronation Mall	(FS) 1st and Symonds
To Chemainus				**To Ladysmith**		
9:00	9:07	9:13	9:24	9:24	9:38	9:45
9:52	9:59	10:05	10:16	10:16	10:30	10:37
11:44	11:51	11:57	**12:08**	**12:08**	**12:22**	**12:29**
3:24	**3:31**	**3:37**	**3:48**	**3:48**	**4:02**	**4:09**
Saturday						
8:35	8:42	8:48	8:59	8:59	9:13	9:20
12:05	**12:12**	**12:18**	**12:29**	**12:29**	**12:43**	**12:50**
12:55	**1:02**	**1:08**	**1:19**	**1:19**	**1:33**	**1:40**
4:29	**4:36**	**4:42**	**4:53**	**4:53**	**5:07**	**5:14**

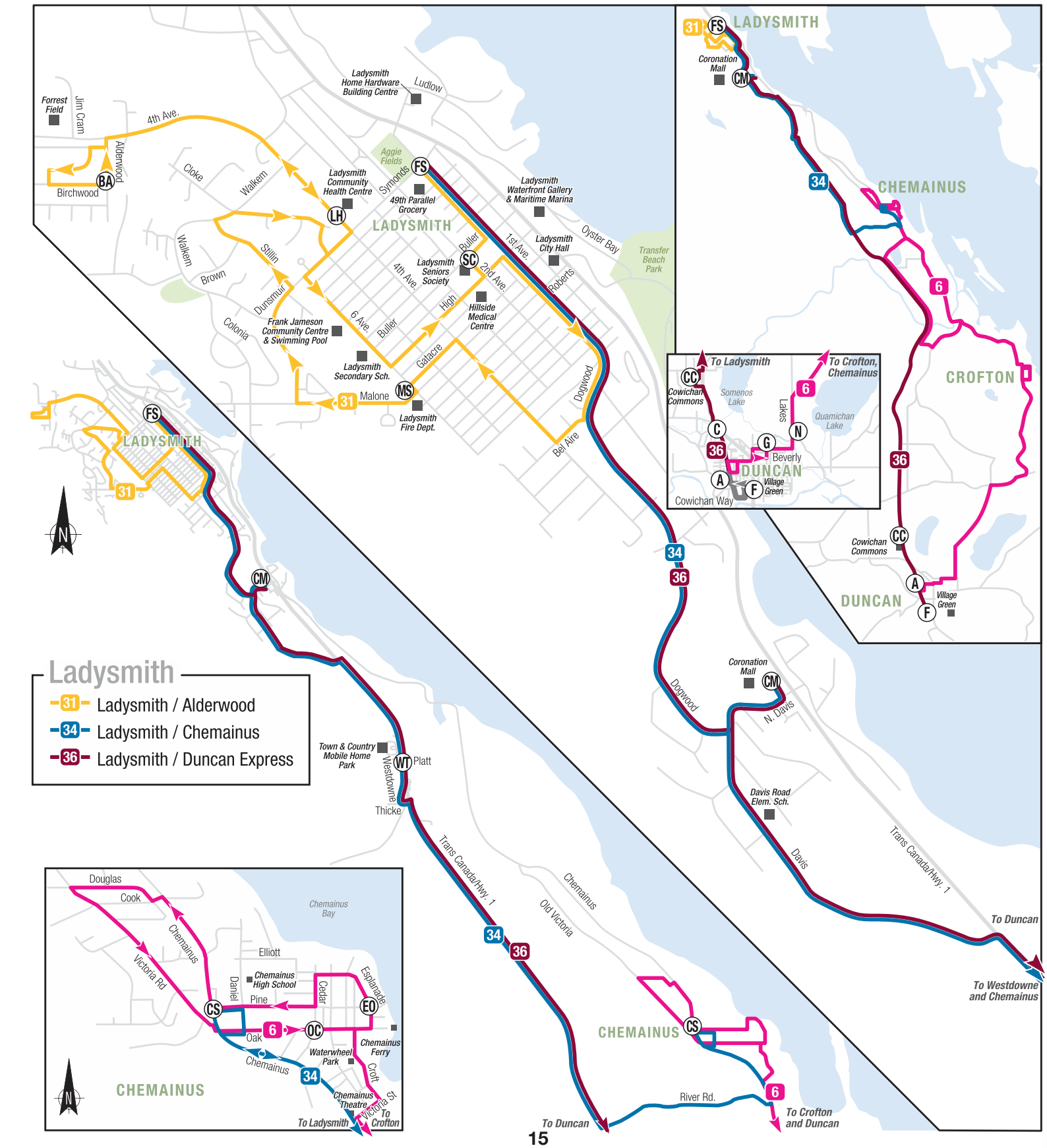
Note: No service Sunday or statutory holidays.

36 Ladysmith / Duncan Express

Monday through Friday

(FS) 1st and Symonds	(CM) Coronation Mall	(WT) Westdowne and Town and Country	(CC) Cowichan Commons	(A) Duncan Train Station	(F) Village Green Mall: London Drugs	(F) Village Green Mall: London Drugs	(A) Duncan Train Station	(CC) Cowichan Commons	(CM) Coronation Mall	(FS) 1st and Symonds
To Duncan						**To Ladysmith**				
6:57	7:04	7:10	7:27	7:33	7:37	7:45	7:48	7:55	8:17	8:24
12:35	**12:42**	**12:48**	**1:05**	**1:11**	**1:15**	**2:10**	**2:13**	**2:20**	**2:42**	**2:49**
4:22	**4:29**	**4:35**	**4:52**	**4:58**	**5:02**	**5:15**	**5:18**	**5:25**	**5:47**	**5:54**
6:25	**6:32**	**6:38**	**6:55**	**7:01**	**7:05**	—	—	—	—	—
Saturday										
9:55	10:02	10:08	10:25	10:31	10:35	10:45	10:48	10:55	11:17	11:24
2:15	**2:22**	**2:28**	**2:45**	**2:51**	**2:55**	**3:15**	**3:18**	**3:25**	**3:47**	**3:54**

Note: No service Sunday or statutory holidays.


Ladysmith
31 Ladysmith / Alderwood
34 Ladysmith / Chemainus
36 Ladysmith / Duncan Express
LADYSMITH
CHEMAINUS
CROFTON
DUNCAN
Forrest Field
Jim Cram
Alderwood
Birchwood
4th Ave.
Cloke
Walkem
Ladysmith Community Health Centre
Ladysmith Home Hardware Building Centre
Ludlow
Aggie Fields
Symonds
49th Parallel Grocery
Ladysmith Waterfront Gallery & Maritime Marina
Oyster Bay
Transfer Beach Park
Ladysmith City Hall
Roberts
1st Ave.
2nd Ave.
Buller
Ladysmith Seniors Society
4th Ave.
High
Hillside Medical Centre
Brown
Stillin
Dunsmuir
Colonia
Frank Jameson Community Centre & Swimming Pool
6 Ave.
Ladysmith Secondary Sch.
Gatacre
Malone
Ladysmith Fire Dept.
Dogwood
Bel Aire
Coronation Mall
Cowichan Commons
Somenos Lake
Lakes
Quamichan Lake
To Ladysmith
To Crofton, Chemainus
Beverly
Village Green
Cowichan Way
Town & Country Mobile Home Park
Westdowne
Thicke
Platt
Trans Canada/Hwy. 1
Chemainus
Old Victoria
N. Davis
Davis Road Elem. Sch.
Davis
To Duncan
To Westdowne and Chemainus
River Rd.
To Crofton and Duncan
Douglas
Cook
Victoria Rd
Chemainus Bay
Elliott
Chemainus High School
Daniel
Pine
Cedar
Esplanade
Oak
Waterwheel Park
Chemainus Ferry
Croft
Chemainus Theatre
Victoria St.
To Ladysmith
To Crofton

ATTACHMENT E – LADYSMITH BICYCLE PLAN CYCLING NETWORK MAP

Figure 2 – Bicycle Route Network